report

prioritisation of high conservation status offshore islands

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Table of Contents

Executive Summary

The Australian Government Department of the Environment, Water, Heritage & the Arts (DEWHA) required an independent national assessment of the conservation value of Australia's offshore islands, and the specific vertebrate pest management issues on these islands. Australia has approximately 8 300 offshore islands, including small rocks which are often associated with larger islands; too many for effective investment of funds to secure biodiversity values into the future. A priority list of 100 islands of high conservation status is needed to help guide future government investment on offshore islands.

This report presents our assessment of the conservation status of Australia's offshore islands. In collaboration with Dr Ray Pierce (Eco Oceania Ltd) we conducted a detailed assessment of key island biodiversity, comprising threatened species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and/or state/territory legislation, as well as listed EPBC Marine and/or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA). This 'biodiversity value' assessment was followed by an evaluation of the types and status of vertebrate pests on those islands (intrinsic feral 'value'), supplemented by a matrix of species-specific impacts, island by island. For example, a non-climbing Red Fox will have a greater impact on small ground-dwelling mammals than it will on arboreal species.

Herewithin we provide:

- a priority list of 100 high conservation status islands of at least 200 ha in area, indicating the top and lower 50 qualifying islands
- a summary list of additional islands that were fully evaluated, but did not make the priority 100 list
- a summary list of smaller islands (< 200 ha) which we believe should be examined more closely
- profiles for the 100 priority islands, including their geographical context, additional ecological and environmental values, management issues and our island specific recommended actions, and
- overall recommendations to help guide future DEWHA investment.

Our results represent the climatic, geographical, topographical, biological and ecological diversity of Australia's offshore islands. Priority islands (> 200 ha) occur in the oceans all around Australia, in all states and territories with coastline and offshore waters:

- 26 are in Queensland
- 23 are in Western Australia
- 19 are in the Northern Territory
- 15 are in Tasmania

- 11 are in Victoria
- 5 are in South Australia, and
- 1 is in NSW (Lord Howe Island).

Priority islands ranged in area from 202 ha (Boodie Island, WA) to 578 577 ha (Melville Island, NT). Some are near the mainland (e.g. Bribie and North Stradbroke islands, QLD), and may even be linked by sand spits at low tides (e.g. Dolphin Island, WA), others are extremely remote (e.g. Macquarie, TAS). Some islands qualified in the list based largely on the number and type of Migratory and/or Marine seabirds and/or shorebirds that utilise the islands for breeding (e.g. Phillip Island, VIC). Others have endangered small mammals that are at risk of extinction or already no longer occur on the mainland (e.g. Bernier and Dorre islands, WA and Groote Island, NT). Others still had significant biodiversity representation among both fauna and flora (e.g. Fraser Island, QLD and French Island, VIC). Detailed consideration of smaller islands (< 200 ha) may yield a different distribution of high conservation status islands. However, any island assessment is limited by the available data. Many islands are little surveyed, and others that are well surveyed do not have easily accessible data.

Worldwide, offshore islands provide unique ecosystems and present the opportunity for protecting species that may be driven to extinction on mainlands where feral pests are much more difficult to eradicate. Australia's islands are no exception, and their potential importance for safeguarding Australia's native biodiversity cannot be overstated. Vertebrate pests are one of the most pressing challenges placing refugial island biodiversity at risk. Many commendable pest management plans have already been implemented on islands (e.g. Lord Howe Island, NSW and Macquarie Island, TAS), and feral pests have been eradicated from some (e.g. islands in the Dampier Archipelago, WA), but many, if not all, are in need of additional resources to ensure that pest free status is achieved where possible, and maintained if achieved. For others, maintaining low feral populations is the most practicable option.

We hope that this assessment provides a solid foundation on which investment decisions can be made for Australia's offshore islands. However, we would like to emphasise that this assessment is a snapshot in time, and we encourage the ongoing maintenance of island biodiversity and feral species datasets so that threats to island biodiversity can be continually assessed and appropriate measures taken to safeguard our ecological heritage into the future.

Acronyms

ABSA	Australian Bird Study Association
APAMP	Australian Pest Animal Management Program (replaced NFACP), DAFF
ATSIP	Aboriginal and Torres Strait Islander Partnerships
AusBIOSEC	Australian Biosecurity System for Primary Production & the Environment
ACT	Australian Capital Territory, Australia
BioSIRT	Biosecurity, Surveillance, Incident Response & Tracing
BRS	Bureau of Rural Sciences (formerly Bureau of Resource Sciences)
CAMBA	China–Australia Migratory Bird Agreement
CALM	former Western Australian Department of Conservation and Land Management
CR	threatened species listed as Critically Endangered
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Australian Government Department of Agriculture, Fisheries & Forestry
DEC	Western Australian Government Department of Environment and Conservation
DECC	NSW Department of Conservation and Climate Change
DEH	former Australian Government Department of Environment & Heritage (now DEWHA); also, South Australian Department of Environment & Heritage
DERM	recently formed Queensland Government Department of Natural Resources and Water/Environmental Protection Agency
DEWR	former Australian Government Department of Environment, Water and Resources (now DEWHA)
DEWHA	Department of the Environment, Water, Heritage & the Arts
DIWA	Directory of Important Wetlands in Australia
DPIWE	former Department of Primary Industries, Water and Environment, Tasmania (now DPIPWE)
DPIPWE	Department of Primary Industries, Parks, Water and Environment, Tasmania
DSE	Department of Sustainability and the Environment, Victoria
EDOWA	Environmental Defender's Office WA Inc
EN	threatened species listed as Endangered
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERIN	Environmental Resource Information Network, DEWHA
GBRMPA	Great Barrier Reef Marine Park Authority
GIS	Geographic Information System

ESRI	a company that designs and develops geographic information system (GIS) technology.
IA CRC	Invasive Animals Cooperative Research Centre
IUCN	International Union for the Conservation of Nature
ISSG	Invasive Species Specialist Group (IUCN/SSC)
JAMBA	Japan–Australia Migratory Bird Agreement
NFACP	National Feral Animal Control Program; ran from 1996-2008 under the Natural Heritage Trust.
NM&EF	National Natural Resource Management Monitoring & Evaluation Framework
NLWRA	National Land & Water Resources Audit
NT	Northern Territory, Australia
NRETAS	Northern Territory Department of Natural Resources, Environment, the Arts and Sport
NSW	State of New South Wales, Australia
NZ	New Zealand
NZ DOC	New Zealand Department of Conservation
QLD	State of Queensland, Australia
QPWS	Queensland Parks and Wildlife Service
ROKAMBA	Republic of Korea–Australia Migratory Bird Agreement
SA	State of South Australia, Australia
SPRAT	DEWHA's Species Profiles and Threats Database
SSC	IUCN Species Survival Commission
TAP	Threat Abatement Plan
TAS	State of Tasmania, Australia
VIC	State of Victoria, Australia
VPC	Australian Vertebrate Pests Committee
VU	threatened species listed as Vulnerable
WA	State of Western Australia, Australia

Glossary

1080	sodium fluoroacetate or compound 1080 is a commonly used pesticide
abiotic	non-living chemical and physical factors in the environment
Aeolian	a time reference for the occurrence of prehistoric geomorphological processes.
alluvial	a geomorphological process whereby soil or sediments deposited by a river or other running water
amensal	an interaction between coexisting populations of different species, where one is adversely affected and the other unaffected.
anthropogenic	effects, processes or materials are those that are derived from human activities
archipelago	a chain or cluster of islands
atoll	is an island of coral, typically encircling a lagoon
Australian Biosecurity System for Primary Production & the Environment	a framework of common principles and guidelines to enable biosecurity arrangements to be applied consistently across Australia (DEWHA definition)
birridas	unusual gypsum claypans that were originally land-locked saline lakes
Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS) signed in 1979 in Bonn and entered into force in 1983
calcarenite	also known as dune rock or dune limestone, is a rock formed by the trickling movement of water through a mixture of shell fragments and quartz sand causing the dissolved lime to cement the mass together
chenopod	any plant of the goosefoot family, which includes spinach, beets, and pigweed.
colluvial	loose bodies of sediment that have been deposited or built up at the bottom of a low-grade slope or against a barrier on that slope, transported by gravity
dolerite	an intrusive igneous rock similar to volcanic basalt.
ecological community	an assemblage of organisms characterised by a distinctive combination of species occupying a common environment and interacting with one another
empirical	empirical data are those p roduced b y experiment or observation
Eocene	a time reference for the occurrence of prehistoric geomorphological processes
EPBC Act	the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*

environmental biosecurity	protection of the environment & social amenity from the negative effects associated with invasive species; including weeds, pests & diseases. It occurs across the entire biosecurity continuum: pre-border preparedness, border protection & post-border management & control (DEWHA definition)
Erith Mob	a group from Melbourne, whose summer pilgrimage originated with historian Stephen Murray-Smith in the 1960s
exotic animal	an animal that is outside its natural range, either through introduction from another country, or translocation within the same country/continent
feral animal	a non-native animal that has escaped from captivity, or a translocated native animal, that has established a self-sustaining population independent of humans
Invasive Species	organisms (usually transported by humans) which successfully establish themselves in, & then overcome, otherwise intact, pre-existing native ecosystems (IUCN definition)
invertebrate	an animal without a backbone or spinal chord; e.g. insects, snails (molluscs), crabs and other marine crustaceans
isthmus	a narrow strip of land connecting two larger land areas
pest	an animal that causes significant damage to a valued resource; the pest status of an animal can change with time, between areas or according to the perception of the assessor
Ramsar Convention	Convention on Wetlands of [International Importance, Especially as Waterfowl Habitat] signed in Ramsar, Iran, in 1971
Ramsar wetland	a wetland that is designated as being of international importance under the Ramsar Convention
rill	a small channel, such as one formed by soil erosion
talus	a steep slope, scree
Threat Abatement Plan	Threat abatement plans provide for the research, management, & any other actions necessary to reduce the impact of a listed key threatening process on native species & ecological communities (DEWHA definition)
Threatening Process	a Threatening Process is one which threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community (EPBC Act definition)
translocation	the capture, transport & release or introduction of species from one location to another by humans.
tors	Large granite boulders
vertebrate	an animal with a backbone or spinal column; e.g. amphibians, birds, fish, mammals and reptiles

Vertebrate Pests Committee	body of representatives from the Australian Government, the Australian states & territories, CSIRO & New Zealand; provides coordinated policy & planning solutions to pest animal issues

Nomenclature

Scientific and common names for species of fauna and flora are used in accordance with species' listings and information available from DEWHA, such as in the Species Profiles and Threats Database (SPRAT), which is available online (www.environment.gov.au). Accordingly, common names are capitalised for listed threatened fauna and flora, and also for vertebrate pest species (see Appendix A, B and C). Capitals are used when the species is referred to (e.g. Black Rat), but lower case is used in the plural (e.g. black rats or rats).

The accepted common name for some vertebrate pests refers to domesticated species e.g. Domestic Dog and Domestic Goose (Appendix A). However, the 'pest' status of such species on islands, as considered in this report, typically refers to wild, unmanaged (i.e. feral) animals, and not those that are kept as pets.

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1 Introduction

1.1 Background & scope

The Australian Government began the process of identifying and prioritising the biodiversity values of its offshore islands in 2005. As part of this process, the Department of Environment, Water, Heritage and the Arts (DEWHA) developed a national database with summary information about the introduced species that have been documented at some point in time on Australia's offshore islands (DEWHA 2009a, b). In March 2009, DEWHA contracted Ecosure Pty Ltd to conduct a detailed independent analysis of the conservation values (e.g. level of biodiversity) of Australia's offshore islands and to develop a priority listing of the 100 highest rated islands which:

a. may be adversely impacted by vertebrate invasive species; or

b. are at high risk of invasions from vertebrate invasive species.

Here we report on the results of this assessment and provide recommendations to help inform future Australian Government investment in the protection of Australia's island biodiversity and vertebrate invasive species management on individual islands.

1.2 Offshore islands

Oceanic islands have long been recognised as providing refugia for biodiversity globally (Groombridge and Jenkins 2002). With increasing human pressures internationally, including potentially destructive effects of climate change, the importance of islands as biodiversity refugia will undoubtedly increase.

Islands play a significant role in the conservation of Australia's flora and fauna (Rankmore 2005). Australia's offshore islands provide breeding sites and important refugia for many threatened species, including species that are endemic to particular islands or groups of islands (DEWHA 2009a). Some offshore islands present the last refuge for a species that is extinct on the mainland; these island populations also offer opportunities for fauna recovery programs on the mainland and/or other islands by providing founder stock for translocation to areas where the threats have been controlled. Nine species of mammal now survive only on Australia's offshore islands; without these islands these species may have added to the 19 mammal species that have become extinct in Australia over the last 200 years (Burbidge et al. 1997). Islands also provide secure sites or arks to hold species under current threat of extinction on the mainland, e.g. Rufous Hare-wallaby or Mala (DEWHA 2008a).

Some of Australia's most remote islands are pristine wilderness areas and many of the larger islands are time-capsules of human influence on the Australian continent (Robinson et al. 1996). Often sanctuaries for seabirds, turtles, seals, small mammals and other native wildlife vulnerable to invasive pests, many offshore islands are still free of introduced plants and animals. The isolated nature of islands can protect their inhabitants from threatening processes that occur on the mainland and can represent examples of mainland ecosystems that are generally less impacted

by disturbances such as fire and grazing. However, once they have arrived, invasive species and other threatening processes can have more extreme adverse impacts on resident island species than elsewhere (e.g. Burbidge and Manly 2002).

In cooperation with state and territory governments, DEWHA established its 'Islands Biodiversity' database which summarises information about the status of vertebrate invasive species recorded on Australia's offshore islands (DEWHA 2009b). Australia has more than 8 300 offshore islands under 100 000 ha (DEWHA 2008b).

1.3 Impacts of invasive vertebrates in Australia

Invasive animals cause adverse impacts, or have the potential to cause adverse impacts, on social, environmental and economic assets and values. In Australia, invasive animals are a major problem and have been estimated to cause in excess of one billion dollars in damage costs each year (McLeod 2004; Tracey et al. 2007; NLWRA and IA CRC 2008a,b).

1.3.1 Invasive vertebrates in Australia

Hundreds of exotic species of vertebrate animals have been deliberately imported into Australia during the past 200 years for a range of reasons. These include species for agricultural production, pest control and for keeping as domestic pets (Bomford and Hart 2002). In addition, a few exotic vertebrate animals have been imported accidentally, for example in cargo. Not all of the species introduced were intended for release in the wild. Some species (e.g. Red Fox and Rabbit) were deliberately and legally released into the wild, while others (e.g. Goat and Pig) escaped from domestication or captivity and some (e.g. Indian Myna) were released illegally (Bomford and Hart 2002).

Exotic animals that become established in the wild typically have a history of doing so in other places around the world and often have the following attributes (Bomford and Hart 2002):

- high fecundity
- generalised diet
- an ability to live in modified landscapes, and
- a climatic match between Australia and their native habitat.

In mainland Australia, at least 73 species of introduced vertebrates have established populations in the wild, including 25 mammal species, 20 birds, four reptiles, one amphibian and at least 23 freshwater fish (Bomford 2003). Some of these and additional introduced vertebrate species, have established wild populations on Australian offshore islands (McLeod 2004).

1.3.2 Invasive vertebrates listed as key threatening processes

Several exotic vertebrates have been listed as a Key Threatening Process in the Commonwealth of Australia under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The assessment of a threatening process as a key threatening process is the first step to addressing the impact of a particular threat under Commonwealth legislation. A process can be listed as a

Key Threatening Process under the EPBC Act if it could:

- cause a native species or ecological community to become eligible for inclusion in a threatened list, or
- cause an already listed threatened species or threatened ecological community to become more threatened (e.g. endangered), or
- adversely affect two or more listed threatened species or threatened ecological communities.

Key threatening processes involving invasive vertebrates in Australia include (DEWHA 2009c):

- predation by the European Red Fox (Red Fox)
- predation by feral cats (Cat)
- competition and land degradation by rabbits (Rabbit)
- competition and land degradation by unmanaged goats (Goat)
- predation, habitat degradation, competition and disease transmission by feral pigs (Pig)
- the biological effects, including lethal toxic ingestion, caused by the cane toads (Cane Toad)
- predation by exotic rodents on Australian offshore islands of less than 100 000 ha (Black Rat, Brown Rat, Pacific Rat and House Mouse).

1.3.3 Invasive vertebrates on Australian offshore islands

Each of the vertebrate pests listed as an EPBC Key Threatening Process have been introduced or have successfully invaded some of Australia's offshore islands (see Appendix A). In recognition of the importance of offshore islands in safeguarding Australia's biodiversity, a high priority has been allocated to island related activities in Threat Abatement Plans (TAPs) for the above mentioned vertebrate pest threatening processes. The high priority actions identified in these TAPs (DEH 2005; DEWHA 2008b,c,d,e,f) include:

1. the collation of data on offshore islands and isolated mainland 'islands'
2. evaluating an island's conservation value
3. assessing the likelihood of significant biodiversity impacts from a specific vertebrate pest, and
4. ranking the level of risk of any specific vertebrate pest being introduced and establishing populations, in places where it is not already present.

Rodents: In 2006 the Australian Government listed four exotic rodents (Black Rat, Brown Rat, Pacific Rat and House Mouse) as a Key Threatening Process on offshore islands. The consequent

TAP for four exotic rodent species on islands of less than 100 000 ha in area was adopted on 3 July 2009 following public comment on a draft (DEWHA 2008b). A key action in this TAP is prioritising islands for eradication or management of rodents (DEWHA 2008a).

Internationally, the four species of rodents addressed in this TAP (Black Rat, Brown Rat, Pacific Rat and House Mouse) have variously invaded over 80% of the world's major island archipelagos. They have been responsible for many of the worldwide species' extinctions and ecosystem changes that have occurred on these isolated refuges for native biodiversity. While exotic rodents continue to invade islands, the rate at which they have been eradicated has exceeded the rate of invasion of new islands (DEWHA 2008b). This is a result of the development and successful deployment of eradication techniques, begun in New Zealand in the 1980s (King 2005). Invasive rodents have now been eradicated from about 350 islands across 21 countries (DEWHA 2008b).

At least 113 of Australia's offshore islands have one or more species of exotic rodent in residence; typically the House Mouse and/or Black Rat. The house mouse and black rat have so far been eradicated from 39 Australian offshore islands, almost all of these in Western Australia (DEWHA 2008b).

Cat: Today there are about 18 million feral cats in Australia (McLeod 2004). They are distributed throughout almost all habitats in mainland Australia and Tasmania, the exception being some of the wettest rainforests, and are found on many offshore islands (DEWHA 2008c).

Although total mainland eradication may be the ideal goal of a Cat TAP, it is not feasible with current resources and techniques. Cat populations must instead be suppressed and managed to mitigate impacts in targeted areas where they pose the greatest threat to biodiversity. However, feral cat eradication has been achieved within fenced reserves, and on many offshore islands where sufficient biosecurity measures are also in place (King 2005; DEWHA 2008c).

Red Fox: The European Red Fox was first brought to Australia by English settlers in the 19th century. Wild fox populations had become established by the 1870s. Today, foxes are widely distributed across the Australian mainland and have been reported on Tasmania. However, the Red Fox has not yet colonised the tropical far north and is not established on Kangaroo Island or on many other offshore islands (DEWHA 2008d).

As foxes are so widely established in Australia, the focus of management is on abating impacts of established populations, except for fenced reserves and offshore islands that are currently Red Fox free, and Tasmania where eradication is being attempted (DEWHA 2008d).

Rabbit: The European Rabbit was deliberately released on the Australian mainland in the mid to late 1800s. This invasive species is now widely distributed over a large part of the Australian mainland and Tasmania, as well as on many of Australia's offshore islands (DEWHA 2008e). Rabbits are well adapted to the climatic conditions that occur in much of Australia, and now inhabit all states and territories. Along with Red Fox and Cat, the Rabbit is considered to be among Australia's most serious vertebrate pests. Furthermore, with the possible exception of the introduced House Mouse, rabbits are Australia's most abundant small mammal. Rabbits severely affect native flora and fauna, vegetation communities, landforms, geomorphic processes and sensitive sites, as well as impacting upon primary industries.

As rabbits are so widely established in Australia, the focus of management is generally on abating their impacts rather than prevention or eradication. However, eradication has been achieved on several offshore islands in New Zealand and in other parts of the world (King 2005), and a program for the eradication of rabbits and rodents from Macquarie Island has been initiated by the Tasmanian government (DEWHA 2008e).

Pig: Populations of feral pigs in Australia have resulted from releases and escapes of various breeds of domestic pigs dating back to the 1700s (DEH 2005). Pigs have been released into the wild for recreational hunting. Although widely distributed on mainland Australia and on Tasmania, feral pigs have established populations on only a few of the larger offshore islands, such as Kangaroo Island in South Australia. Feral pigs have been successfully eradicated from the smaller Lord Howe Island in NSW (Global Invasive Species Database 2007), and many other islands internationally, including several New Zealand islands (King 2005).

Goat: Goats are found across approximately 2 million square kilometres of Australia. They are present in all states, the Australian Capital Territory and some offshore islands, including islands that are part of the Northern Territory, although they are not present on the Northern Territory mainland (DEWHA 2008f).

Eradication from offshore islands, or from mainland areas that have similarly isolated populations, is feasible and has been achieved by various methods since the 1910s (King 2005; DEWHA 2008f).

Cane Toad: The Cane Toad has been present in Australia for nearly 70 years, following their deliberate release as a notoriously unsuccessful pest control agent for the sugar cane beetle in 1935. Since about 3 000 young toads were released in Gordonvale, near Cairns in Far North Queensland, cane toads have spread south and west across the continent and now occur throughout Queensland, in the Northern Territory and in New South Wales. Cane toads are also present on some smaller offshore islands, such as Dunk Island, off the far north coast of Queensland (Global Invasive Species Database 2006a).

Other vertebrate pests: In addition, many other exotic introduced vertebrate species and native translocated species are regarded as feral species on Australia's offshore islands and are potential pests (see Appendix A for the full list of species included as being present, or having been present, on offshore islands considered in this assessment). Other invasive vertebrate pests which are not listed as a Key Threatening Process under the EPBC Act, but which also impact on native biodiversity in Australia, and inhabit offshore islands include the Indian Myna, which is present on islands in the Torres Strait (Global Invasive Species Database 2006b) and is known to impact on many cavity-dwelling vertebrates (Pierce 2005).

Livestock such as European Cattle and Sheep have been introduced onto many of Australia's offshore islands at some point since European settlement, and if unmanaged, grazing by these species can cause extensive land degradation. Horse, Donkey and Water Buffalo are regarded as vertebrate species of 'major concern' when unmanaged in Australia (DEWHA 2008g). Predation by the Dingo and stray or feral populations of Domestic Dog (i.e. wild dogs) can have devastating impacts on ground-dwelling mammal and bird populations (Fleming et al. 2001).

1.4 Impacts on island biodiversity

Invasive vertebrate animals impact on native species directly by predation, competing for food and shelter, destroying habitat, and spreading diseases. Feral animals can also cause land erosion and wild populations have caused a major impact on Australia's soil and waterways, in turn affecting native flora and fauna. In Australia, feral animals typically have few natural predators and little or no exposure to fatal diseases. Furthermore, many invasive vertebrates have high reproductive rates. As a result, their populations have not naturally diminished and they can multiply rapidly if conditions are favourable (DEWHA 2008g).

Feral animals such as rabbits and goats graze or degrade vegetation. The burrowing activities of rabbits can also cause substantial land erosion and landslides that further impact on native species (e.g. Macquarie Island; WWF Australia 2009). On Pacific islands rabbits can destroy the nesting cover for birds and trample eggs and chicks of burrowing seabirds, including the endangered Phoenix Petrel, *Pterodroma alba* (Pierce et al. 2006).

Feral cats and foxes hunt and kill native birds, mammals, reptiles and insects. All four invasive rodents are omnivorous, eating most plant parts, insects, molluscs, snails, reptiles and their eggs, birds and their eggs, and other animals. Size is not always a limiting factor; rodents sometimes predate animals much larger than themselves (e.g. mice predating albatross chicks on Gough Island in the Atlantic Ocean; Wanless et al. 2007). By eating the seeds and fruit of native plants, exotic rodents can limit regeneration of some species (Caughley et al. 1998). They may also compete directly for food with native species of rodents and marsupials which occupy the same niche on many Australian islands. In Australia, Black Rat invasion is known to have caused the extinction of five bird species on Lord Howe Island and two bird species on Norfolk Island (DEWHA 2008b).

Feral cats are considered a threat to 36 species of mammals, 35 birds, 7 reptiles and 3 amphibians listed as threatened under the EPBC Act (DEWHA 2008c). On mainland Australia feral cats prey upon terrestrial mammals weighing up to 3 kg, although smaller individuals (< 200g), including sub-adults and juveniles of larger prey species, are predominantly taken (Dickman 1996). However, on offshore islands feral cats have been documented to target unusual prey species, depending upon availability. In the New Zealand and broader Pacific region, cats impact on birds up to 3.5 kg but have greatest effects on birds < 1kg. In the Phoenix Islands, burrowing seabirds were entirely absent from islands that had supported cats for a long period of time, but were recolonising one island where cats had died out (Pierce et al. 2006). In the New Zealand region the burrow-dwelling White-faced Storm-petrel has been heavily impacted by feral cats and rats. Feral cats are considered a particularly serious threat to birds on islands, especially where other introduced species such as rodents and rabbits provide alternative prey. Exotic prey populations can sustain cat populations which can then have increased impact on native fauna during troughs in exotic prey numbers. If these staple food (exotic species) populations are eliminated or controlled, it can result in serious cat predation pressure on threatened species (Gillies 2001).

1.5 Eradication & biosecurity issues

Eradication of invasive vertebrate pests is an attractive alternative to continuing control because, once achieved, it requires no further commitment of resources other than for monitoring and

surveillance and developing pest contingency plans. Successful and sustained feral pest eradication for long-term benefits requires environmental biosecurity measures to prevent reinvasion and/or reintroduction of the pest species. Bomford and O'Brien (1995) argue that the following conditions must apply to achieve successful eradication:

- rate of removal exceeds rate of increase at all population densities
- immigration is zero, and
- all reproductive animals are at risk (e.g. all females in the population are eliminated).

These three conditions are more likely to be met on offshore islands than on mainland Australia or in Tasmania; areas that are too vast for the capacity of available techniques and resources to achieve eradication (DEWHA 2008c). Nogales et al. (2004) indicate that feral cats have been removed from at least 48 islands globally. In Western Australia feral cats were recently eradicated from the Montebello Islands Conservation Park and Faure Island, using aerial baiting and trapping, with the aim of reintroducing threatened native mammals (Algar et al. 2002). However, many similar islands have no control or eradication programs for feral cats or other invasive vertebrate pests, and re-invasion is possible on some islands, i.e. immigration is not necessarily zero. For these islands, biosecurity measures must go hand-in-hand with eradication efforts to ensure long-term absence of the target vertebrate pests.

Black Rat and especially Brown Rat are adept swimmers and will cross channels of hundreds of metres in width (DEWHA 2008a). In New Zealand, Black Rat has colonised islands over 500 m offshore and Brown Rat up to about 1 km. Burbidge (2004) reports distances of 1.4 km for Black Rat crossings among the Montebello Islands group, possibly with tidal current assistance. Black rats are also the most arboreal of the exotic rodents. About 27% of the 113+ offshore islands with at least one exotic species of rodent are connected to, or within easy swimming distance (for a Black Rat), of mainland Australia (DEWHA 2008b). Many pests, especially rodents can hitch-hike on vessels and thus potentially invade islands. Many 'pest-free' islands tens of kilometres off the New Zealand coast have received pest incursions in this way. Thus, eradication of such vertebrate pests will be difficult on any (nearshore) subset of islands unless efforts are adequately backed by effective biosecurity; 'border' control, quarantine measures and contingency plans developed in order to respond to reported incursions. Novel solutions will be required to keep such rodents and other pests from invading these islands.

1.6 The need to prioritise islands

With in excess of 8 300 offshore islands under 100 000 ha, the Australian Government needs to direct funds towards management of those islands where conservation benefits and eradication impacts will be greatest. A preliminary prioritisation exercise based on land area (at least 200 ha) identified approximately 1 200 islands (Wayne Gregson, Environmental Biosecurity Section DEWHA, pers. comm.); still too many for the allocation of limited funding and resources for protection from invasive vertebrate pests. Accordingly, DEWHA required an independent assessment of the conservation status of Australia's offshore islands, using the Department's 'Islands Biodiversity' database as a guide to targeting, and objectively reviewing, the literature for information that is applicable to pest management on a priority list of offshore islands.

2 Determining the Conservation Status of Australia's Offshore Islands

2.1 Analysis of DEWHA data

Five spatial datasets were provided by DEWHA's Environmental Resources Information Network (ERIN) for the purposes of this offshore islands assessment.

2.1.1 Islands biodiversity data

DEWHA's Australian Islands Biodiversity Database (Island_biodiv; DEWHA 2009b) holds information about most of Australia's offshore islands and the feral species that have been recorded at some point in time on those islands, along with the most recent information on their status on each island. Island data was generally provided to DEWHA by the appropriate state/territory agencies: WA (January 2005), TAS (October 2005), NT (October 2005), NSW (May 2006), VIC (March 2008), SA (May 2008) and QLD (July 2008). Some data is held for additional islands which were not included in state/territory provided data. Location, archipelago name (if applicable), state/territory jurisdiction and land tenure information is held for each of the recorded islands. Each island's area (ha) has been calculated using Arc GIS 9.3. Source information is held for each feral species, including translocated native species. At the time of data supply to Ecosure this whole dataset comprised 9 300 records.

2.1.2 Threatened species data

DEWHA's Species of National Environmental Significance Database holds distributional data for all EPBC listed threatened flora and fauna species across the whole of the Commonwealth of Australia. These data feed the publically available Species Profile and Threats Database (SPRAT) online database (DEWHA 2009d). A subset of this dataset was spatially clipped by ERIN staff using ArcGIS 9.3 such that the data supplied to Ecosure were for offshore islands only (feralislands_epbc species; DEWHA 2009e). Furthermore, the majority of exclusively marine species, such as whales, dolphins, fish, sea horses, sharks and the Dugong, were excluded from the supplied data since these species would not be considered in this biodiversity value assessment of Australia's offshore islands (see section 2.3 below).

Including Listed Critical Habitat (see section 2.1.4 below), DEWHA uses 24 different presence categories (allocated with non-sequential numerical ranks) for EPBC listed threatened species in the Species of National Environmental Significance Database (DEWHA 2009e). For example, 'Species or species habitat is known to occur within area' is Rank 26, 'Species or species habitat is likely to occur within area' is Rank 36 and 'Species or species habitat may occur in area' is Rank 46 in the DEWHA data. Other species presence categories with 'known, 'likely' or 'may' combinations of occurrences include: 'Breeding', 'Roosting', 'Foraging', 'Migration Route', 'Community' and 'Congregation or aggregation'. The remaining three species presence categories are: 'Listed Critical Habitat', 'Translocated population known to occur within area' and 'Extinct within area'. The supplied data also contained some invasive species distributions.

2.1.3 Seabird breeding data

DEWHA's Australian Seabird Breeding Islands Database holds records of the number of breeding pairs of seabirds and the year they were recorded on Australia's offshore islands and external territories excluding Antarctica (seabird_breeding; DEWHA 2009f). Only the most recent population estimate for any island is held and a 'Y' denotes when breeding by a species has been known to occur on the specific island, but for which population information is not available.

2.1.4 Critical habitat data

DEWHA's EPBC Act (1999) - Register of Critical Habitat Maps dataset holds the distributional data for gazetted Critical Habitat (critical_habitat; DEWHA 2009g). Two of Australia's eight delineated critical habitats occur on Macquarie Island, one for the Grey-headed Albatross and the other for the Wandering Albatross. These were included as flora (Appendix C) in the biodiversity value assessment (see section 2.3 below).

2.1.5 Vegetation data

DEWHA's National Vegetation Information System version 3.1 was supplied to Ecosure. However, detailed consideration of vegetation groups was outside of the scope of this project, and therefore vegetation assemblages have not been included in the biodiversity assessment. Where significant vegetation assemblages were mentioned in reviewed island literature, we included these in the 'other significant natural values' section of island profiles (Chapter 4). Similarly, detailed consideration of invasive plants (weeds) was outside of the scope of this project, but weeds that are mentioned in the reviewed island literature have been included in the 'other threats present' section of island profiles (Chapter 4).

2.1.6 Linking DEWHA datasets

DEWHA's Australian Islands Biodiversity Database (Island_biodiv; DEWHA 2009b) was first used to select the islands that warranted further examination. According to the project scope, we initially looked at those islands on which feral species had been recorded at some point in time (see section 2.1.1 for provision of data to DEWHA by state/territory departments). Islands were then separated into two groups by area; in agreement with DEWHA, large islands (at least 200 ha) were prioritised for the conservation values assessment. A preliminary assessment of small islands (less than 200 ha) produced a list of small islands that have been recorded with at least one feral species and which also have records, or the possible presence of, EPBC listed threatened species (DEWHA 2009e). A list of smaller islands which could be considered for assessment of their conservation values is provided in Chapter 6 of this report; an initial information gathering exercise was conducted for these islands (section 2.3), but they are not considered in further detail in the remainder of this report.

The datasets supplied by DEWHA do not share a common identifier and so relevant data from each dataset needed to be linked spatially using ArcGIS 9.3 (ESRI 2009) and exported into Microsoft© Excel 2007 spreadsheet (Microsoft Corporation 2007). Large islands that have feral species were then linked with spatial data for EPBC listed threatened species (Appendix D). We

also extracted islands that have no feral species records, but are within 1 km of the mainland and/or other islands with feral species (Appendix D) and linked these islands to threatened species data; 1 km was agreed with DEWHA as an appropriate distance for consideration of self-introduction of rats by swimming across open water. Seabird breeding data was then linked such that each large (> 200 ha) island's records of seabird breeding, feral species presence and possible or recorded EPBC threatened species were contained in a single dataset. This dataset then required extensive 'cleaning' and reordering to generate a working dataset containing a single record (row) for any individual threatened species or feral species per island. Further details of this process and our recommendations for ongoing offshore islands data compilation have been provided to DEWHA in a separate document, and are only summarised here to allow adequate interpretation of the data preparation methods in this report.

The process of combining the various data, linked to island location, created a large number of data permutations. For example, each recorded presence category for a listed species (see section 2.1.2 above) combined with each feral species recorded on that island. Furthermore, whereas feral records for islands and threatened species records were recorded in unique rows, seabird breeding records are recorded in 86 species' columns. We therefore primarily sorted these data to:

- eliminate any remaining species that are exclusively marine and therefore are not considered to contribute to an offshore island's biodiversity value
- eliminate any invasive species distribution records carried over from the Species of National Environmental Significance Database (specifically island related feral species records were retained from the Australian Islands Biodiversity Database)
- transpose seabird breeding records from columns to rows, so that each breeding record for a species contains all relevant island information
- remove exact duplicate records; for example, multiples of the same species on any particular island
- reduce records for any one species to a single row per island; for example, an actual record of a species breeding took precedence over any 'likely' or 'may' species presence records; i.e. removal of pseudo duplicates, and
- consolidate records for the same species where a different scientific name, common name or spelling has been used; for example, where a species scientific name has changed, and where a species was recorded in the EPBC threatened species data (where scientific name is used) and also recorded in the seabird breeding database (where an abbreviation of the species common name is used).

Each species current listing status under the EPBC Act was checked using DEWHA's SPRAT database (DEWHA 2009d). Each species common name and current scientific name was also checked with DEWHA records online. In addition, updates were incorporated during the course of the project, such as an Update of the List of Migratory Species released on 12 March 2009, and in effect from 23 March 2009 (DEWHA 2009i). Once the working data had been cleaned and updated to this point, we began incorporating new species records and updating species

presence records (actual records replaced possible occurrence) using information gathered from our targeted literature review and/or state/territory contacts (see section 2.2 below).

2.2 Information gathering/literature review

2.2.1 Island management plans

Using a preliminary list of 162 large islands, and 197 small islands, with at least one feral species record and threatened species record, an extensive keyword search was conducted online within relevant state/territory agency websites and generally using the Google© Search Engine. To target the acquisition of any available island management and/or pest management plans, island information searches typically included combinations of:

- island name and state
- archipelago name
- location information
- management plan
- flora and/or fauna
- pest control and/or eradication, etc.

All relevant island management documents were downloaded and stored within a state/territory folder. As gaps in the acquired information were identified, additional documents and information were obtained from appropriate state/territory contacts, rangers and/or other island employees.

In discussion with DEWHA, the following offshore island external territories were not included in our islands priority assessment:

- Christmas Island - Christmas Island National Park
- Cocos (Keeling) Islands - Pulu Keeling National Park
- Heard and MacDonald Islands (www.heardisland.aq), and
- Norfolk Island - Norfolk Island National Park.

We considered it appropriate to exclude these high conservation status islands from this exercise because are already recognised as priority areas by the Australian Government (e.g. Commonwealth Parks and Reserves, DEWHA 2009j). Well defined management priorities for these islands are included in recent management plans that comprehensively cover initiatives and specific goals for invasive species.

2.2.2 Vertebrate pest information

Threat Abatement Plans (TAPs) were downloaded from the DEWHA website for each of the feral species listed as a Key Threatening Process under the EPBC Act (see section 1.2.2, Chapter 1): Black Rat, Brown Rat, Cane Toad, Cat, Goat, House Mouse, Pacific Rat, Pig, Rabbit, Red Fox. Additional pest management documents, case studies and research papers were downloaded for these species.

Additional vertebrate pest management information was acquired through online searches for other potentially high impacting pests such as Water Buffalo and Horse, which are considered a major concern by DEWHA (DEH 2004; DEWHA 2008g). Common Myna, Domestic Dog and Dingo are other potentially high impact species (see Appendix A). Specific searches were conducted within specialist websites such as:

- Invasive Animals Cooperative Research Centre (IA CRC) website (invasiveanimals.com)
- IUCN/SSC Invasive Species Specialist Group (ISSG) Global Invasive Species Database (issg.org/database/species), and
- Pest Portal (feral.org.au).

Invasive freshwater fish were not included in the vertebrate pests assessment.

2.2.3 Threatened species recovery plans

Recovery plans for EPBC listed threatened fauna and flora species were downloaded from the DEWHA website. Species factsheets, listing advice notices, and state or location specific species action or recovery plans were acquired using online keywords searches.

As the project progressed, additional online searches were conducted for those species listed as threatened under at least one state/territory legislative act (see appendices B and C). Species searches were also conducted in specialist online databases such as:

- Birds Australia's *Atlas of Australian Birds* (birdsaustralia.com.au)
- Birds in Backyards (birdsinbackyards.net), and
- Frogs of Australia (frogs.org.au).

Additional published sources were referenced to obtain specific information, such as a mammal's size range, which is relevant for assessing potential impacts from feral cat predation (see section 1.3, Chapter 1); for example, Strahan (1995).

2.2.4 Seabird breeding

Seabird breeding data was primarily updated using records in papers published in Corella's Seabird Islands Series (ABSA 2008) and also referring to the appropriate volumes of the *Handbook of Australian, New Zealand and Antarctic Birds* (HANZAB; Higgins and Davies 1996, Marchant and Higgins 1993, 1990a,b).

2.3 Assessment of biodiversity values

2.3.1 Intrinsic biodiversity value

To help assess island biodiversity values, a biodiversity value was attributed to native fauna and flora species listed under the EPBC Act or listed under an Australian state/territory legislative act (Table 2.1). Full details for species included in the assessment are provided in Appendix B and Appendix C. No EPBC listed Threatened Ecological Communities are recorded as present on any of the islands that were closely considered in this assessment; if any had been, those ecological

communities would have been included within the empirical biodiversity assessment.

Table 2.1 Biodiversity value of listed threatened fauna and flora.

EPBC STATUS	STATUS ABBREVIATION	FAUNA AND/OR FLORA	BIODIVERSITY VALUE
Critically Endangered	CR	flora/fauna	4
Endangered	EN	flora/fauna	3
Vulnerable	VU	flora/fauna	2
Migratory and/or Marine(Bonn, CAMBA, JAMBA and/or ROKAMBA)	-	fauna only	1
Not Listed (but listed under state/territory legislation)	-	flora/fauna	1

In addition, a recently listed Extinct species under the EPBC Act (DEWHA 2009d), Sharp-snouted Day Frog, was considered to have a biodiversity value equivalent to a CR species, i.e. 4. This species was included in the biodiversity value assessment as it is possible that the species may still occur on islands which have habitat suitable for a refugial population of this species (see section 2.3.2).

Seabirds that are non-landing and/or non-breeding on Australia's offshore islands were removed from the biodiversity assessment since the inclusion of these species, which will typically have been recorded over the ocean or as straddlers/vagrants, was considered to bias the biodiversity records for some islands. Species excluded from species lists for most islands were:

- Amsterdam Albatross
- Antipodean Albatross
- Atlantic Yellow-nosed Albatross
- Black-browed Albatross (except on Macquarie Island)
- Blue Petrel (except on Macquarie Island)
- Buller's Albatross
- Campbell Albatross
- Chatham Albatross
- Chinstrap Penguin
- Fiordland Penguin
- Fluttering Shearwater
- Gentoo Penguin (except on Macquarie Island)
- Gibson's Albatross
- Great Skua (except on Macquarie Island)
- Grey-headed Albatross (except on Macquarie Island)
- Hutton's Shearwater
- Indian Yellow-nosed Albatross
- Kerguelen Petrel
- Northern Giant-Petrel (except on Macquarie Island)
- Royal Albatross

- Sooty Albatross (Lesser Mantled Sooty Albatross was retained; see Appendix B)
- South Georgian Diving Petrel
- Southern Giant-Petrel (except on Macquarie Island)
- Streaked Shearwater
- Tristan Albatross
- Wandering Albatross (except on Macquarie Island)
- Westland Petrel
- Wilson's Storm-Petrel (except on Macquarie Island)

Species not listed under the EPBC Act but listed under an Australian state/territory legislative act were included as biodiversity even if not listed under the jurisdiction's (State/Territory) legislation; e.g. Bush Stone-curlew was included as biodiversity on islands where they are listed to occur in Queensland (where they are not listed as threatened) as well as in NSW (where they are listed as threatened). We believe this is appropriate for a national overview of biodiversity on Australia's offshore islands.

2.3.2 Biodiversity presence value

To assess island biodiversity values, a biodiversity presence value was attributed to native fauna and flora species (Table 2.2). For consistency with the DEWHA data (see section 2.1.2 above), we used three presence categories: 'known' (confirmed records), and 'likely' and 'may' (based on suitable habitat and/or nearby records and species mobility).

Table 2.2 Biodiversity value of listed threatened fauna and flora.

EPBC PRESENCE CATEGORY (see section 2.1.2)	FAUNA AND/OR FLORA	BIODIVERSITY PRESENCE VALUE
'known' (includes confirmed records added from the literature)	flora/fauna	3
'likely'	flora/fauna	2
'may' (includes situations where highly mobile fauna species are known from adjacent areas/neighbouring islands)	flora/fauna	1

2.3.3 Total biodiversity value

In this assessment, total biodiversity value is a product of the intrinsic biodiversity value (national scale) and island specific biodiversity presence value (Figure 2.1). In an attempt to minimise bias towards islands that have been well surveyed and/or documented, we included a lower value for species that are likely or may occur on a specific island. For example: a Critically Endangered (CR) species that has been recorded ('known') to be present on an island was given a total biodiversity value of 12, whereas a CR species that is likely to occur on an island was given a value of 8, and a CR species that may occur on an island was given a value of 4. A Vulnerable (VU) species that is known to be present on an island was given a total biodiversity of 6, whereas a VU species that is likely to occur on an island was given a value of 4, and a VU species that may occur on an island was given a value of 2.

Figure 2.1 Formula for calculating total biodiversity value of offshore islands.

The total biodiversity value was used as the primary sort function for determining the Top 100 (> 200 ha) islands of high conservation status.

2.3.4 Other significant natural values

Other significant natural values of islands that were reported in the reviewed literature are provided in island profiles (see Chapter 4), but are not considered in the empirical biodiversity value assessment described in this Chapter. We decided not to include additional empirical ranking for these features as to do so would essentially be doubling-up on the biodiversity values already attributed for the presence of fauna and flora species. These values include, but are not limited to:

- Important seabird and/or shorebird breeding sites
- Turtle nesting sites
- Restricted distribution/endemic species, and
- Other established national or international environmental values, such as gazetting as Nature Reserves or National Parks, inclusion in World Heritage Areas, inclusion on the Australian Register of the National Estate (DEWHA 2009k), wetlands listed on DEWHA's *Directory of Important Wetlands in Australia* (environment.gov.au/water) or under *The Ramsar Convention on Wetlands 1971* (ramsar.org).

2.4 Assessment of vertebrate pest impacts

2.4.1 Intrinsic feral 'value'

Vertebrate pests were attributed an intrinsic impact value as an indication of their potential for environmental impact in a situation where they are able to cause those impacts unmitigated (Table 2.3).

Table 2.3 Intrinsic feral 'value' of vertebrates introduced to offshore islands.

POTENTIAL FERAL IMPACT	INTRINSIC FERAL 'VALUE'
EPBC Key Threatening Process or species of 'major concern'	4
high	3
medium	2
low	1

2.4.2 Feral presence 'value'

To assess island specific feral impact value, a feral presence value was attributed according to information acquired from state/territory agencies as provided in the DEWHA Australian Islands Biodiversity Database (DEWHA 2009b), or gleaned from more recent documents and/or data, or from correspondence with key stakeholders during the course of this project (Table 2.4).

Table 2.4 Feral presence 'value' of vertebrates introduced to offshore islands.

VERTEBRATE PEST PRESENCE INFORMATION	FERAL PRESENCE 'VALUE'
Known to occur on the island and believed to be a feral/free ranging population	3
Known to occur but believed to be restricted in range (e.g. fenced in) or under an existing control/eradication program	2
Known to occur but believed to be domestic pet/captive only	1
Information suggests the species has been successfully eradicated, removed, died out, or did not establish on the island	0

2.4.3 Total feral 'value'

In this assessment, total feral 'value' is a product of the intrinsic feral 'value' and island specific feral presence 'value' (Figure 2.2). Where a feral species has been recorded on an island, but is believed to be no longer present, their record has been retained in the dataset for data integrity and the potential to amend these records in the future (e.g. if reinvasion/reintroduction occurs), but the presence 'value' of zero produces a total feral 'value' of zero.

The total feral value was used as the secondary sort function for determining the Top 100 islands (> 200 ha) of high conservation status; that is, the full list of islands under consideration were first sorted on total biodiversity value, and secondly sorted on total feral 'value', such that if two islands had the same total biodiversity value, the one with the higher feral 'value' would fall just above the one with the lower feral 'value'.

Figure 2.2 Formula for calculating total feral 'value' of offshore islands.

2.4.4 Feral impacts matrices

The tertiary island sort function for determining the Top 100 (> 200 ha) islands of high conservation status relative to vertebrate feral pest status was the sum total of specific feral impacts on the resident threatened fauna and flora on islands. For this component of the assessment, a unique value of impact from a potential interaction between a specific vertebrate pest and threatened species was generated in matrices for threatened fauna (Appendix E) and threatened flora (Appendix F). Where these species-specific interactions occur on islands, the value was entered

for the island data; where such a species combination does not occur, or where the feral species is no longer present on the island, the value is zero. In this way the list of islands under consideration was first sorted on the total biodiversity value, secondarily sorted on the total feral value, and finally sorted on the sum of specific feral-threatened species impacts.

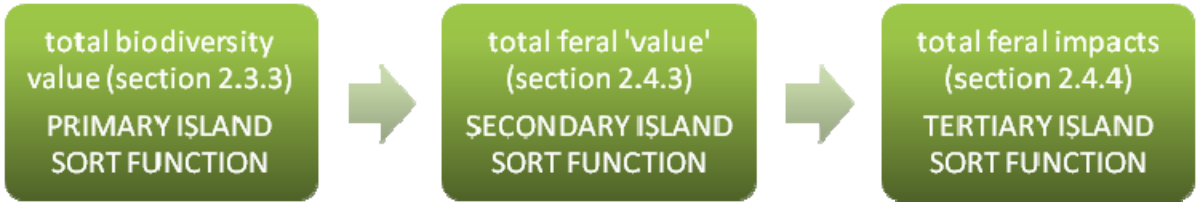

Figure 2.3 Flowchart showing the use of primary, secondary and tertiary sort functions to determine the priority 100 offshore islands.

2.4.5 Risk of feral invasions

A detailed risk assessment of feral invasions was not included in the empirical assessment of island conservation status in relation to vertebrate pest species status. Such an exercise was beyond the scope of this project, but we acknowledge that risk of (re)invasion is an important consideration in decision-making regarding whether to proceed with a specific pest eradication program (see Chapter 7). We consider the risk of feral invasions within island profiles in the context of pest eradication risks, biosecurity issues and recommended actions (see Chapter 4).

2.5 Preparation of island profiles

Based on the three contributing criteria from sections 2.3 and 2.4, a priority list of the Top 100 (> 200 ha) islands of high conservation status was generated from the assessment process detailed above. A summary of the Top 100 priority list of offshore islands is provided in Chapter 3.

For completion of island profiles, standard island information (e.g. island name, state/territory, land area, land tenure and status) was gleaned from our working dataset, which was derived from the DEWHA supplied datasets, but updated and added to during this project. For example, we identified more archipelago names for the islands under consideration. An overview map of the Top 100 priority islands (> 200 ha) was produced using ArcGIS 9.3 (ESRI 2009), and referenced to ascertain which islands should be grouped together for island profiles (Appendix G). The geographical context of islands was examined using Google™ Earth, and distances between islands in a recognised group, or within close proximity of each other, and distance to the nearest point of coastal mainland were measured using the ruler tool set to kilometres.

All island locations were cross-referenced with the *Gazetteer of Australia 2008* using Geoscience Australia's online Place Name Search (Geoscience Australia 2009). Latitudes and Longitudes provided in the Gazetteer are used for consistency. Island areas (ha) provided in the island profiles are all derived from the DEWHA data, since relatively few documents provided island area information, and in cases where island areas were provided in the reviewed literature, there were often inconsistencies in areas reported. Although these areas have been spatially calculated in GIS, using these values enables easier cross-referencing with the working dataset.

3 Summary List of Priority 100 Islands

These 100 islands ranked highest in terms of biodiversity value and feral impacts. They are listed alphabetically. Where there is more than one island known to share the same name, islands here have the Jurisdiction in parentheses; e.g. Curtis Island (QLD).

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	PRIORITY LIST	COMMENT	PAGES
TOP 50 ISLANDS								
BALD ISLAND		WA	-34.92	118.46	820	Top 50		31-33
BARROW ISLAND		WA	-20.79	115.4	23 503	Top 50	In profile with Barrow Island	34-37
BATHURST ISLAND	TIWI ISLANDS	NT	-11.64	130.32	169 318	Top 50	In profile with Melville Island	268-273
BERNIER ISLAND		WA	-24.86	113.14	4 152	Top 50	In profile with Dorre Island	40-43
BREMER ISLAND		NT	-12.11	136.81	1 679	Top 50		46-48
BRIBIE ISLAND	(in Moreton Bay area)	QLD	-26.99	153.14	14 757	Top 50		49-54
CROKER ISLAND	CROKER ISLAND GROUP	NT	-11.16	132.56	32 410	Top 50		55-58
CURTIS ISLAND (QLD)		QLD	-23.61	151.15	57 646	Top 50		59-64
DEAL ISLAND	KENT GROUP	TAS	-39.48	147.33	1567	Top 50	In profile with Erith Island	91-96
DIRK HARTOG ISLAND		WA	-25.79	113.05	62 775	Top 50		75-81
DOLPHIN ISLAND	DAMPIER ARCHIPELAGO	WA	-20.48	116.85	3 306	Top 50	In profile for Dampier Archipelago	65-72
DORRE ISLAND		WA	-25.12	113.1	4 959	Top 50	In profile with Bernier Island	40-43
DREAM ISLAND	NOORAMUNGA	VIC	-38.65	146.86	368	Top 50	In Nooramunga offshore islands profile	196-200
DUNK (COONANGLEBAH) ISLAND	FAMILY ISLANDS (in Great Barrier Reef Marine Park)	QLD	-17.94	146.16	721	Top 50		82-85

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	PRIORITY LIST	COMMENT	PAGES
EAST LEWIS ISLAND	DAMPIER ARCHIPELAGO	WA	-20.61	116.66	1 002	Top 50	In profile for Dampier Archipelago	65-72
ELCHO ISLAND	ELCHO ISLAND GROUP	NT	-11.93	135.74	28 243	Top 50	In profile with Howard Island	86-90
ERITH ISLAND	KENT GROUP	TAS	-39.45	147.29	320	Top 50	In profile with Deal Island	91-96
FAURE ISLAND		WA	-25.85	113.89	5 194	Top 50		97-100
FRANKLIN ISLANDS (SA)	NUYTS ARCHIPELAGO	SA	-32.44	133.67	233	Top 50	In profile for Nuyts Archipelago	212-216
FRASER ISLAND (QLD)		QLD	-25.26	153.14	166 170	Top 50		106-111
FRENCH ISLAND		VIC	-38.35	145.37	17 378	Top 50		112-117
GREAT DOG ISLAND	FURNEAUX GROUP	TAS	-40.25	148.25	358	Top 50	In profile with Babel Island	118-122
GROOTE EYLANDT	GROOTE EYLANDT GROUP	NT	-14.02	136.64	228 518	Top 50		126-129
HERMITE ISLAND	MONTEBELLO ISLANDS	WA	-20.46	115.53	1 110	Top 50	In profile with Trimouille Island	130-133
HINCHINBROOK ISLAND	(in Great Barrier Reef Marine Park)	QLD	-18.36	146.24	39 613	Top 50		134-138
INGLIS ISLAND	THE ENGLISH COMPANY ISLAND GROUP	NT	-12.03	136.22	8 164	Top 50		144-148
KANGAROO ISLAND		SA	-35.83	137.24	441 617	Top 50		149-154
LEGENDRE ISLAND	DAMPIER ARCHIPELAGO	WA	-20.39	116.88	1 320	Top 50	In profile for Dampier Archipelago	65-72
LORD HOWE ISLAND		NSW	-31.55	159.08	1 794	Top 50		159-163
MACQUARIE ISLAND		TAS	-54.62	158.89	13 738	Top 50		164-168
MARIA ISLAND (TAS)		TAS	-42.65	148.08	10 207	Top 50		174-179
MELVILLE ISLAND	TIWI ISLANDS	NT	-11.54	130.96	578 577	Top 50	In profile with Bathurst Island	269-274
MORETON ISLAND (GNOORGANBIN)	(in Moreton Bay area)	QLD	-27.15	153.41	17 149	Top 50		183-189

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	PRIORITY LIST	COMMENT	PAGES
NORTH ISLAND	SIR EDWARD PELLEW GROUP	NT	-15.58	136.87	5 578	Top 50	In profile for Sir Edward Pellew Group	201-205
NORTH STRADBROKE ISLAND	(in Moreton Bay area)	QLD	-27.55	153.45	26 949	Top 50	Island profile includes Macleay, Russell and Woogoompah islands	206-211
PHILLIP ISLAND		VIC	-38.49	145.23	10 129	Top 50		223-229
PRINCE OF WALES ISLAND (MURALUG)	TORRES STRAIT ISLANDS	QLD	-10.68	142.19	19 541	Top 50	Island profile includes Horn Island (Ngurupai) and Hammond Island	233-237
QUAIL ISLAND		VIC	-38.23	145.29	533	Top 50		238-239
RARAGALA ISLAND	WESSEL ISLANDS	NT	-11.62	136.27	9 364	Top 50	In profile with Marchinbar Island	240-244
ROSEMARY ISLAND	DAMPIER ARCHIPELAGO	WA	-20.48	116.59	1 132	Top 50	In profile for Dampier Archipelago	65-72
ROTTNEST ISLAND		WA	-32.01	115.51	1 884	Top 50		245-249
ST PETER ISLAND	NUYTS ARCHIPELAGO	SA	-32.28	133.59	3 807	Top 50	In profile for Nuyts Archipelago	212-216
SWAN ISLAND (TAS)		TAS	-40.74	148.11	241	Top 50		259-261
SWAN ISLAND (VIC)		VIC	-38.25	144.69	289	Top 50		262-264
TRIMOUILLE ISLAND	MONTEBELLO ISLANDS	WA	-20.4	115.57	511	Top 50	In profile with Hermite Island	130-133
VANDERLIN ISLAND	SIR EDWARD PELLEW GROUP	NT	-15.72	137.03	26 432	Top 50	In profile for Sir Edward Pellew Group	201-205

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	PRIORITY LIST	COMMENT	PAGES
WEST LEWIS ISLAND	DAMPIER ARCHIPELAGO	WA	-20.58	116.63	1 973	Top 50	In profile for Dampier Archipelago	65-72
WOOGOOMPAH ISLAND	(in Moreton Bay area)	QLD	-27.8	153.4	620	Top 50	In profile for North Stradbroke Island	206-211
YABOOMA ISLAND	CROCODILE ISLANDS GROUP	NT	-12.04	134.95	2 498	Top 50	In profile with Milingimbi Island	279-282
LOWER 50 ISLANDS								
ADELE ISLAND		WA	-15.52	123.16	268	Top 100 (lower 50)		26-28
ALBANY ISLAND		QLD	-10.73	142.61	584	Top 100 (lower 50)		29-30
ANGEL ISLAND	DAMPIER ARCHIPELAGO	WA	-20.49	116.81	916	Top 100 (lower 50)	In profile for Dampier Archipelago	65-72
BABEL ISLAND	FURNEAUX GROUP	TAS	-39.95	148.33	437	Top 100 (lower 50)	In profile with Great Dog Island	118-122
BADGER ISLAND	CHAPPELL ISLANDS	TAS	-40.31	147.88	1234	Top 100 (lower 50)	In profile with Mount Chappell Island	193-195
BADU ISLAND	TORRES STRAIT ISLANDS	QLD	-10.12	142.15	10 124	Top 100 (lower 50)	In profile with Moa Island	180-182
BENTINCK ISLAND	SOUTH WELLESLEY ISLANDS	QLD	-17.07	139.49	13 875	Top 100 (lower 50)	In profile with Sweers Island	38-39
BOIGU ISLAND	TORRES STRAIT ISLANDS	QLD	-9.27	142.22	7180	Top 100 (lower 50)		44-35
BOODIE ISLAND		WA	-20.96	115.33	202	Top 100 (lower 50)	In profile with Barrow Island	34-37
CENTRE ISLAND	SIR EDWARD PELLEW GROUP	NT	-15.69	136.77	8 498	Top 100 (lower 50)	In profile for Sir Edward Pellew Group	201-205
DARNLEY ISLAND		QLD	-9.59	143.77	580	Top 100 (lower 50)		73-74

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	PRIORITY LIST	COMMENT	PAGES
EAST INTERCOURSE ISLAND	DAMPIER ARCHIPELAGO	WA	-20.65	116.68	233	Top 100 (lower 50)	In profile for Dampier Archipelago	65-72
EAST SCRUBBY ISLAND	NOORAMUNGA	VIC	-38.66	146.8	293	Top 100 (lower 50)	In Nooramunga offshore islands profile	196-200
FIGURE OF EIGHT ISLAND	WEST GROUP/RECHERCHE ARCHIPELAGO	WA	-34.03	121.61	246	Top 100 (lower 50)	In profile with North Twin Peak Island	101-105
FRANKLIN ISLAND (VIC)	NOORAMUNGA	VIC	-38.7	146.27	260	Top 100 (lower 50)	In Nooramunga offshore islands profile	196-200
GIDLEY ISLAND	DAMPIER ARCHIPELAGO	WA	-20.45	116.82	848	Top 100 (lower 50)	In profile for Dampier Archipelago	65-72
GOAT ISLAND (SA)	NUYTS ARCHIPELAGO	SA	-32.31	133.51	326	Top 100 (lower 50)	In profile for Nuyts Archipelago	212-216
GOOLD ISLAND	(in Great Barrier Reef Marine Park)	QLD	-18.17	146.17	795	Top 100 (lower 50)		123-125
HAMMOND ISLAND		QLD	-10.55	142.21	1 570	Top 100 (lower 50)	In profile with Prince of Wales Island (Muralug)	233-237
HORN ISLAND (NGURUPAI)	TORRES STRAIT ISLANDS	QLD	-10.61	142.28	5 319	Top 100 (lower 50)	In profile with Prince of Wales Island (Muralug)	233-237
HOWARD ISLAND (NT)		NT	-12.15	135.4	27 324	Top 100 (lower 50)	In profile with Elcho Island	86-90
HUNTER ISLAND (TAS)		TAS	-40.52	144.76	7 046	Top 100 (lower 50)		139-140
INDIAN ISLAND		NT	-12.63	130.51	2 702	Top 100 (lower 50)		141-143
LITTLE SNAKE ISLAND	NOORAMUNGA	VIC	-38.72	146.46	532	Top 100 (lower 50)	In Nooramunga offshore islands profile	196-200
LONG ISLAND (QLD)		QLD	-22.13	149.89	6 387	Top 100 (lower 50)		155-156

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	PRIORITY LIST	COMMENT	PAGES
LONG ISLAND (TAS)		TAS	-40.36	148	316	Top 100 (lower 50)		157-158
MACLEAY ISLAND		QLD	-27.61	153.36	740	Top 100 (lower 50)	In profile with North Stradbroke Island	206-211
MAGNETIC ISLAND		QLD	-19.14	146.83	5 067	Top 100 (lower 50)		169-173
MARCHINBAR ISLAND	WESSEL ISLANDS	NT	-11.27	136.62	20 860	Top 100 (lower 50)	In profile with Raragala Island	241-245
MILINGIMBI ISLAND	near CROCODILE ISLANDS GROUP	NT	-12.09	134.89	4 949	Top 100 (lower 50)	In profile with Yabooma Island	280-283
MOA ISLAND	TORRES STRAIT ISLANDS	QLD	-10.18	142.27	17 030	Top 100 (lower 50)	In profile with Badu Island	180-182
MORNINGTON ISLAND	WELLESLEY ISLANDS	QLD	-16.56	139.4	100 144	Top 100 (lower 50)		
MOUNT CHAPPELL ISLAND	CHAPPELL ISLANDS	TAS	-40.27	147.93	321	Top 100 (lower 50)	In profile with Badger Island	193-195
NORTH TWIN PEAK ISLAND	RECHERCHE ARCHIPELAGO	WA	-33.99	122.84	277	Top 100 (lower 50)	In profile with Figure of Eight Island	101-105
OUTER SISTER ISLAND		TAS	-39.65	147.99	532	Top 100 (lower 50)		217-219
PERON ISLAND (North and South)	PERON ISLANDS	NT	-13.21	130.1	538	Top 100 (lower 50)		220-222
PRESERVATION ISLAND		TAS	-40.48	148.06	204	Top 100 (lower 50)		230-232
RUSSELL ISLAND (QLD)		QLD	-27.67	153.38	1 702	Top 100 (lower 50)	In profile with North Stradbroke Island	206-211
SAIBAI ISLAND		QLD	-9.4	142.69	10 381	Top 100 (lower 50)		250-251
SERRURIER ISLAND		WA	-21.61	114.68	300	Top 100 (lower 50)		252-253

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	PRIORITY LIST	COMMENT	PAGES
SNAKE ISLAND (VIC)	NOORAMUNGA	VIC	-38.76	146.55	4 461	Top 100 (lower 50)	In Nooramunga offshore islands profile	196-200
SOUTH WEST ISLAND	SIR EDWARD PELLEW GROUP	NT	-15.72	136.67	9 198	Top 100 (lower 50)	In profile for Sir Edward Pellew Group	201-205
ST FRANCIS ISLAND	ISLES OF ST FRANCIS	SA	-32.51	133.29	671	Top 100 (lower 50)		254-258
ST MARGARET ISLAND	NOORAMUNGA	VIC	-38.63	146.83	1 889	Top 100 (lower 50)	In Nooramunga offshore islands profile	196-200
SUNDAY ISLAND (VIC)	NOORAMUNGA	VIC	-38.71	146.62	1 192	Top 100 (lower 50)	In Nooramunga offshore islands profile	196-200
SWEERS ISLAND	SOUTH WELLESLEY ISLANDS	QLD	-17.1	139.62	1 132	Top 100 (lower 50)	In profile with Bentinck Island	38-39
THREE HUMMOCK ISLAND		TAS	-40.44	144.91	6 981	Top 100 (lower 50)		265-267
TURTLE HEAD ISLAND		QLD	-10.93	142.68	1 253	Top 100 (lower 50)		274-275
UNNAMED (NORTH OF GIDLEY ISLAND)	DAMPIER ARCHIPELAGO	WA	-20.42	116.82	231	Top 100 (lower 50)	In profile for Dampier Archipelago	65-72
WATERHOUSE ISLAND		TAS	-40.8	147.63	314	Top 100 (lower 50)		276-278
WEST ISLAND	SIR EDWARD PELLEW GROUP	NT	-15.59	136.56	12 983	Top 100 (lower 50)	In profile for Sir Edward Pellew Group	201-205

4 Profiles for 100 Priority High Conservation Status Offshore Islands (>200 ha)

Individual island and island group profiles are listed in alphabetical order, based on the island group name or the primary island listed in the priority list. Information within island profiles has been sourced from supplied DEWHA data sets (see section 2.1, Chapter 2) as well as from the directly accessed references listed at the end of each profile. It should be noted here that the DEWHA data has been derived from multiple sources; details of which are recorded in metadata supplied with the datasets, are too many to mention in this report. Similarly, numerous documents were sourced for information about threatened fauna and flora and feral impacts; such as species action or recovery plans, conservation listing advices and factsheets. Specific information is cited, but where such documents guided the feral species impacts matrices for fauna (Appendix E) and flora (Appendix F), they have not been cited as, again, there are too many to mention in this report.

Due to the requirements of this project, some text is drawn directly from management plans and other relevant documents that are specific to islands or areas encompassing the island(s) in question, principally in the 'Past & current pest management & monitoring' section within each each profile. All directly sourced documents are acknowledged and cited. In contrast to any management recommendations referenced in the 'Past & Current Pest Management & Monitoring' those provided in the 'Recommended Actions' section within each island profile are our recommendations.

To assist with understanding the geographical context of priority islands, eight maps are provided in Appendix G. These are:

MAP 1 – 100 Priority Islands; the whole of Australia and the areas zoomed in on for maps 2 to 8

MAP 2 – Priority Islands in the Northern Territory (NT)

MAP 3 – Priority Islands in Queensland (QLD)

MAP 4 – Priority Islands in New South Wales (NSW)

MAP 5 – Priority Islands in Victoria (VIC)

MAP 6 – Priority Islands in Tasmania (TAS)

MAP 7 – Priority Islands in South Australia (SA)

MAP 8 – Priority Islands in Western Australia (WA)

For ease of reference, the relevant map number is provided near the top of each island/island group profile.

Adele Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Adele Island	**MAP 8**

LATITUDE: 15° 31' S [Decimal Degrees -15.523°]

LONGITUDE: 123° 09' E [Decimal Degrees 123.156°]

AREA: 268 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 81 km to the mainland 76 km to Cockatoo Island (WA)
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve **STATUS:** Nature Reserve A44675, Conservation Commission of WA, Kimberley

GENERAL GEOGRAPHY: Adele Island is a low lying, fish-hook shaped island approximately 2.9 km long by 1.6 km wide. It is surrounded by extensive sandbanks lying over a limestone platform forming a large lagoon.

DEMOGRAPHY & HUMAN USE: Adele Island has a lighthouse and is on the Register of the National Estate (Place File No. 5/09/212/0024). It is considered likely to be of major significance to the Western Australia marine estate (DEWHA 2009k).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: No known EPBC listed threatened fauna species are known to occur on Adele Island. **CR:** na **EN:** na **VU:** na 16 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Adele Island: Australian Pelican, Bridled Tern, Brown Booby, Brown Noddy, Caspian Tern, Crested Tern, Eastern Reef Egret, Great Frigatebird, Gull-billed Tern, Lesser Crested Tern, Lesser Frigatebird, Masked Booby, Nankeen Night Heron, Red-footed Booby, Roseate Tern and Silver Gull. 1 additional EPBC listed Migratory species are likely or may occur on the island: Saltwater Crocodile.	**THREATENED FLORA:** No known EPBC listed, or otherwise listed, threatened flora species are known to occur on Adele Island. **CR:** na **EN:** na **VU:** na
SEABIRD/SHOREBIRD BREEDING SITES:	**OTHER SIGNIFICANT NATURAL VALUES:**

13 of the known migratory species (above) have been recorded breeding on Adele Island. Significant records include: Lesser Frigatebird - 5700 in 1982; significant rookery in 2007. Brown Booby - 1750/1972; important breeding area in 2008. Additional recent seabird breeding records include: Lesser Crested Tern - small breeding population in 2008. Masked Booby - 450/1992; small number in 2008. Red-footed Booby - 11/1992; small breeding population in 2008.	· Adele Island is listed under Class 'Natural' of the Register of the National Estate. · Adele Island was declared a Nature Reserve in 2001 in recognition of the island's status as a bird breeding sanctuary. · The island is also important for turtle nesting (Masini et al. 2009).
PEST VERTEBRATES PRESENT: Pacific Rat is the only vertebrate pest species known to be present on Adele Island, and is believed to have been introduced via Indonesian fishing boats. Pacific Rat is included with other rodents as a listed EPBC Key Threatening Process.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of Pacific Rat could be expected.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified. DEC is currently surveying biodiversity on 20 of the largest islands to develop a conservation management plan in collaboration with traditional owners (Masini et al. 2009). This management plan will be the 'Kimberley Strategy'.	
FURTHER PEST ERADICATION REQUIREMENTS: Only the Pacific Rat is known to be present.	
POTENTIAL ERADICATION RISKS: These should be scoped in the pending conservation management plan and further feasibility studies implemented as required.	**POTENTIAL BIOSECURITY RISKS:** Likely to be significant risks of additional vertebrate pests (e.g. other rats and cats) and other pests arriving at the island. These risks and appropriate biosecurity planning should be identified in the management plan.
RECOMMENDED ACTIONS: Priority is to complete surveys and management plan, and enhance biosecurity plans and undertake feasibility studies for pest eradication as identified in the management plan.	

KEY REFERENCES

Australian Bird Study Association 2008. Corella Seabird Island Series. Cd-Rom available from Australian Bird Study Association (www.absa.asn.au).

DEWHA 2008i. The North-west Marine Bioregional Plan Bioregional Profile. A Description of the Ecosystems, Conservation Values and Uses of the North-west Marine Region. Department of the Environment, Water, Heritage & the Arts, Canberra, ACT. Available at: www.environment.gov.au. Accessed on 28 May 2009.

DEWHA 2009k. Australian Heritage Database. Available online at: www.environment.gov.au. Accessed on 16 June 2009.

Masini, R., Sim, C., Simpson, C., McKenzie, N., Start, T., Burbidge, A., Kenneally, K. and Burrows, N.

2009. A synthesis of scientific knowledge to support conservation management in the Kimberley region of Western Australia. Department of Environment and Conservation (DEC), The Government of Western Australia. Available at: www.dec.wa.gov.au. Accessed on 17 June 2009.

Albany Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Albany Island	**MAP 3**

LATITUDE: 10° 43' S [Decimal Degrees -10.730°]

LONGITUDE: 142° 36' E [Decimal Degrees 142.605°]

AREA: 584 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.5 km to the mainland
JURISDICTION: Queensland	**TENURE:** Freehold/Lands Lease/Reserve **STATUS:** Aboriginal freehold land/Crown leasehold land/Other Crown land

GENERAL GEOGRAPHY: Unknown.

DEMOGRAPHY & HUMAN USE: Pearl farms are located at Albany Passage. Albany Island was gazetted as an Aboriginal reserve in 1964 (State Library of Queensland 2009).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: 1 EPBC listed threatened fauna species known to occur on Albany Island, 2 additional listed threatened species are likely or may occur on the island. **CR:** na **EN:** na **VU:** Hawksbill Turtle is known to occur on Albany Island. Flatback Turtle is likely to occur on the island. Spectacled Flying-fox may occur on the island. 7 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are likely to occur on Albany Island: Grey-tailed Tattler, Pacific Golden Plover, Lesser Sand Plover, Ruddy Turnstone, Satin Flycatcher, Whimbrel and White-bellied Sea-Eagle.	**THREATENED FLORA:** 3 EPBC listed threatened flora species are likely to occur on Albany Island. **CR:** na **EN:** na **VU:** Atherton Turkey Bush, Australian Arenga Palm and Curly Pinks are likely to occur on Albany Island.
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER SIGNIFICANT NATURAL VALUES:** Unknown.

PEST VERTEBRATES PRESENT: One vertebrate pest has been recorded and is believed to be currently present on Albany Island. Pig, a listed EPBC Key Threatening Process.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of pigs could be expected, plus destruction of turtle nests.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: Pigs are a priority to eradicate or manage.

POTENTIAL ERADICATION RISKS: Pigs may have provided a local food source for humans for some time.	**POTENTIAL BIOSECURITY RISKS:** Release and/or escape of other vertebrate pests on the island is a significant risk and should be evaluated in a management plan and feasibility studies, along with potential invasion of swimming rats and other pests from the mainland 0.5 km away.

RECOMMENDED ACTIONS: Survey biota to determine status of key indigenous fauna and whether other pest vertebrates are present and assess their impacts.

With community and other stakeholders develop visions and objectives for the island and prepare a management plan that identifies other needs, e.g. feasibility studies for pest removal/control and risk assessments, and biosecurity and contingency plans.

KEY REFERENCES

State Library of Queensland 2009. Torres Strait Island communities. State Library of Queensland, The State of Queensland Government. Available at: www.slq.qld.gov.au. Accessed on 17 June 2009.

Bald Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Bald Island	**MAP 8**

LATITUDE: 34° 55' S [Decimal Degrees -34.917°]

LONGITUDE: 118° 27' E [Decimal Degrees 118.464°]

AREA: 820 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 1.4 km to the mainland
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve **STATUS:** Nature Reserve A25869, Conservation Commission of WA

GENERAL GEOGRAPHY: Bald Island is a small island and the third largest at Channel Point off the southern coast of WA. The north-west section of the island has a capping of eroded aeolianite limestone. Soil is of a good depth over most of the island, except the south-west corner (Abbott 1980).

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Abbott (1980) indicates that vegetation communities on Bald Island are dominated by:

- succulent zone (*Carpobrotus*, *Maireana* and *Sarcocornia*)
- Moonah forest (*Melaleuca lanceolata*) on limestone on the north-east side
- tall heath (*Melaleuca microphylla/Darwinia vestita*) mainly on the north-east side
- Peppermint forest (*Agonis flexuosa*)
- stands of *Eucalyptus lehmannii*
- open heath on the south-west corner
- tussockland (*Poa australis*, *Isolepis nodosa* and *Lepidosperma gladiatum*).

THREATENED FAUNA: 2 EPBC listed threatened fauna species are known to occur on Bald Island and 4 additional listed threatened species are likely to occur on the island. **CR:** Gilbert's Potoroo is known to occur on Bald Island. **EN:** Western Ground Parrot is likely to occur on the island. **VU:** Quokka is known to occur on the island. Baudin's Black Cockatoo, Noisy Scrub-bird and Western Bristlebird are likely to occur on	**THREATENED FLORA:** 1 EPBC listed threatened flora species is likely to occur on Bald Island. **CR:** na **EN:** na **VU:** Western Giant-leaved Moss is likely to occur on Bald Island.

Bald Island. 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Bald Island: Great-winged Petrel, Little Penguin, Silver Gull and White-faced Storm-petrel. 2 additional listed Marine or Migratory species are likely to occur on the island: Caspian Tern and White-bellied Sea-Eagle. 1 additional fauna species listed under one or more one or more Australian state/territory legislation is known to occur on Bald Island: Sooty Oystercatcher.	
SEABIRD/SHOREBIRD BREEDING SITES: 3 seabirds have been recorded in breeding colonies on Bald Island; records for each are from 1976: Great-winged Petrel, Little Penguin and White-faced Storm-petrel. Caspian Tern is also likely to breed on Bald Island.	**OTHER NATURAL VALUES:** Gilbert's Potoroo was translocated to Bald Island in 2005 for conservation reasons. At that time, only 40 individuals of this species were known to exist in the world following the rediscovery of the species in 1994. DEC's recovery program for this species resulted in at least 13 Gilbert's Potoroo living on Bald Island (DEC 2007a).
PEST VERTEBRATES PRESENT: Two vertebrate pests have been previously recorded on Bald Island, but are believed to be no longer present: Pig and Sheep.	**PEST VERTEBRATE IMPACTS:** No specific information, but in the past, general impacts of pig and sheep would likely have occurred, including modification of threatened species' habitat and collapse of seabird burrows.
OTHER THREATS PRESENT: King's Skink (*Egernia kingie*) is likely to predate seabird eggs. Burrows of the Great-winged Petrel may collapse due to impacts from the Quokka *Setonix brachyurus* although this impact would not be considered substantial (Abbott 1980).	**OTHER THREAT IMPACTS:** No specific information but general impacts of King's Skink and the Quokka could be expected.
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: None required at present.	
POTENTIAL ERADICATION RISKS: Potential response of pest plants to the removal of pigs and sheep.	**POTENTIAL BIOSECURITY RISKS:** The distance from the mainland (1.4 km) is outside the swimming range of most feral species, but there is a need to evaluate biosecurity risks and implement a biosecurity plan accordingly (see Recommended Actions).
RECOMMENDED ACTIONS:	

The island is home to a number of threatened species, including Critical and Endangered species, and therefore needs a formal management plan. This plan should be developed with stakeholders and begin with identifying a long-term vision and objectives for the island.

Key aspects needed in the management plan include biosecurity, visitor management and threatened species monitoring.

Biosecurity is an important component of the plan and needs to address the following:

- risk assessment for pest species that could invade the island
- biosecurity measures that need to be implemented in order to minimise invasions
- surveillance
- response plans which cover species-specific eradication methods that would be used in the event of likely invaders (e.g. cats or rats) invading the island.

KEY REFERENCES

Abbott, I.1980. Bald Island. Seabird Islands No. 108. *Corella* 5:64-65.

DEC 2007a. Saving Our Species. Achievements 2006–07. Department of Environment and Conservation (DEC), The Government of Western Australia. Available at: www.dec.wa.gov.au.

Barrow Island & Boodie Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Barrow) & lower 50 (Boodie)
ISLAND NAME & GROUP: Barrow Island and Boodie Island	**MAP 8**
LATITUDE: 20° 47' S [Decimal Degrees -20.798°]	
LONGITUDE: 115° 24' E [Decimal Degrees 115.406°]	
AREA: 23 503 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 56 km to the mainland
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve Nature Reserve A11648; Petroleum lease under Petroleum Act

GENERAL GEOGRAPHY: Sand and gravel overlay the limestone of which Barrow Island almost entirely consists. The island, with a height of 62 m above sea level, has steep, undercut limestone shores with intertidal limestone pavements (DEC 2007b).

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: There is exceptional species diversity as a result of the diversity of substrate types and oceanographic conditions (DEC 2007b).

Six species of mangroves are found in the reserves, along with intertidal sand/mudflat communities, and subtidal soft-bottom communities (DEC 2007b).

THREATENED FAUNA:

6 EPBC listed threatened fauna species are known to occur and a further 5 listed threatened species are likely to occur on Barrow Island and/or Boodie Island including 3 endemics.

CR: na

EN: Loggerhead Sea Turtle is known to occur on Barrow Island.

VU: Barrow Island White-winged Fairy-wren, Burrowing Bettong (Barrow and Boodie Islands), Flatback, Green and Hawksbill turtles are known to occur on Barrow Island.

Barrow Island Wallaroo, Black-flanked Rock-wallaby, Golden Bandicoot and Spectacled Hare-wallaby (Barrow Island) and Flatback Turtle (Boodie Island) are likely to occur on the island.

25 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Barrow Island and/or

THREATENED FLORA:

No EPBC listed, or otherwise listed, threatened flora species are known to occur on Barrow Island.

CR: na

EN: na

VU: na

Boodie Island:

Brahminy Kite, Bridled Tern, Common Greenshank, Common Sandpiper, Crested Tern, Eastern Osprey (Boodie and Barrow Island), Eastern Reef Egret (Boodie and Barrow Island), Fairy Tern, Greater Sand Plover, Grey-tailed Tattler, Gull-billed Tern, Leatherback Turtle, Lesser Sand Plover, Red-necked Stint, Richard's Pipit, Roseate Tern, Ruddy Turnstone, Sanderling, Sooty Oystercatcher, Streaked, Wedge-tailed Shearwater (Boodie and Barrow Islands), Whimbrel, White-bellied Sea-Eagle (Boodie and Barrow Islands), Caspian Tern (Boodie Island) and Silver Gull (Boodie Island).

6 additional EPBC listed Marine or Migratory species may occur on Barrow Island:

Barn Swallow, Fork-tailed Swift, Little Curlew, Oriental Plover, Oriental Pratincole and Rainbow Bee-eater.

3 additional fauna species listed under one or more one or more Australian state/territory legislation are known to occur on Barrow Island:

Leopard Ctenotus, Pied Oystercatcher and a blind snake (*Ramphotyphlops longissimus*).

The blind snake was discovered on Barrow Island in the 1990s and is under consideration for EPBC listing.

SEABIRD/SHOREBIRD BREEDING SITES:

13 seabirds are known to breed on Barrow Island and/or Boodie Island:

Brahminy Kite, Bridled Tern, Caspian Tern, Crested Tern, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Gull-billed Tern, Pied Oystercatcher, Silver Gull, Sooty Oystercatcher, Wedge-tailed Shearwater and White-bellied Sea-Eagle.

Caspian Tern and Silver Gull breeding records are from Boodie Island.

Barrow Island is a significant breeding site for four of these species:

Bridled Tern, Fairy Tern, Sooty Oystercatcher and Wedge-tailed Shearwater.

9 shorebirds are known to occur on Barrow Island. The island is a nationally important area for 3 of these species:

Common Greenshank, Common Sandpiper and Whimbrel.

Barrow Island is considered to be an internationally significant site for 6 shorebird

OTHER NATURAL VALUES:

Barrow Island provides critical nesting habitat for 3 species of turtle:

- Flatback Turtle
- Green Turtle
- Hawksbill Turtle.

Occasional nesting by Loggerhead Sea Turtle has also been recorded on the island.

Barrow Island meets the Ramsar criterion as internationally significant site for shorebirds for six trans-equatorial migratory species (DEC 2007):

- Grey-tailed Tattler – 5th most important site in Australia
- Ruddy Turnstone – 4th most important site in Australia
- Red-necked Stint
- Sanderling
- Greater Sand Plover
- Lesser Sand Plover.

Equal tenth ranking amongst 147 sites as important

species: Greater Sand Plover, Grey-tailed Tattler, Lesser Sand Plover, Red-necked Stint, Ruddy Turnstone and Sanderling.	for migratory shorebirds (DEC 2007b).
PEST VERTEBRATES PRESENT: Two rodents, each listed as an EPBC Key Threatening Process, have been present on Barrow Island, but are now believed to have been eradicated. Black Rat was eradicated from the southern end of the island in 1990/91, and subsequently eradicated from the island. A poisoning campaign in 1985 is believed to have eradicated the Black Rat on Boodie Island. House Mouse has had at least 4 independent introductions, but has been eradicated.	**PEST VERTEBRATE IMPACTS:** Rodents can have devastating impacts on indigenous biota, including birds and their eggs and young, and on small reptiles and small mammals.
OTHER THREATS PRESENT: 1. Construction and operation of a gas processing plant on Barrow Island Nature Reserve (approved by EPA on April 30, 2009.) 2. Activities in Montebello/Barrow Island region with the potential to impact: · Hydrocarbon exploration and production industry · Pearling · Nature-based tourism industry, including fishing, diving, wildlife viewing, island exploring, watersports and surfing · Commercial fishing · Recreational fishing (DEC, 2007). 3. Oil field.	**OTHER THREAT IMPACTS:** 1 and 2 present risks to the biodiversity conservation values of Barrow Island Nature Reserve; 3 presents the potential for oil spills and leaks, which could create risks to the biodiversity conservation values of Barrow Island Nature Reserve.
PAST & CURRENT PEST MANAGEMENT & MONITORING: Introduced black rats, which may eat seabird eggs and chicks, have been eradicated from both Barrow and the Montebello Islands (DEC 2007b).	
FURTHER PEST ERADICATION REQUIREMENTS: 'At risk' habitat types should initially be mapped for introduced plants and the prioritisation of weed management (Dampier Archipelago Island Nature Reserves and Section 5(G) 2002).	
POTENTIAL ERADICATION RISKS: None at present as pests have been eradicated, but any new invasions will present eradication risks, including for indigenous biota.	**POTENTIAL BIOSECURITY RISKS:** Introduction of animal pest and weed species (DEWHA 2008j). Reintroduction/reinvasion by Black Rat and House Mouse, e.g. via equipment and supplies intended for the island.
RECOMMENDED ACTIONS: Update management plans and biosecurity plans and regularly test the effectiveness of the latter and refine accordingly.	

KEY REFERENCES:

Aplin, K.P. 1998. Three new blindsnakes (Squamata: Typhlopidae) from northwestern Australia. *Records of the Western Australian Museum* 19:1–12.

CALM 2002. Dampier Archipelago island nature reserves and section 5(g) reserves management plan issues paper. Department of Conservation and Land Management, on behalf of the Conservation Commission of Western Australia, Government of Western Australia. Available at: www.dec.wa.gov.au. Accessed 17 June 2009.

Conservation Commission 2003. Biodiversity Conservation Values on Barrow Island Nature Reserve and the Gorgon Gas Development. Advice to Government from The Conservation Commission of Western Australia, July 2003.The Conservation Commission of Western Australia, Crawley, Western Australia.

DEC 2007b. Management Plan for the Montebello/Barrow Islands Marine Conservation Reserves 2007-2017. Management Plan No. 55 including the Montebello Islands Marine Park, Barrow Island Marine Park and Barrow Island Marine Management Area. Department of Environment and Conservation, Marine Parks and Reserves Authority, Government of Western Australia.

DEWHA 2008j. Approved Conservation Advice for *Malurus leucopterus edouardi* (White-winged Fairy-wren (Barrow Island)). Approved Conservation Advice (s266B of the Environment Protection and Biodiversity Conservation Act 1999). Available at: www.environment.gov.au. Accessed 28 May 2009.

Short, J and Turner, B 1993. The distribution and abundance of the burrowing bettong, *Wildlife Research* 20(4) 525 – 533. Available at: www.publish.csiro.au. Accessed 23 June 2009.

Bentinck Island & Sweers Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Bentinck Island and Sweers islands, South Wellesley Islands	**MAP 3**

LATITUDE (Bentinck Island):	17° 04' S [Decimal Degrees -17.067°]
LONGITUDE (Bentinck Island):	139° 30' E [Decimal Degrees 139.500°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):**
Bentinck Island: 13 875 ha Sweers Island: 1 132 ha	Bentinck Island: 25 km to mainland, 34 km to Mornington island (Wellesley Islands) Sweers Island: 30 km to the mainland 2.5km between Bentinck and Sweers islands
JURISDICTION: Queensland	**TENURE:** Freehold **STATUS:** Aboriginal freehold land

GENERAL GEOGRAPHY: Unknown.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:	**THREATENED FLORA:**
2 EPBC listed threatened fauna are likely or may occur on the South Wellesley Islands. **CR:** na **EN:** na **VU:** Flatback Turtle is likely to occur on both Bentinck and Sweers islands. Brush-tailed Rabbit-rat may occur on Bentinck Island. 21 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are likely to occur on the South Wellesley Islands: Bar-tailed Godwit, Broad-billed Sandpiper, Black-tailed Godwit, Common Greenshank, Common Sandpiper, Curlew Sandpiper, Eastern Curlew, Great Knot, Greater Sand Plover, Grey Plover, Grey-tailed Tattler, Pacific Golden Plover, Lesser Sand Plover, Marsh Sandpiper, Red Knot, Red-necked Stint, Ruddy Turnstone, Sanderling, Terek Sandpiper, Whimbrel and White-bellied Sea-	No known EPBC listed, or otherwise listed, threatened flora species occur on the South Wellesley Islands. **CR:** na **EN:** na **VU:** na

Eagle. 7 additional listed Marine or Migratory species may occur on the South Wellesley Islands: Barn Swallow, Fork-tailed Swift, Little Curlew, Oriental Plover, Oriental Pratincole, Rainbow Bee-eater and Rufous Fantail.	
SEABIRD / SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT: 1 vertebrate pest is believed to be present on both Bentinck and Sweers islands, and is an EPBC Key Threatening Process: Cane Toad. 2 additional vertebrate pests are believed to be present on Bentinck Island only: Cat and Domestic Dog. Cat is an EPBC Key Threatening Process and dogs are potentially high impact.	**PEST VERTEBRATE IMPACTS:** No specific information, but general predation impacts of Cat, Cane Toad and Domestic Dog could be expected, along with the impacts from possible consumption of toxic cane toads.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: Islands first need to be surveyed for pests and indigenous biota.	
POTENTIAL ERADICATION RISKS: Unknown.	**POTENTIAL BIOSECURITY RISKS:** Unknown.
RECOMMENDED ACTIONS: Undertake survey of the islands to determine indigenous biota and pests present. Stakeholders develop vision and objectives and prepare a management plan. Undertake feasibility studies for pest eradication and biosecurity needs.	
KEY REFERENCES DEWHA 2009b. Australian Islands Biodiversity Database. Shapefiles supplied under licence by Land Data Metadata, the Environment Information Resources Network, Australian Government Department of the Environment, Water, Heritage and the Arts on 12 March 2009. DEWHA 2009f. Australian Seabird Breeding Islands Database. Shapefiles supplied under licence by Species Data Manager, the Environment Information Resources Network, Australian Government Department of the Environment, Water, Heritage and the Arts on 12 March 2009.	

Bernier Island & Dorre Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Bernier Island & Dorre Island (Nature Reserve A24869)	**MAP 8**

LATITUDE (Dorre Island): 25° 03' S [Decimal Degrees -25.056°]

LONGITUDE (Dorre Island): 113° 06' E [Decimal Degrees 113.103°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):**
Dorre Island: 4 959 ha Bernier Island: 4 152 ha	54 km from Dorre Island to mainland 38 km from Bernier Island to mainland 0.5 km between Bernier and Dorre islands 16 km from Dorre to Dirk Hartog Island (which is within 1 km of the mainland; see Dirk Hartog Island profile)
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve **STATUS:** Nature Reserve A24869, Conservation Commission of WA

GENERAL GEOGRAPHY: Bernier and Dorre islands are situated west of Carnarvon, Western Australia.

DEMOGRAPHY & HUMAN USE: The Shark Bay region's economy is based on fishing, tourism, salt production, shell mining, pastoral activities and aquaculture. The tourism industry is reliant on the area's biological and geological attributes (DEC 2007c).

To protect the native wildlife there is no overnight access to the islands. Day visits are permitted on Bernier Island only; access is totally prohibited on Dorre Island (DEC 2009c).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The area is located in the transition zone between two botanical provinces, the South West and Eremaean. Because of this, the area is significant for many flora species and represents the extent of their range. The transition zone is most evident on parts of former Nanga and Tamala Stations, Carrarang and Dirk Hartog Island Stations and Bernier and Dorre Islands (URS 2000, cited in DEC 2007c).

The following vegetation associations have been identified:

- on Bernier Island, open hummock grassland of spinifex (*Triodia plurinervata*) with mallee (*E. oraria*, *E. obtusiflora* subsp. *dongarraensis*) and *Melaleuca cardiophylla*, *Thryptomene baeckeacea*, *Acanthocarpus preissii* and *Beyeria cinerea* shrubs
- on both Bernier and Dorre islands, thicket shrubland of Acacia (*A. ligulata*, *A. sclerosperma*, *A. tetragonophylla*) shrubs over chenopods and shrubs of *Atriplex bunburyana*, *Ptilotus obovatus* and *Scholtzia leptantha*
- on the west coastline dwarf scrub open heath of *Diplolaena dampieri*, *Scaevola crassifolia* and *Westringia rigida*; and patches of drift sand, rocky outcrops and samphire (DEC 2007c).

THREATENED FAUNA:	**THREATENED FLORA:**
4 EPBC listed threatened fauna species (all turtles) are known to occur on Bernier and	2 EPBC listed threatened flora species are found in the Shark Bay Area and are likely or may occur on

Dorre islands, a further 9 species occur in the Shark Bay Area and are likely or may occur on either or both of these islands.

CR: na

EN: Loggerhead Sea Turtle is known to occur on both islands.

Western Barred Bandicoot (Shark Bay) is known to occur in the Shark Bay Area is likely or may occur on either or both of these islands.

VU: Green Turtle, Hawksbill Turtle and Leatherback Turtle are known to occur on Dorre or Bernier Islands.

Banded Hare-wallaby, Burrowing Bettong (Shark Bay), Greater Bilby, Malleefowl, Rufous Hare-wallaby (Dorre Island), Shark Bay Mouse, White-winged Fairy-wren (Dirk Hartog Island) and Greater Stick-nest Rat/ Wopilkara are known to occur in the Shark Bay Area and may occur on either Dorre or Bernier Islands.

9 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on both Bernier and Dorre islands:

Bridled Tern, Caspian Tern, Eastern Curlew, Eastern Osprey, Fairy Tern, Pacific Gull, Silver Gull, Wedge-tailed Shearwater and White-bellied Sea-Eagle.

3 additional listed Marine or Migratory species also occur on Dorre Island:

Common Diving-Petrel, Eastern Reef Egret and Sooty Tern.

2 additional listed Marine or Migratory species occur in the Shark Bay Area and are likely or may occur on either or both of these islands:

Eastern Curlew and Oriental Plover.

1 additional species that is not listed under the EPBC Act, but is listed under an Australian state/territory legislation is known to occur on both Bernier and Dorre islands:

Pied Oystercatcher.

7 additional fauna species listed under one or more one or more Australian state/territory legislation occur in the Shark Bay Area and are likely or may occur on either or both of these islands:

Australian Bustard, Bush Stone-curlew, Rufous Fieldwren (Dorre Island), Shark Bay Worm Lizard, Thick-billed Grasswren (Gawler Ranges), Variegated Fairy-wren (Shark Bay) either or both of these islands.

CR: na

EN: Beard's Mallee is known to occur in the Shark Bay Area is likely or may occur on either or both of these islands.

VU: Common Dragon Orchid is known to occur in the Shark Bay Area is likely or may occur on either or both of these islands.

50 additional poorly known flora, listed as Priority Species (1 to 4) under WA legislation, occur in the Shark Bay Area and are likely or may occur on either or both of these islands:

Acacia drepanophylla and *A. subrigida*, *Acanthocarpus parviflorus* and *A. rupestris*, Small-headed Angianthus, *Anthocercis intricata*, Myoporum-like Anthotroche, *Arnocrinum drummondii*, *Brachyscome halophila*, Woolly Beauty-heads, *Calytrix harvestiana*, *Chamelaucium oenanthum*, *Chthonocephalus muellerianus and C. tomentellus*, *Daviesia purpurascens*, *Desmocladus biformis*, *Dicrastylis micrantha* and *Dicrastylis* sp. Denham (M. Lewis 42/92), *Eremophila cuneata* and *E. glabra subsp. psammophora*, *Eremophila occidens* and *E. splendens*, Lace Net Grevillea, Prickly Plume Grevillea, Rogersons' Grevillea, *Hemigenia saligna*, *Jacksonia dendrospinosa* and *J. velutina*, *Lepidium biplicatum* and *L. puberulum*, *Lepidobolus densus*, *Macarthuria intricata*, *Melaleuca huegelii* subsp. *pritsicensis*, *Olearia occidentissima*, Golden Lambstail, *Physopsis chrysophylla*, *Pileanthus aurantiacus* and *P. bellus*, *Pityrodia glutinosa*, *Ptilotus alexandri*, *Scaevola chrysopogon*, *Sclerolaena stylosa*, *Sondottia glabrata*, *Stenanthemum divaricatum*, *Thryptomene sp. Eagle Gorge (A.G. Gunness 2360)*, *Triodia bromoides*, Shark Bay Featherflower *and featherflowers Verticordia capillaris*, *V. dichroma var. syntoma*, *V. dichroma var.dichroma and V. lepidophylla var quantula.*

Two of these species are endemic to the Shark Bay Area:

Acacia drepanophylla and Shark Bay Featherflower.

and Woma (southwest pop).	
SEABIRD / SHOREBIRD BREEDING SITES: 11 seabirds are known to breed on Bernier and/or Dorre islands: Bridled Tern – Dorre Island Caspian Tern – Dorre Island Common Diving-Petrel – Dorre Island Eastern Osprey – both islands Eastern Reef Egret – Dorre Island Fairy Tern – Dorre Island Pacific Gull – both islands Pied Oystercatcher – Dorre Island Silver Gull – both islands White-bellied Sea-Eagle – both islands Wedge-tailed Shearwater – both islands.	**OTHER NATURAL VALUES:** · Dorre and Bernier islands lie within the Shark Bay World Heritage Area of Western Australia and are home to some of the rarest wildlife in the world; four mammals are found here that occur nowhere else in the world - Banded Hare-wallaby, Rufous Hare-wallaby (Dorre Island), Shark Bay Mouse and Western Barred Bandicoot (Shark Bay) (Dec 2009c). · Most of Shark Bay's islands are free of Cats, Red Fox and livestock, and are therefore important refuges for threatened species. · Loggerhead Sea Turtle nests on both Bernier and Dorre islands. · Bernier and Dorre islands are of immeasurable conservation importance and Classified as 'A' Class nature reserves. · Both islands are protected areas under the Aboriginal Heritage Act. · Listed on the Register of the National Estate by the Australian Heritage Commission in 1985. The initial National Estate listing was based on the islands' natural values, but in 1987 the area's cultural heritage significance was added to the listing (DEC 2007c).
PEST VERTEBRATES PRESENT: Four vertebrate pests have been recorded on Bernier Island, but none of these are currently present: Cat – no longer present Goat – eradicated in 1984 Horse – now absent Sheep – now absent. On Dorre Island, only the Goat was previously recorded from a single skeleton in 1969.	**PEST VERTEBRATE IMPACTS:** These pests in the past could have caused: · predation · habitat destruction · competition for food and territory · introduction of disease · environmental degradation by selective grazing · accelerating erosion (DEC 2007c).
OTHER THREATS PRESENT: · fire · drought · disease · human visitation · weeds · recreation (DEC 2007).	**OTHER THREAT IMPACTS:** · an ocular disease or conjunctivitis in the Western Barred Bandicoot on Bernier and Dorre islands; associated with the identification of a novel chlamydial bacteria. · human visitation can lead to impacts such as soil compaction and erosion, damage to flora and fauna, introduction and spread of weeds and introduction and spread of diseases (DEC 2007c).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plans were

identified.

FURTHER PEST ERADICATION REQUIREMENTS: None at present – pest free.

POTENTIAL ERADICATION RISKS: None at present.	**POTENTIAL BIOSECURITY RISKS:** Given the long distance offshore, any pest invasion would need to be human-assisted. Boating traffic in the area has the potential to allow pests e.g. rodents to colonise the islands. The public access to one island (Bernier) but not Dorre, does not offer enhanced biosecurity for Dorre given the close proximity of the two islands (0.5 km).

RECOMMENDED ACTIONS: Confirm status of management plans and biosecurity plans for the islands.

If there are currently no formal plans develop these with stakeholders and implement.

Given the large number and diversity of threatened and sensitive species present, the arrival and establishment of a pest species on the islands would be devastating and contingency measures could be limited by the vulnerability of some indigenous species to pest eradication methods. A biosecurity plan is therefore the key need. A biosecurity plan needs to address:

- risk assessment for different pest species arriving (e.g. high likelihood of rodents in this situation)
- quarantine methods and surveillance
- response plans to specific scenarios, e.g. rodent/Cat arrival, and specific eradication tools that could be used, research needed, etc.

The management plan should also address monitoring requirements for indigenous species, some of which could also provide pest-surveillance benefits.

KEY REFERENCES:

Burbidge, A.A. 2004. Introduced mammals on Western Australian islands: improving Australia's ability to protect its island habitats from feral animals. Department of Conservation and Land Management, Western Australia.

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DEC 2007c. Shark Bay Terrestrial Reserves and Proposed Reserve Additions Draft Management Plan, Department of Environment and Conservation, Conservation Commission of Western Australia. Available at: www.sharkbay.org. Accessed on 10 June 2009.

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Parkes, J., Henzell, R. and Pickles, G. 1996. Managing Vertebrate Pests: Feral Goats. Australian Government Publishing Service, Canberra.

URS 2000. Shark Bay World Heritage Property: Draft working paper on environmental values cultural uses and petroleum industry impacts, Prepared for the Environmental Protection Authority and Environment Australia, URS, East Perth.

Boigu Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	PRIORITY: Top 100 (lower 50)
ISLAND NAME & GROUP: Boigu Island, Northern Mud Islands, Torres Strait	MAP 3

LATITUDE:	9° 16' S [Decimal Degrees -9.267°]
LONGITUDE:	142° 13' E [Decimal Degrees 142.217°]

AREA: 7 180 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 7.8 km to mainland Papua New Guinea 35 km to Saibai Island (Torres Strait)
JURISDICTION: Queensland	**TENURE:** Freehold/Reserve/State Land **STATUS:** Aboriginal freehold land/Other Crown land/Vacant Crown land

GENERAL GEOGRAPHY: The Northern Mud Islands are one of the main groups of the Torres Strait Islands of which Saibai and Boigu islands are the largest. Like Saibai Island, Boigu Island is an extremely low lying island formed from sedimentary deposits from the large southern rivers of Papua New Guinea, such as the Fly River (Bessen Consulting Services 2005).

DEMOGRAPHY & HUMAN USE: All island communities comprise of residential areas with supporting facilities including churches, council offices and infrastructure, some government agency outlets and council or private operated enterprises. Some individual homes have water tanks and the island also has sewerage systems (Bessen Consulting Services 2005).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Key vegetation types are open woodlands and grasslands, wetlands including mangroves and saltpan communities (Bessen Consulting Services 2005).

THREATENED FAUNA:	THREATENED FLORA:
3 EPBC listed threatened fauna species are likely or may occur on Boigu Island. **CR:** na **EN:** na **VU:** Flatback Turtle is likely to occur on Boigu Island. Hawksbill Turtle and Spectacled Flying-fox may occur on Boigu Island. 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are likely to occur on Boigu Island: Black-winged Monarch, Satin Flycatcher, Spectacled Monarch and White-bellied Sea-Eagle.	1 EPBC listed threatened flora species is likely to occur on Boigu Island. **CR:** na **EN:** na **VU:** Curly Pinks is likely to occur on Boigu Island.

8 additional EPBC listed Marine or Migratory species may occur on Boigu Island: Barn Swallow, Fork-tailed Swift, Latham's Snipe, Little Curlew, Melville Cicadabird, Rainbow Bee-eater, Rufous Fantail and White-throated Needletail.	
SEABIRD / SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Seabed mapping of Torres Strait under the CRC Torres Strait program has shown areas of high habitat biodiversity especially in the area near Boigu Island where significant areas of sponges occur (Bessen Consulting Services 2005).
PEST VERTEBRATES PRESENT: 3 vertebrate pests occur on Boigu Island, one of these is a listed EPBC Key Threatening Process: Cat. Deer and Domestic Dog are both potentially high impact species on the island.	**PEST VERTEBRATE IMPACTS:** No specific information, but potentially high dog impacts on turtles, and cat and dog predation impacts generally, and deer impacts on habitat.
OTHER THREATS PRESENT: · Erosion · Burning regimes · Access.	**OTHER THREAT IMPACTS:** · Loss of and damage to native vegetation and animals. · Damage and destruction of sensitive habitats and place.
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: Control of domestic dogs and eradication of cats.	
POTENTIAL ERADICATION RISKS: No reference found but potentially significant social impacts.	**POTENTIAL BIOSECURITY RISKS:** Although outside swimming distances of pests, there are potential risks of invasive species arriving with freight and other goods.
RECOMMENDED ACTIONS: Consider developing community vision and objectives for the island, a management plan and action plans for eradications, control and strengthened biosecurity. Raise community awareness on the impacts of invasive species, including Pigs which could severely impact turtle nests.	

KEY REFERENCES

Bessen Consulting Services 2005. *Land and Sea Management Strategy for Torres Strait*. Report for the Torres Strait Natural Resource Management Reference Group, Bessen Consulting Services, November 2005.

Bremer Island (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Bremer Island	**MAP 2**

LATITUDE: 12° 06' S [Decimal Degrees -12.110°]

LONGITUDE: 136° 48' E [Decimal Degrees 136.810°]

AREA: 1 679 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 3.7 km to the mainland
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Aboriginal Freehold and Leasehold, Arnhem Land Aboriginal Land Trust

GENERAL GEOGRAPHY: Bremer Island is situated off the coastal strip of north-east Arnhem Land.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Savanna woodl and and dune system (NRETAS 2008a).

THREATENED FAUNA: 5 EPBC listed threatened fauna species, all turtles, are known to occur on Bremer Island; 2 listed mammal species are likely or may also occur on the island. **CR:** na **EN:** Leatherback Turtle and Olive Ridley Turtle are known to occur on Bremer Island and other offshore islands in this area. **VU:** Flatback Turtle, Green Turtle and Hawksbill Turtle are known to occur on Bremer Island and other offshore islands in this area. Water Mouse is likely and Brush-tailed Rabbit-rat may occur on Bremer Island. 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Bremer Island: Black-naped Tern, Bridled Tern, Roseate Tern and Silver Gull. 8 additional listed Marine or Migratory species are likely or may occur on Bremer Island: Barn Swallow, Little Curlew, Melville Cicadabird, Oriental Plover, Oriental Pratincole, Rufous Fantail, Saltwater	**THREATENED FLORA:** No EPBC listed threatened flora are known to occur on Bremer Island. **CR:** na **EN:** na **VU:** na

Crocodile and White-bellied Sea-Eagle.	
SEABIRD / SHOREBIRD BREEDING SITES: 4 seabirds have been recorded breeding in site S032 on East Bremer Islet and on neighbouring islands (Chatto 2001): Black-naped Tern (72 in 1994), Bridled Tern (250/1997), Roseate Tern (2500/1993) and Silver Gull (120/1993).	**OTHER NATURAL VALUES:** Nationally Significant nesting sites are known for Flatback, Green, Hawksbill and Olive Ridley turtles on Bremer Island and other offshore islands in this area, as well as on mainland beaches. This area is especially significant for the high density of nesting of Green Turtles (NRETAS 2008a). Although Leatherback Turtles are recorded occasionally, there are no confirmed nesting sites for this species.
PEST VERTEBRATES PRESENT: Water Buffalo is the only vertebrate pest species known to be present on Bremer Island. The species is of major concern.	**PEST VERTEBRATE IMPACTS:** Increases in Water Buffalo density and gradual spread of weeds. General impacts associated with Water Buffalo, such as trampling of habitat of threatened species and destruction of turtle nests and seabird colonies could also be expected.
OTHER THREATS PRESENT: · increasing visitor pressure on sensitive coastal environments · degradation from vehicle traffic · localised impacts from bauxite mining · infestation by the exotic Yellow Crazy Ant · changed fire regimes · impacts of commercial fishing and marine debris on marine turtles are also of concern · dieback is evident in some vegetation communities (NRETAS 2008a).	**OTHER THREAT IMPACTS:** · erosion · spread of weeds · damage to fire sensitive vegetation · mortality of marine turtles (NRETAS 2008a).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified. Management of weeds, feral animals, and recreational impacts are undertaken by indigenous rangers based in Nhulunbuy and Yirrkala. Feral animal control includes the Yellow Crazy Ant eradication program.

More detailed and systematic monitoring of significant seabird and turtle breeding sites is also required (NRETAS 2008a).

FURTHER PEST ERADICATION REQUIREMENTS: Currently unclear. Firstly need to survey island for indigenous biota, pests and associated threatening processes.

POTENTIAL ERADICATION RISKS: Currently unclear.	**POTENTIAL BIOSECURITY RISKS:** Currently unclear – sufficiently far from mainland for unassisted invasion by most species to occur, although Cane Toad could potentially invade during future floods. Boat traffic with mainland is an issue and could provide opportunities for Cane Toads and other small pests to invade.

RECOMMENDED ACTIONS: Stakeholders work together to survey indigenous values and threats.

Develop visions and objectives for the island and complete management planning to identify feasibility of pest control/eradications and efficacy of biosecurity.

Depending on the outcomes of these tasks, work to implement appropriate management, e.g. pest removal, strengthened biosecurity, community awareness and ongoing surveillance.

KEY REFERENCES

Chatto, R. 2001. The distribution and status of colonial breeding seabirds in the Northern Territory. Technical Report 70, 2001. Parks and Wildlife Commission of the Northern Territory, Palmerston, NT.

NRETAS 2008a. Gove Peninsula and north-east Arnhem coast Sites of Conservation Significance. Department of Natural Resources, Environment, the Arts and Sport, Northern Territory Government. Available at: www.nt.gov.au/nreta. Accessed 28 May 2009.

Bribie Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Bribie Island, Conservation Park in Moreton Bay Area	**MAP 3**

LATITUDE:	26° 57' S [Decimal Degrees -26.950°]
LONGITUDE:	153° 07' E [Decimal Degrees 153.117°]

AREA: 14 757 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0 km to the mainland (narrow channels) 15 km to Moreton Island (QLD)
JURISDICTION: Queensland	**TENURE:** State Land/National Park/Reserve/Freehold/UK/Lands Lease/Housing Commission **STATUS:** Vacant Crown land/Nature conservation reserve/Other Crown land/Mainly freehold land/Unknown/Crown leasehold land

GENERAL GEOGRAPHY: Bribie Island is located off the coast from Caboolture where it forms the north-western perimeter of Moreton Bay. Much of the island is just above or below the water table with a maximum elevation of 10 m (James and Bulley 2004). The island has a bridge over Pumicestone Passage, linking it with the mainland (QPWS 2001). Outside the urban settlements is mainly national park, proposed national park and state forest plantation.

DEMOGRAPHY & HUMAN USE: The southern end of the island is developed for urban use, with a population of 14 000 and expected to rise to 24 000 in the next ten years. It is a tourist destination with the population doubling during peak times (James and Bulley 2004). It contains one of only five recreation areas designated under the Recreation Areas Management Act 1988 throughout Queensland for the management of recreational activities (QPWS 2007a). Pine plantation is currently being re-established in the centre of the island and is managed by DPI Forestry on state forest. National park covers 5 580 ha, which is approximately 40% of the island. Additional proposed national park is also around 5 000 ha (James and Bulley 2004).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES:

The central swamp and associated freshwater wetlands are of particular importance as they are now some of the last remaining large wetland areas of this type, once widespread in southern Queensland (James and Bulley 2004).

Bribie Island supports:

- *Melaleuca quinquenervia* open forest
- Eucalypt open forest
- Heathlands and associated herb and sedge communities
- Mangroves
- Saltmarshes
- *Casuarina glauca* forests

- *Callitris columellaris* Bribie pine
- *Eucalyptus intermedia* forests
- coastal dune communities.

THREATENED FAUNA:

8 EPBC listed threatened fauna species have been recorded on Bribie Island, 2 additional listed species may occur on the island.

CR: na

EN: Leatherback Turtle, Loggerhead Sea Turtle and Regent Honeyeater are known to occur on Bribie Island.

Swift Parrot may occur on the island.

VU: Crested Shrike-tit (northern), Water Mouse, Green Turtle, Grey-headed Flying-fox, Wallum Sedge Frog are known to occur on Bribie Island.

Long-nosed Potoroo (SE mainland) may occur on the island.

52 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) have been recorded on Bribie Island:

Australasian Gannet, Australian Pelican, Bar-tailed Godwit, Beach Stone-curlew, Black-faced Monarch, Black-naped Tern, Black-tailed Godwit, Bridled Tern, Broad-billed Sandpiper, Brown Booby, Caspian Tern, Common Greenshank, Common Sandpiper, Crested Tern, Curlew Sandpiper, Double-banded Plover, Eastern Curlew, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Great Egret, Great Frigatebird, Great Knot, Greater Sand Plover, Grey Plover, Grey-tailed Tattler, Hooded Plover (eastern), Latham's Snipe, Lesser Crested Tern, Lesser Frigatebird, Pacific Golden Plover, Lesser Sand Plover, Little Curlew, Little Tern, Marsh Sandpiper, Masked Booby, Rainbow Bee-eater, Red Knot, Red-capped Plover, Red-necked Stint, Red-tailed Tropicbird, Roseate Tern, Ruddy Turnstone, Rufous/Nankeen Night Heron, Sanderling, Sooty Tern, Terek, Sandpiper, Whimbrel, Whiskered Tern, White-fronted Tern and White-winged Tern (James and Bulley 2004).

3 additional EPBC listed Marine or Migratory species may occur on the island:

Fork-tailed Swift, Latham's Snipe and White-throated Needletail.

4 additional fauna species not listed under the EPBC Act, but listed under Queensland state legislation are found on Bribie Island:

THREATENED FLORA:

7 EPBC listed threatened flora species may or are likely to occur on Bribie Island.

CR: na

EN: 2 swamp orchids, Lesser Swamp-orchid and *Phaius bernaysii*, are likely to occur on Bribie Island.

VU: A wattle (*Acacia attenuata*), Miniature Moss-orchid and Three-leaved Bosistoa are likely to occur on Bribie Island.

Minute Orchid and Stinking Cryptocarya may occur on the island.

2 additional flora species that are not listed under the EPBC Act, but are listed under Queensland state legislation have been recorded on Bribie Island:

Black Wattle and Christmas Bells.

Glossy Black-Cockatoo, Lewin's Rail, Sooty Oystercatcher and Turquoise Parrot.	
SEABIRD / SHOREBIRD BREEDING SITES: Seabird and shorebird breeding information was not sourced, but it's likely that a number of recorded seabird and shorebird species breed on the island.	**OTHER NATURAL VALUES:** Loggerhead Sea Turtle and Leatherback Turtle nesting has been recorded on Bribie Island. Bribie Island is a Conservation Park within the Moreton Bay Area. Bribie Island lies within Pumicestone Passage Marine Park which was incorporated into Moreton Bay Marine Park in 1997 (QPWS 2007a). Moreton Bay, including the southern end of Bribie Island, was declared a Ramsar Site in 1993 (EPA 1999). An artificial shorebird roost has been created at Kakadu Beach for compensatory habitat (QPWS 2005a).
PEST VERTEBRATES PRESENT: 16 vertebrate pests have been recorded and are believed to be currently present on Bribie Island; seven of these are listed as an EPBC Key Threatening Process: Black Rat, Cane Toad, Cat, House Mouse, Pig, Rabbit and Red Fox. In addition, 5 potentially high impact species are believed to be present on the island: Common Myna, Dingo, Domestic Dog, European Cattle and Horse. In addition, 4 medium to low impact species are believed to be present on Bribie Island: Brown Hare, Common Starling, House Sparrow and Mallard.	**PEST VERTEBRATE IMPACTS:** No specific information, but the general predation impacts associated with Cat, Dingo, Domestic Dog and Red Fox, digging and trampling impacts from Pig, Cattle, Horses and Rabbit, and impacts associated with Black Rat, House Mouse Common Myna and Cane Toad could be expected. Some specific impacts are likely e.g. cat, dingo/dog or fox predation on Long-nosed Potoroo and on nesting shorebirds such as Beach Stone-curlew and colonies of tern species.
OTHER THREATS PRESENT: · Moreton Bay oil spill, March 2009 · Fire · Land clearing · Coastal development · Recreational and tourism activities · Storm and flood effects · Sand mining · Predicted impacts of climate change and sea-level rise · Erosion and land degradation · Water extraction · Conversion of dunes to plantation forestry on Bribie Island.	**OTHER THREAT IMPACTS:** · Fire reduces the floristic and structural diversity of the ground and mid-strata and increases the risk of invasion by exotic plants. · Infrequent fire can lead to the loss of fire dependent species from the community as mature individuals senesce while the next generation are either not produced or are unable to establish (James and Bulley 2004). · Climatic events, land clearing and development activities each have the potential for significant, long-term environmental impacts, such as on coastal wetlands, coastal dune systems, remnant coastal lowland ecosystems and habitat. · With the port facilities nearby, major impacts such as the oil spill in March 2009, could occur again. The oil spill occurred on 11 March 2009,

	when 250 tonnes of oil escaped from the container ship Pacific Adventurer and washed up on Sunshine Coast beaches, Bribie Island and Moreton Island. Moreton Island beaches were declared clean in May 2009 after a massive clean-up effort (Queensland Government 2009).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

A general pest management plan, **Areas managed by Queensland Parks and Wildlife Service July 2003 Queensland Parks and Wildlife Service, Queensland Government (QPWS 2003a),** applies:

In common with all other landholders, QPWS also has a responsibility under the *Land Protection (Pest and Stock Route Management) Act 2002* to control declared plant and animal pests on its lands. Under this legislation, QPWS has developed a Pest Management Plan as a framework to guide its pest management activities. QPWS has also developed a Pest Management System to facilitate pest management planning and to guide on-ground pest management activities.

The plan applies to all QPWS managed areas including:

- protected areas (tenured) managed under the *Nature Conservation Act 1992*
- State forests, timber reserves and forest reserves managed under the *Forestry Act 1959* (noting that a memorandum of understanding and operational guidelines exist with the Department of Primary Industries (Forestry) with respect to the management of areas used for timber production)
- other land held by the Department as reserved or freehold land
- land and water managed under the *Marine Parks Act 1982* (including the day-to-day management under the Great Barrier Reef Marine Parks Act (Commonwealth).

The primary objectives for QPWS in managing pests are to:

- protect natural and cultural values, including threatened species and ecosystems, by eradicating pests or significantly reducing impacts
- prevent the introduction or spread of any declared plant or animal on the QPW estate
- undertake pest control programs in co operation with neighbouring landholders, other State agencies and local government in accordance with the QPWS Good Neighbour Policy.

Strategies

1.0 Awareness and education

2.0 Information and data (distribution, abundance, actions, etc)

3.0 Communication

4.0 Planning

5.0 Maintenance of natural and cultural integrity

5.1 Pest prevention

5.2 Management of existing pests

6.0 Resources

7.0 Monitoring and evaluation

Key stakeholders

A broad range of external stakeholders have an interest in QPWS pest management. Key

stakeholders include:

- all direct users of QPWS managed areas and their industry and interest groups. These groups include (in no particular order or priority) pastoralists, timber and other resource users (for tenures under both the *Nature Conservation Act 1992* and *Forestry Act 1959*), mining and extractive industries, fishing and recreation groups
- neighbouring landholders and their industry/interest groups
- the conservation movement
- State agencies, in particular: Department of Natural Resources and Mines, Department of Primary Industries (Forestry), Department of Main Roads, Queensland Rail
- local governments.

QPWS will co-operate with neighbouring landholders, government departments and local authorities to meet its legislative requirements for pest plant and animal control.

Snakes and burrowing animals are particularly under-represented in the fauna data collected to date. Further systematic surveys sampling all faunal groups in a range of typical and atypical seasons are required to maximise the quality of the information upon which the Fire Strategy is based (James and Bulley 2004).

FURTHER PEST ERADICATION REQUIREMENTS: Unclear - see Recommended Actions.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Any eradication program would need full community buy-in. Given proximity of the island to the mainland, separated only by narrow tidal channels, there are significant risks of reinvasion.	High risk of natural and human-assisted invasion of pests, including rodents, cats, ants, pest plants, etc.

RECOMMENDED ACTIONS: Given the high number of pest species present and the high potential for reinvasion, significant management planning is needed.

Stakeholders should build on existing fire management plans and relatively high level of knowledge of species present, and develop a vision and series of objectives for an island management plan.

Key aspects that need addressing in the management plans are:

- up to date survey information on status and distribution of indigenous species and pests
- feasibility studies for pest management taking into account local benefits versus island-wide benefits to indigenous biota of different scales of management, together with the relative feasibility and costs of local pest management, fence-exclusion, island wide management, eradications etc.
- biosecurity efficacy and what are the likely needs for potential management scenarios of the future
- contingency plans for newly-arriving pests and the ability to implement these, taking into consideration surveillance requirements, response methods, costs, impacts, etc.
- monitoring of indigenous species
- community and visitor involvement in management, education, etc.

KEY REFERENCES:

Division of Environmental Planning, Environmental Protection Agency 1999. Information Sheet on Ramsar Wetlands: Moreton Bay. Division of Environmental Planning, Environmental Protection Agency. Available at: www.wetlands.org. Accessed on 25 June 2009.

EPA 1999. Moreton Bay Queensland Information Sheet on Ramsar Wetlands. Prepared by Environmental Protection Agency, Government of Queensland, July 1999. Available at:

www.wetlands.org. Accessed 28 May 2009.

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QPWS 2005a. Shorebird Management Strategy Moreton Bay. The State of Queensland. Environmental Protection Agency.

QPWS 2007. South East Queensland Biogeographic Region. Moreton Island National Park, Cape Moreton Conservation Park and Moreton Island Recreation Area Management Plan, April 2007. Environmental Protection Agency, Government of Queensland. Available at: www.epa.qld.gov.au. Accessed 28 May 2009.

Queensland Government 2009. Moreton Bay oil spill. Press Release, 11 May 2009. Available at: www.qld.gov.au. Accessed 12 July 2009.

Croker Island (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	PRIORITY: Top 50
ISLAND NAME & GROUP: Croker Island, Croker Island Group With some consideration of Lawson Islands, New Year Islands, Oxley Islands, East Croker Islet and other islands within the Croker Island Group.	**MAP 2**

LATITUDE:	11° 08' S [Decimal Degrees -11.135°]
LONGITUDE:	132° 33' E [Decimal Degrees 132.555°]

AREA: 32 410 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 3 km to the mainland
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Arnhem Land Aboriginal Land Trust

GENERAL GEOGRAPHY: Croker Island is a relatively large island off the north coast of west Arnhem Land, north-east of Darwin. The Croker Island Group includes more than eight smaller islands, mostly of sand and coral, which lie 30-50 km east of Croker Island, including East Croker Islet, Grant, Lawson, McClure, New Year and Oxley islands (NRETAS 2008b).

DEMOGRAPHY & HUMAN USE: The islands of the Croker Group are Aboriginal freehold land, held by the Arnhem Land Aboriginal Land Trust. The land mainly supports indigenous use, but waters surrounding the islands are also used by commercial fisheries. The islands are sparsely populated, and the largest community is Minjilang (population 200) on Croker Island. Smaller islands are mostly only inhabited temporarily (NRETAS 2008b).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Although dominated by eucalypt woodland, Croker also supports a mix of other habitats, including coastal dunes, seasonal floodplain, tidal flats and a significant area of monsoon vine thicket (NRETAS 2008b).

THREATENED FAUNA:	THREATENED FLORA:
5 EPBC listed threatened fauna species, all turtles, are known to occur on Croker Island, and 2 listed mammals are likely or may occur on the island. **CR:** na **EN:** Leatherback Turtle and Olive Ridley Turtle are known to occur on Croker Island. **VU:** Flatback Turtle, Green Turtle and Hawksbill Turtle are known to occur on Croker Island. Water Mouse is likely, and Brush-tailed Rabbit-rat may occur on Croker Island. 6 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Croker Island:	No EPBC listed threatened flora species are known to occur on Croker Island. **CR:** na **EN:** na **VU:** na 1 flora species not listed under the EPBC Act, but listed under Northern Territory legislation, occurs on Croker Island: Northern Laurel/Rib-fruited Pepperberry.

Black-naped Tern, Bridled Tern, Lesser Sand Plover, Little Tern, Roseate Tern and Ruddy Turnstone.

11 additional listed Marine or Migratory species are either likely, or may, occur on Croker Island:

Barn Swallow, Beach Stone-curlew, Fork-tailed Swift, Little Curlew, Melville Cicadabird, Oriental Plover, Oriental Pratincole, Rainbow Bee-eater, Rufous Fantail, Saltwater Crocodile and White-bellied Sea-Eagle.

2 additional fauna species not listed under the EPBC Act, but listed under Northern Territory legislation, are known to occur in the Croker Island Group:

Australian Bustard has been recorded on Croker Island;

Arafura Snake-eyed Skink is locally common in coastal areas on New Year and Oxley islands in the group.

SEABIRD / SHOREBIRD BREEDING SITES:

4 seabirds are known to breed within the Croker Island Group:

Bridled Tern - nationally significant breeding sites (e.g. colony S011; Chatto 2001).

Little Tern - breeds on Lawson Islands to east of Croker (e.g. colony S078, S111; Chatto 2001).

Roseate Tern - breeds on a group islands to the east of Croker (e.g. colony S110, S111; Chatto 2001).

Black-naped Tern nationally significant breeding sites (e.g. colony S011, S109-113; Chatto 2001).

In addition, Beach Stone-curlew is known to breed on these islands (Marchant and Higgins 1993).

Croker Island provides regionally important shorebird habitat for the Lesser Sand Plover and Ruddy Turnstone (NRETAS 2008b).

OTHER NATURAL VALUES:

- Internationally and Nationally important nesting sites for Flatback, Green and Olive Ridley turtles. Hawksbill Turtle also breeds on other islands in Croker Island Group.
- The islands have refugial value because they offer some protection to plants and animals from threatening processes affecting populations on the mainland.
- Marine areas within this site are likely to encompass significant biodiversity values and these are currently being explored and collated in a project by the NRETAS' Marine Biodiversity Group (NRETAS 2008b).

PEST VERTEBRATES PRESENT:

5 vertebrate pests are believed to be currently present on Croker Island; two of these are a listed EPBC Key Threatening Process:

Cat and Pig.

Two potentially high impact species are:

European Cattle and Horse.

PEST VERTEBRATE IMPACTS: No specific information, but general predation impacts of Cat and Dingo could be expected, along with digging, trampling and other impacts from large populations of feral pigs, horses and cattle. This could result in significant impacts on several of the threatened and listed species especially when nesting, including turtles and tern colonies.

There are large feral populations of pigs, cattle and horses on Croker Island. Dingo are present, but considered native, on Croker Island. In addition, Asian House Gecko is of potentially low impact on New Year Island only.	
OTHER THREATS PRESENT: · weeds · sea level rise · quarantine risk from illegal fishing boats · cyclone damage (NRETAS 2008b).	**OTHER THREAT IMPACTS:** Introduced plants and animals are degrading floodplain and wetland habitats (NRETAS 2008b).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No specific island management plan was identified, but reports and papers are available (see Key References, below).

In conjunction with the Northern Land Council and the Fisheries Group, support landholders and community based ranger groups to assess the conservation and cultural values, and develop and implement appropriate natural resource management programs (NRETAS 2008b).

Support capacity development of community-based rangers engaged in conservation management including support to increase the number of community based rangers where required (Woinarski and Baker 2002; NRETAS 2008b).

Conduct a biodiversity inventory of Croker Island (Woinarski and Baker 2002).

Additional conservation management actions and priorities are summarized in Woinarski and Baker (2002; Table 8 p. 47).

FURTHER PEST ERADICATION REQUIREMENTS:

Removal of cats, cattle, horses and pigs would benefit habitats, turtle nests, seabird colonies, indigenous mammals, and many other biota.

POTENTIAL ERADICATION RISKS: Given the size of the island, there are several logistical difficulties and these would need to be addressed at the early planning stage.	**POTENTIAL BIOSECURITY RISKS:** Distance to mainland is sufficient to deter "natural" reinvasion of pests, but human-assisted reinvasion is a risk that would need to be addressed and well-managed.

RECOMMENDED ACTIONS:

The community hold the key to managing this island. There is a need to work closely with the owners and community to develop a strategic vision and tactics for managing the island. The recommendation to develop a ranger-based system to survey and manage the island (NRETAS 2008b) is supported.

Support this initiative with firstly advice on feasibility of different approaches for pest management and biosecurity, and secondly ongoing advice and support on tactical approaches. A key decision is whether to undertake eradications or alternatively develop local pest management initiatives at key areas identified by the rangers. Once the survey information is obtained, the feasibility of different approaches can be evaluated.

KEY REFERENCES

NRETAS 2008b. Croker Island group Sites of Conservation Significance. Department of Natural Resources, Environment, the Arts and Sport, Northern Territory Government. Available at: www.nt.gov.au/nreta. Accessed 28 May 2009.

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Woinarski, J. and Baker, B. (2002). *Biodiversity Audit - bioregional case study: Tiwi-Cobourg bioregion, Northern Territory*. In J. Woinarski (ed.) Biodiversity Audit - bioregional summaries. A report to the National Land & Water Audit. Parks and Wildlife Commission of the Northern Territory, Darwin.

Curtis Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Curtis Island With some consideration of Boyne and Facing islands.	**MAP 3**

LATITUDE:	23° 37' S [Decimal Degrees -23.622°]
LONGITUDE:	151° 09' E [Decimal Degrees 151.160°]

AREA: 57 645 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.15 km to the mainland
JURISDICTION: Queensland	**TENURE:** State Forest/National Park/Lands Lease/Freehold/UK/Reserve/State Land **STATUS:** Forest reserve/Nature conservation reserve/Crown leasehold land/Mainly freehold land/Unknown/Other Crown land/Vacant Land

GENERAL GEOGRAPHY: Curtis Island is a large continental island extending along the coast between Gladstone and the mouth of the Fitzroy River. This is a key coastal site within and adjacent to the Great Barrier Reef World Heritage Area, the Queensland and Mackay/Capricorn Marine Park, the Great Barrier Reef Marine Park (Mackay/Capricorn section), Curtis Island National Park, Conservation Park and State Forest, and areas registered on the Register of National Estate - including the eastern part of Curtis Island and Cape Capricorn Lighthouse (Queensland DEH 1994).

DEMOGRAPHY & HUMAN USE: Residential and tourist areas are at the South End, Black Head, Sea Hill and Station Point. Rural uses include grazing and forestry. Other land uses include residential, conservation and tourism (Queensland DEH 1994).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES

Curtis Island has large areas of 'endangered' and 'of concern' regional ecosystems including:

- dry rainforests
- paperbark woodlands
- dune systems
- coastal heath communities
- headland grasslands
- swamp coastal wetlands
- areas associated with the marine plain between Cape Keppel and Cape Capricorn that are recognised in the Directory of Important Wetlands for their significance.

Acacia falciformis woodland occurs on Boyne Island.

THREATENED FAUNA:	**THREATENED FLORA:**
3 EPBC listed threatened fauna species are known to occur on Curtis Island, and 5 listed threatened species are likely to occur on the	No EPBC listed threatened flora species are definitely known from Curtis island, but two listed threatened species are likely or may occur on the

island. **CR:** Yellow Chat (Dawson) is likely to occur on Curtis Island. **EN:** na **VU:** Flatback Turtle, Red Goshawk and Squatter Pigeon are known to occur on Curtis Island. Black-breasted Button-quail, Brigalow Scaly-foot, Water Mouse, and Ornamental Snake are likely to occur on Curtis Island. 2 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Curtis Island: Beach Stone-curlew and Eastern Curlew. A further 8 listed species may occur on the island: Barn Swallow, Black-faced Monarch, Fork-tailed Swift, Latham's Snipe, Little Curlew, Little Tern, Rainbow Bee-eater and White-throated Needletail. 1 additional fauna species not listed under the EPBC Act, but listed under Queensland legislation is known to occur on Curtis Island: Square-tailed Kite. 2 additional Queensland listed threatened species are likely to occur on the island: Glossy Black-Cockatoo and Radjah Shelduck.	island. **CR:** na **EN:** na **VU:** Quassia is likely to occur on Curtis Island. Minute Orchid may occur on the island.
SEABIRD / SHOREBIRD BREEDING SITES: Curtis Coast region supports the second largest population of Beach Stone-curlew in Queensland and is one of the most important areas in Australia for the Eastern Curlew (EPA 2003).	**OTHER NATURAL VALUES:** · The eastern side of Curtis Island is registered on the Australian Heritage Commission's Register of the National Estate (DEH 1994). · Marine plain wetlands of north-eastern Curtis Island provide habitat for the Critically Endangered Yellow Chat (Dawson). · Flatback Turtle nesting is known on sandy beaches on Curtis and Facing islands. · Coastal forest and woodlands and riverine forest usually associated with the genus *Casuarina* is present on the island and provides suitable habitat for Glossy Black-Cockatoo. · Coastal wetlands habitat suitable for Radjah Shelduck occurs on the island. · *Acacia falciformis* woodland on Boyne Island is habitat for Brigalow Scaly-foot.
PEST VERTEBRATES PRESENT: 5 vertebrate pests are believed to be currently present on Curtis Island, three of these are a listed EPBC Key Threatening	**PEST VERTEBRATE IMPACTS:** There are trampling impacts from cattle on Curtis Island. Although no specific information was sourced on the other vertebrate pest impacts,

Process: Cat, Pig and Red Fox. The other two vertebrate pests are potentially high impact: Domestic Dog and European Cattle.	digging and trampling can be expected from feral pigs, and predation impacts from feral cats, dogs and foxes.
OTHER THREATS PRESENT: · Fire · Grazing; · Development in sensitive areas such as on coastal headlands · Opening of currently undeveloped road reserves, such as those that occur along the coast between South End and Black Head · Coastal Development · Access Impacts · Land clearing · Recreational/tourism activities · Storm and Flood effects · Invasive weeds · Forestry · Climate Change (Queensland DEH 1994).	**OTHER THREAT IMPACTS:** · Water quality may be affected by forestry activities through inappropriate chemical use, lack of sediment and erosion controls, and/or lack of maintenance of high conservation value areas such as riparian vegetation. · Cattle grazing is occurring on a number of properties and is having adverse impacts on coastal resources through the disturbance of coastal wetlands, sand dunes and turtle nests. · Impacts from increasing public access to the island include damage to sensitive areas such as dune systems, turtle nesting habitat and wetlands from vehicle use, litter, spread of weeds and disturbance or harm to wildlife. Significant numbers of vehicles are accessing the island at South End. · Turtle nesting habitat along the eastern beaches of Curtis Island are also under significant threat from predation by feral species such as foxes and pigs, and disturbance by cattle (Queensland DEH 1994).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified. However, Curtis Island is covered under the **Curtis Coast Regional Coastal Management Plan (EPA 2003):**

In common with all other landholders, QPWS also has a responsibility under the *Land Protection (Pest and Stock Route Management) Act 2002* to control declared plant and animal pests on its lands. Under this legislation, QPWS has developed a Pest Management Plan as a framework to guide its pest management activities. QPWS has also developed a Pest Management System to facilitate pest management planning and to guide on-ground pest management activities.

The plan applies to all QPWS managed areas including:

- protected areas (tenured) managed under the *Nature Conservation Act 1992*
- State forests, timber reserves and forest reserves managed under the *Forestry Act 1959* (noting that a memorandum of understanding and operational guidelines exist with the Department of Primary Industries (Forestry) with respect to the management of areas used for timber production)
- other land held by the Department as reserved or freehold land
- land and water managed under the *Marine Parks Act 1982* (including the day-to-day management under the *Great Barrier Reef Marine Parks Act* (Commonwealth).

The primary objectives for QPWS in managing pests are to:

- protect natural and cultural values, including threatened species and ecosystems, by eradicating pests or significantly reducing impacts

- prevent the introduction or spread of any declared plant or animal on the QPW estate
- undertake p est co ntrol programs i n co operation wi th nei ghbouring landholders, other State agenci es and local gov ernment i n a ccordance with the QPWS Good Nei ghbour Policy.

Strategies

1.0 Awareness and education

2.0 Information and data (distribution, abundance, actions, etc)

3.0 Communication

4.0 Planning

5.0 Maintenance of natural and cultural integrity

5.1 Pest prevention

5.2 Management of existing pests

6.0 Resources

7.0 Monitoring and evaluation

Key stakeholders

A bro ad ran ge of extern al s takeholders have an i nterest in QPW S pe st man agement. Key stakeholders include:

- all direct users of QPWS managed areas and t heir industry and i nterest groups . These groups i nclude (in no p articular or der or pri ority) past oralists, ti mber and ot her r esource users (for ten ures un der both th e *Nature Conservation Act 1992* and *Forestry Act 1959*), mining and extractive industries, fishing and recreation groups
- neighbouring landholders and their industry/interest groups
- the conservation movement
- State agencies, in particular: Department of Natural Resources and Mines, Department of Primary Industries (Forestry), Department of Main Roads, Queensland Rail
- local governments.

In ac cordance with its Good Nei ghbour Poli cy, QP WS will c o-operate wi th nei ghbouring landholders, government departments and local authorities to meet its legislative requirements for pest plant and animal control.

The objectives of existing plans include the following (Queensland DEH 1994):

- Maintenance o f C urtis I sland in a g enerally natural or non-urban state outsi de ex isting residential and touri st areas at South End, Black Head, Sea Hill and Station P oint while providing opportunities for future development in appropriate locations.
- Maintenance of t he i ntegrity an d e cological f unctioning of ar eas of hi gh conservation significance.
- Development is sited and designed to protect the island's significant coastal resources and their values including protection of the island's scenic coastal landscapes.
- Enhancement of low-key recreation and tourism opportunities in appropriate locations.
- Coordination of management a nd d ecision-making am ong land an d marine r esource managers i n managing a dverse i mpacts o n bi odiversity fr om fi re, pest spe cies, development and public access.
- Management of forestry operations ensure minimal impact on water quality of The Narrows and the waterways flowing to The Narrows.
- Decision-making in r elation t o Curtis I sland is b ased o n a so und un derstanding o f t he island's c oastal r esources and t heir values and p otential adv erse impacts on t hese

resources and values.

- Monitoring of the adverse impacts of cattle grazing on rare and threatened species reliant on the marine plain such as the Yellow Chat and implementation of management actions based on the outcomes of this monitoring.
- Minimise adverse impacts from public access and recreation on dune systems, coastal wetlands and other sensitive areas particularly along the east coast between South End and Black Head.
- Minimise conflicts between recreational and commercial users of Yellow Patch.
- Management of future tourism development (including Black Head) in a sensitive manner, ensuring minimal impact on adjacent turtle nesting habitat, scenic coastal landscapes and biodiversity.
- Undeveloped road reserves along the coast are not formally developed for vehicular purposes.
- Vehicular access along the east coast, particularly between South End and Black Head, is set back from the coast except for minor spur roads to key locations.
- State land parcels 7 USL39720, 9U SL39720, 3C P860403, 6C P860403, 10C P860464 are not allocated for urban development and their future use protects coastal resources and their values through the implementation of an appropriate management regime (Queensland DEH 1994).

FURTHER PEST ERADICATION REQUIREMENTS:

Removal or sustained control of the five mammalian pest species would benefit a wide variety of threatened birds, mammals and reptiles, including an important concentration of Beach Stone-curlew. However, the feasibility of achieving this and the benefits to biota need to be formally evaluated.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Failure to eradicate or sustain pests at sufficiently low levels for key biota to benefit is a significant risk, as is reinvasion from the narrow gap to the mainland.	Significant risks of reinvasion of target pests across the narrow gap, and "new" pest species e.g. Brown Rat and Black Rat could also arrive by themselves. Many other pests could arrive through human-assisted means.

RECOMMENDED ACTIONS:

Build on the existing plans (Queensland DEH 1994) to maintain integrity and ecological functioning of key areas. In order to achieve this, some key requirements need to be addressed or updated:

- Update database on key sites for threatened species and other sensitive biota and habitats; if these data are unavailable complete targeted field surveys, e.g. for the 8 threatened species listed above and for other listed fauna.
- Update information on status and distribution of pest species and if incomplete completed targeted surveys, e.g. is the island free of Cane Toads.
- Update and/or develop management plans, which is likely to involve landowners, community stakeholders, etc in reviewing or deriving new objectives.
- Evaluate potential for different management approaches to achieve objectives of management plans. For example, is island-wide eradication viable and appropriate for maintaining populations of turtles, threatened reptiles, etc given proximity of mainland (0.15 km), or is it feasible to maintain integrity of populations and habitat via sustained local management.
- Take into account recommendations of recovery plans and formal advice, e.g. turtle plans, Red Goshawk Recovery Plan.
- Consider biosecurity implications of eradications and whether surveillance and appropriate

contingency pla ns w ould be a dequate t o s ustain pest -free status. Also consi der potenti al future threats e.g. Cane Toads.

KEY REFERENCES

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Dampier Archipelago (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Rosemary, West Lewis, Dolphin, Legendre (42) and East Lewis) & lower 50 (Angel, Unnamed island (North of Gidley), East Intercourse and Gidley)
ISLAND NAME & GROUP: Dolphin Island, Rosemary Island, West Lewis Island, Legendre Island, Angel Island, East Intercourse Island, Gidley Island, Unnamed island (North of Gidley) and East Lewis Island, Dampier Archipelago.	**MAP 8**

LATITUDE (Rosemary Island):	20° 28' S [Decimal Degrees -20.482°]
LONGITUDE (Rosemary Island):	116° 35' E [Decimal Degrees 116.594°]

ISLAND AREAS:

Rosemary Island: 1,132 ha

Dolphin Island: 3 306 ha

West Lewis Island: 1 973 ha

Legendre Island: 1 320 ha

Angel Island: 916 ha

East Intercourse Island: 233 ha

Gidley Island: 848 ha

Unnamed island (North of Gidley): 231 ha

East Lewis Island: 1 002 ha

DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):

Dolphin Island: 0.5 km to the mainland; joins mainland (0 km) at low tide.

Rosemary Island: 7.6 km to East Lewis

West Lewis Island: 2.5 km to East Lewis Island

Legendre Island: 2.6 km to Dolphin Island

Angel Island: 1.2 km to Dolphin Island

East Intercourse Island: 5.5 km to the mainland

Gidley Island: 1.7 km to Dolphin Island, 0.02 km to Angel Island

Unnamed island (North of Gidley): 0.02 km to Gidley Island

East Lewis Island: 0.8 km to East Intercourse Island

JURISDICTION: Western Australia

TENURE & STATUS

6 of these islands are Nature Conservation Reserves under the Conservation Commission of WA, Pilbara Region.

Dolphin Island: Nature Reserve 34944

Rosemary Island: Nature Reserve A36915

Angel Island: Nature Reserve 36913

Gidley Island: Nature Reserve 36913

Unnamed island (North of Gidley): Nature Reserve 36913

East Lewis Island: Nature Reserve 36907

East Intercourse Island: Other Crown land, Special lease, Hamersley Iron, Pilbara

	Legendre Island: Vacant Crown land, Unallocated Crown land West Lewis Island: unknown

GENERAL GEOGRAPHY: The Dampier Archipelago comprises 42 islands, islets and rocks located off the Pilbara coast, on the north-west coast of Western Australia. Twenty-five of the islands in the Dampier Archipelago are incorporated into four nature reserves. The islands are geologically diverse: sand, limestone, basalt and granite, in various combinations.

Topographically, many of the islands resemble the adjacent mainland and Burrup Peninsula, and are steep and rugged, with coastal cliffs and large rock piles separated by valleys, beaches and coastal sandplains. Sparsely vegetated sand dunes rising to 3 m have formed at the landward margin of beaches and may also occur further inland on the sandplains. Drainage lines which run from the valleys across the sandplain cut through these dunes and run to the ocean. Rock holes in the valleys fill with fresh water following rain, however no permanent fresh water source is known on the islands.

The Burrup Peninsula was formerly known as Dampier Island, as it was separated from the mainland by tidal creek systems and mudflats. With the development of Dampier in the 1960's and later the Dampier Salt fields, service causeways and levee banks were constructed across the creeks and mudflats, and their regular tidal inundation was prevented. Hence the Burrup Peninsula is now regarded as part of the mainland. Much of it is covered by special leases for mining and industrial purposes.

The islands of the Dampier Archipelago range in size from rock islets of less than 1 ha to Enderby Island, the largest, of 3 290 ha. Dolphin Island is the highest island in the archipelago rising to 120 m above sea level (Morris 1990).

DEMOGRAPHY & HUMAN USE: Most people visiting islands of the Dampier Archipelago do so for recreation, and are residents in the Shire of Roebourne towns of Dampier, Karratha, Wickham and Roebourne, all of which are within a 50 km radius of the archipelago. Boat ownership rates are extremely high in these towns (approximately one boat to every 10 people in Karratha) and recreational use of the islands will increase as the population increases. In addition to the local population, the archipelago is also visited during the cooler months by organised marine charters and cruising yachts from elsewhere in Australia and overseas. Due to the climate and topography of the islands, day trips, camping and open fires are generally restricted to the beaches. Many recreational users of these islands are not aware which islands are nature reserves and which are not. Domestic dogs are often taken to the islands by campers and day trippers (Morris 1990).

The islands are under continued pressure to be developed for commercial interests. There is ongoing interest in the establishment of visitor accommodation in the Archipelago. They currently provide a land base for commercial activity, including aquaculture and tourism. The Department of Fisheries is the licensing authority for aquaculture and other marine-based harvesting activities. There is currently one area on West Lewis Island used as a land base for aquaculture in the Archipelago. There are no sealed roads on the islands of the Dampier Archipelago. However, the Nor-West Game Fishing Club is permitted to use approved tracks on Rosemary Island, within the club's lease area.

According to the Marine Parks and Reserves Selection Working Group (1994), of all the islands on the Pilbara coast, those of the Dampier Archipelago have the greatest potential for tourism. In particular, the area has undoubted ecotourism attraction, formed in part by its significant nature conservation values. The area's terrestrial and marine environment offers varied and valued recreational opportunities in close proximity to the local community. Popular activities in the area include recreational fishing, diving, surface water-sports and wildlife viewing. Careful management is required to ensure these values are not adversely affected by inappropriate tourism and recreation (CALM 2002).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The vegetation is predominantly Eremaean (desert tropical) in character, however the Burrup Peninsula, and Dolphin, Angel, and Gidley Islands are botanically different from the Abydos Plain with a higher number of Northern Botanical Province (Kimberley) species (Blackwell et al. 1979, cited in Morris 1990).

288 species of native terrestrial flora species from 60 families are known from the Dampier Archipelago. The Poaceae and Papilionaceae are both well represented families.

Dolphin Island, with 157 recorded flora species, is the most floristically diverse of the islands in the Dampier Archipelago. In particular, the sandplain and water-course areas on Dolphin Island support a diverse flora (Morris 1990). Vegetation is generally *Spinifex longifolius*, which occurs near beaches, and *Triodia* hummock grasslands elsewhere. Scattered *Acacia coriacea*, *A. bivenosa* and *A. pyrifolia*. *Ficus brachypoda*, *Brachychiton acuminatus* and *Terminalia canescens* associated with rockpiles. Large islands have *Eucalyptus victrix* along ephemeral drainage lines (Kendrick and Stanley 2001).

The vegetation associations, commencing at the lowest point on the Dampier Archipelago landscape are (Morris 1990):

- Littoral Association - Mangrove communities occur as narrow bands of vegetation in sheltered locations such as tidal creeks or bays where the substrate is muddy. These attain a height of 4 m and form dense thickets on the shore line. Gordon (1983, cited in Morris 1990) estimates that approximately 330 ha of mangal (mangrove habitat) occur around islands in the Dampier Archipelago, predominantly on Enderby, Gidley and Dolphin Islands. The White Mangrove, *Avicennia marina*, is the most common species, with another five species known. The only Pilbara mangrove species not recorded on the islands is *Osbornia octodonta*. Salt water tolerant communities are often found at the mouths of drainage lines and on the landward side of the mangrove communities. These areas are frequently inundated by sea water during spring tides. Dominant species include Salt Water Couch *Sporobolus virginicus*, *Halosarcia halocnemoides* and *Enchylaena tomentosa*. On the small limestone islets such as Nelson Rocks, which are subject to frequent salt spray, *Threlkeldia diffusa is* a dominant species.
- Sandplain Association - sandplain vegetation is probably the most diverse of any association on the islands. The vegetation is sparse low shrubs to 2 m dominated by native wattles *Acacia bivenosa* and *A. coriacea* and *Myoporum acuminatum* over mid-dense hummock grasses *Spinifex longifolius* and *Triodia pungens*. Bloodwood Eucalypts *Eucalyptus terminalis* and Weeping Box *E. patellaris* to 4 m occur on sandplains at the west end of Enderby Island. These species also occur on rocky soils on Dolphin Island. Annual species such as the Sturt Pea *Clianthus formosus*, *Swainsona pterostylis* and *Trichodesma zeylanicum* appear following rain, particularly along drainage fines. The creeper *Ipomoea pes-caprae* is common on the foredunes. On the pink-brown sandplains of the limestone islands, dominant species include *Triodia* spp., *Salsola kali*, *Ptilotus exaltatus*, *Sorghum plumosum* and *Sarcostemma australe*.
- Run-on Areas and Flats Association - These are areas of heavier alluvial soils which become waterlogged or flooded after heavy rain. They support a variety of mid-dense grasses, and a few shrubs. Dominant species include the grasses *Sorghum plumosum*, *Setaria dielsii*, *Chrysopogon pallidus* and *Eulalia fulva*, the ground covers *Tribulus occidentalis* and *Mukia maderaspatana*, and shrubs *Sesbania cannabina* and *Cassia venusta*.
- Drainage-lines Association - Drainage lines among the rocky slopes of the larger islands support a diverse array of flora particularly on Dolphin Island. The vegetation consists of sparse trees and/or shrubs, predominantly *Eucalyptus microtheca*, *E. terminalis*, *E. patellaris*, and *Terminalia canescens*, over sparse shrubs to 2 m including *Sarcostemma australe*, *Cassia* spp. and *Sesbania cannabina*. Where water is retained in rock pools for long periods *Cyperus vaginatus* and *Scirpus litoralis* occur. Dense *Triodia angusta* tussocks grow in drier water courses.
- Rocky Slope Association - This is the most common association in the archipelago. The vegetation consists of very sparse shrubs (less than 2 m) of *Acacia pyrifolia*, *Grevillea pyramidalis* and *Hakea suberea*, over mid-dense hummock grass *Triodia wiseana*, on rocky soils. Other grasses such as *Themeda australis* and *Eriachne obtusa* also occur. A very sparse vegetation cover is found on the higher rock piles and outcrops. On Dolphin, Angel and Gidley Islands, the vegetation consists of small pockets of fire-sensitive tree and shrub species such as *Brachychiton australe*, native figs *Ficus platypoda* and *F. virens*, *Weeping Pittosporum*, *Pittosporum phylliraeoides* and *Terminalia supranitifolia*. Grasses

such as *Triodia wiseana* and *Themeda australis* occur where soil has accumulated. The rocky areas of Enderby and Rosemary Island are not as diverse. The rocky outcrops on the limestone islands are less rugged, but they also support sparse shrubs to 2 m, predominantly *F. platypoda* and *P. phylliraeoides*.

THREATENED FAUNA:

4 EPBC listed threatened fauna species are known to occur on the nine Dampier Archipelago islands listed in this profile; a fifth occurs on Dolphin Island. Two additional species may occur on some of the islands.

CR: na

EN: Loggerhead Sea Turtle is known to occur on each of the nine Dampier Archipelago islands listed in this profile.

Northern Quoll may occur on Dolphin Island.

VU: Flatback Turtle, Green Turtle and Hawksbill Turtle are each known to occur on each of the nine Dampier Archipelago islands listed in this profile.

Olive Python (Pilbara subspecies) is known to occur on Dolphin Island.

13 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMBA) are known to occur on at least some of the nine islands listed in this profile:

Beach Stone-curlew – West Lewis Island

Brahminy Kite – all nine islands

Bridled Tern – all nine islands

Caspian Tern – all nine islands

Crested Tern – all nine islands

Eastern Osprey – Angel, Dolphin, Legendre, Rosemary and West Lewis islands

Eastern Reef Egret – all nine islands

Fairy Tern – all nine islands

Richard's Pipit – known from all but Angel Island

Silver Gull – Rosemary Island

Wedge-tailed Shearwater – all nine islands

White-bellied Sea-Eagle – all nine islands

White-winged Tern – known from all but Angel Island

5 additional EPBC listed Marine or Migratory species are likely or may occur on at least one of the Dampier Archipelago islands:

Barn Swallow, Little Curlew, Oriental Plover and Oriental Pratincole – Angel, Dolphin, East Lewis, Gidley, Legendre, Rosemary and

THREATENED FLORA:

No EPBC listed, or otherwise listed, threatened flora species are known to occur on the islands of the Dampier Archipelago.

CR: na

EN: na

VU: na

West Lewis islands. White-tailed Tropicbird is likely to occur on Legendre island. 1 additional fauna species not listed under the EPBC Act but listed Western Australia is assumed to occur on Angel, Dolphin and Gidley islands: Ghost bat.	
SEABIRD BREEDING SITES: The area significant breeding grounds and refugia sites for a variety of bird species. The islands provide breeding sites for at least 14 species of seabird and shorebird (CALM 2002). Some islands are internationally important as feeding and resting sites for EPBC listed Migratory birds protected under the JAMBA, CAMBA and/or ROKAMBA bilateral agreements. Seabirds known to breed on these islands include: Eastern Osprey, Eastern Reef Egret and Silver Gull. Shorebirds known to breed on these islands include Beach Stone-curlew.	**OTHER NATURAL VALUES:** The whole of the Dampier Archipelago is on the Register of the National Estate (Morris1990). The surrounding waters are being considered for a marine reserve, and include diverse marine habitats (Kendrick and Stanley 2001). Flatback Turtle, Green Turtle, Hawksbill Turtle and Loggerhead Sea are each known to have nesting sites on several islands within the Dampier Archipelago, including all four species on Delambre, Rosemary and Legendre islands. Nesting turtles have now been monitored Rosemary Island for over 20 years (Kendrick and Stanley 2001). The shallower waters also contain an extensive array of small barrier and fringing reefs, as a result Dampier Archipelago is thought to be the richest area of marine biodiversity in Western Australia (DEWHA 2008i). Significant local mangroves include those on West Lewis, Legendre, Dolphin and Enderby (Kendrick and Stanley 2001).
PEST VERTEBRATES PRESENT: 3 vertebrate pests that are a listed EPBC Key Threatening Process are believed to be currently present only on Gidley Island: Black Rat, Cat and Red Fox. However, Cat and Red Fox have been successfully eradicated from several islands within the Dampier Archipelago, including: Angel, Dolphin, East Intercourse, Legendre and Rosemary islands. Rothschild's Rock-wallaby, a native translocation, is also present on West Lewis Island. Sheep were formerly kept on East and West Lewis islands, but are no longer present. Common Wallaroo were introduced on East and West Lewis islands, but their survival is doubtful.	**PEST VERTEBRATE IMPACTS:** Red Fox and Cat have occupied the islands to the north of the Burrup Peninsula for at least 50 years and have been implicated in the decline of Rothschild's Rock-wallaby. Other small mammal species, birds, reptiles and turtle nesting have probably also been affected by these predators.
OTHER THREATS PRESENT: Feral pigeons are naturalised in small	**OTHER THREAT IMPACTS:** Feral pigeons have caused major problems for

numbers around Karratha and Dampier towns. This species has a history of establishing on islands, particularly near towns (DEC 2006).

In addition to Black Rat, Cat and Red Fox (which have established on some of the Dampier Archipelago islands) House Mouse is established on the adjacent mainland (DEC 2006).

Because of the limited availability of suitable beaches on the mainland, and the public preference for water-based recreational activities, use of these islands, including use of the nature reserves, will almost certainly increase as the populations of nearby towns (in particular Karratha) increases.

Aquaculture: Two leases have been granted in Flying Foam Passage under the *Pearling Act 1912* one of which is for the production of *Pteria* (Penguin Pearl Oyster). These operations are managed from floating platforms. There are a number of other applications for leases for aquaculture in the area of the Archipelago, including requests for shore bases. The Dampier Port Authority oversees the operations of the Port of Dampier (www.dpa.wa.gov.au).

Weeds: Several islands in the Dampier Archipelago have infestations of weeds, including Kapok, Buffel Grass, Prickly Pear and Tamarisk (Kendrick and Stanley 2001).

Mining tenements covering several of the nature reserves are still held by Hamersley Iron Pty. Ltd., and the extraction of limestone from them is possible in the future (Morris 1990).

Further petroleum exploration and ships conveying petroleum products through the archipelago together with the presence of a submarine gas/condensate pipeline and onshore bulk fuel handling and storage facilities present a possible threat of contamination to the Dampier Archipelago (Morris 1990).

seabird

nesting in other parts of Western Australia (DEC 2006).

Seabirds and marine life, including the shoreline and intertidal biota of the nature reserves are at risk. Most seabird breeding occurs during the winter months, which is also when most recreational use of the islands is made by the public (Morris 1990).

Weeds – Invasive grasses are capable of spreading rapidly and competitively excluding native species once the soil has been disturbed. With the increasing use of the islands for recreational and industrial purposes the spread of existing weed species and the introduction of other weeds is possible unless precautionary steps are implemented (Morris 1990).

Some environmental degradation has already occurred, particularly on Rosemary Island, and management programs need to ensure that this is restricted and that rehabilitation ensures the natural regrowth of vegetation (Morris 1990).

Vehicles driving along beaches can damage marine turtle nests and nesting habitat by compacting sand, crushing nests and creating wheel ruts that impede or trap hatchlings. In the North-west Marine Region, pollution from oil and gas production and shipping are also a potential problem for marine turtles, which may ingest floating tar, be fouled by oil and/or become disoriented by artificial light and erroneously head inland for nesting (DEWHA 2008i).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plans were identified.

Nesting turtles have been tagged and monitored on Rosemary beaches for more than 15 years (Kendrick and Stanley 2001).

Regular control of foxes and feral cats has been undertaken on the northern portion of the Burrup Peninsula and adjacent islands for two decades. Complete eradication of these species is not possible because of the connections at low tide between the Burrup Peninsula and Dolphin Island, (Morris 1990). Red Fox monitoring is undertaken on an ongoing basis as an integral part of the CALM's Western Shield Program for the presence of foxes fox control with 1080 poison bait. Baiting is carried out annually on Dolphin, Angel and Gidley Islands, with consideration currently

being given to increasing baiting to twice a year on Dolphin Island. Populations will be maintained at acceptably low levels (CALM 2002).

Appropriate access to the nature reserves was designated through the implementation of a zoning scheme, as recommended by the current management plan. This scheme zoned for various degrees of public access, including 'Special Conservation Zone' (no public access at any time), 'Conservation Zone' (some passive recreation and daylight access only) and 'Recreation Zone' (daytrips and camping permitted). These zones will be further reviewed (CALM 2002).

Any proposed development in the area must balance the protection of the environment, and other potential uses, to obtain the best long-term benefit (CALM 2002).

To prevent the further introduction of exotic fauna onto the islands subject to this plan, no pets or any other animal will be permitted to be taken onto any such islands in the archipelago (Morris 1990).

No specific baiting of feral cats is undertaken, but should be considered (CALM 2002).

If nesting feral pigeons are located on the Burrup Peninsula, they should be exterminated by whatever means are most expedient (DEC 2006).

FURTHER PEST ERADICATION REQUIREMENTS:

The three Key Threatening Process species – Fox, Cat and Black Rat – are priority for removal (See Recommended Actions).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Some non-target risks associated with poisoning and trapping pests would need to be identified in feasibility studies/ management plans. High risk species include Northern Quoll, predatory birds and shorebirds.	The Dampier Archipelago contains numerous islands with a great variety of distances and visitation levels between them and reinvasion risks will vary accordingly. Cat and Red Fox re-invasion of Dolphin island could occur at low tide and of East Intercourse Island via a causeway. It is possible that the other introduced species on the Burrup Peninsula, the Black Rat and House Mouse, will move north to colonise the islands, and compete with the native rodent species (Morris 1990). Biosecurity planning has been identified as a need in the past (Burbidge 2004) and should include overall risk assessments which will enable appropriate surveillance and response contingencies to be prepared. Removal of some species (e.g. rats) may make it easier for other pests to colonise (e.g. House Mouse), therefore biosecurity measures need to be strengthened.

RECOMMENDED ACTIONS:

The very high values of these islands warrant the preparation of a dedicated management plan. The planning process should build on the existing very significant restoration initiatives and include other stakeholders – mainland community, tourist ventures, fishing clubs, etc.

Key needs are to:

- Clarify status of some key indigenous species, e.g. Northern Quoll, and assess opportunities for species recovery taking into account relevant recovery plans and other guiding documents
- Clarify status and distribution of Black Rat

- Identify vision and objectives for island as first part of planning process
- Complete feasibility studies for pest eradications and prepare eradication plans accordingly
- Complete risk assessments of potential biota arriving at the islands
- Review existing biosecurity and adapt or revise biosecurity measures accordingly, and
- Involve stakeholders throughout the above tasks.

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Darnley Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Darnley Island, Torres Strait	**MAP 3**

LATITUDE: 9° 35' S [Decimal Degrees -9.587°]

LONGITUDE: 143° 46' E [Decimal Degrees 143.771°]

AREA: 580 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 70 km to mainland Papua New Guinea 180 km to the mainland (Cape York)
JURISDICTION: Queensland	**TENURE:** Freehold/Reserve **STATUS:** Mainly freehold land/Other Crown land

GENERAL GEOGRAPHY: Darnley island is an eastern volcanic island of the Torres Strait, derived from Pleistocene basalt (BCS 2005).

DEMOGRAPHY & HUMAN USE: The Darnley Island population is mainly Torres Strait islanders of Melanesian decent (BCS 2005).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:	**THREATENED FLORA:**
4 EPBC listed threatened fauna species occur on Darnley Island and an additional 2 threatened species are likely or may occur on the island. **CR:** Herald Petrel may occur on Darnley Island. **EN:** Olive Ridley Turtle is known to occur on Darnley Island. **VU:** Flatback Turtle, Green Turtle and Hawksbill Turtle are known to occur on Darnley Island. Spectacled Flying-fox may occur on the island.	1 EPBC listed threatened flora species is likely to occur on Darnley Island. **CR:** na **EN:** na **VU:** Curly Pinks is likely to occur on Darnley Island.
SEABIRD/SHOREBIRD BREEDING SITES: Unknown, but potential breeding ground for Herald Petrel (CR).	**OTHER NATURAL VALUES:** Flatback, Green, Hawksbill and Olive Ridley turtles nest on Darnley Island and on other islands in the Torres Strait, such as Prince of Wales (Muralug) Island (see Top 50 island profile). Darnley Island is a key area for a globally significant population of nesting Hawksbill Turtle.

PEST VERTEBRATES PRESENT:	PEST VERTEBRATE IMPACTS:
3 vertebrate pests are believed to be currently present on Darnley Island; two of these are listed EPBC Key Threatening Process: Cat and Pig. Domestic Dog is a potentially high impact species.	No specific information but general impacts of Cat, Pig and Domestic Dog could be expected.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: Consider control of domestic dogs and eradication of pigs and cats.

POTENTIAL ERADICATION RISKS:	POTENTIAL BIOSECURITY RISKS:
POTENTIAL ERADICATION RISKS: Likely to be some social impacts.	**POTENTIAL BIOSECURITY RISKS:** No unassisted invasion is likely, but there may be significant risks associated with transport of freight and other goods to the island.

RECOMMENDED ACTIONS:

Review status of threatened species on the island, including turtle species and Herald Petrel - likely to require field surveys for Herald Petrels and other potential nesting seabird species.

With local community develop vision, objectives and strategies for the island and develop and implement operational plans and biosecurity accordingly.

KEY REFERENCES

BCS 2005. Land and Sea Management Strategy for Torres Strait, report for the Torres Strait Natural Resource Management Reference Group, Bessen Consulting Services, November 2005.

Howley, C., McCollum, I., O'Connell, K., and Stephan, K. 2006. Cape York Peninsula Marine and Coastal natural Resource Management Action Plan. Report produced for the Department of Communities, Cape York Peninsula Engagement Group, with funding from the Natural Heritage Fund. Available at: www.cypda.com.au. Accessed 28 May 2009.

Dirk Hartog Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Dirk Hartog, within the Shark Bay World Heritage Area	**MAP 8**

LATITUDE:	25° 50' S [Decimal Degrees -25.842°]
LONGITUDE:	113° 03' E [Decimal Degrees 113.057°]

AREA: 62 775 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 1 km to the mainland 16 km to Dorre Island
JURISDICTION: Western Australia	**TENURE:** Crown leasehold **STATUS:** Pastoral lease, limited freehold

GENERAL GEOGRAPHY: Shark Bay is located on the western most point of Australia, about 800 km north of Perth. Dirk Hartog Island National Park is adjacent to Shark Bay Marine Park and includes the eastern and northern coastlines. It is national park to High Water Mark. The coastal dunes of the area occur on the western edge of Edel Peninsula and the islands to the north (Dirk Hartog, Dorre and Bernier).

DEMOGRAPHY & HUMAN USE: The population of the Shark Bay Shire is estimated to be 974.

Tourist accommodation and several camping sites are provided on Dirk Hartog Island. It has been estimated that the island generally receives less than 500 visitors per year, excluding visitors to the homestead. Visitor numbers are expected to remain low unless additional facilities and infrastructure are provided. Boat access is expected to increase slightly.

There are two airstrips on Dirk Hartog Island and a helipad has been constructed at Cape Inscription adjacent to the lighthouse (McCluskey et al. 2007).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: There are patches of bare areas of drift sand across the island. In some parts there are a few birridas. On the east coast there are small patches of mixed open heath of *Diplolaena dampieri*, *Myoporum* sp. and *Conostylis* sp. shrubs (McCluskey et al. 2007).

The main vegetation associations on Dirk Hartog Island are:

- spinifex hummock grassland with an overstorey of either *Acacia coriacea*, *Pittosporum phylliraeoides* over *Acacia ligulata*, or *Diplolaena dampieri*, *Exocarpos sparteus* shrubs over *Triodia* sp. In other areas *Acanthocarpus preissii* and *Atriplex bunburyana* chenopods or shrubs over hummock grasses across the majority of the island
- mixed open shrub land of *Atriplex* sp., *Olearia axillaris* and *Frankenia* sp. adjacent to the western coastline and slightly inland in more protected sites, *Triodia plurinervata*, *Triodia* sp., *Melaleuca huegelii*, *Thryptomene baeckeacea* and *Atriplex* sp.

THREATENED FAUNA:	**THREATENED FLORA:**
3 EPBC listed threatened fauna species (all turtles) are known to occur on Dirk Hartog Island. 1 additional threatened species is likely to occur and a further 10 listed species	2 EPBC listed threatened flora species are found in the Shark Bay area and may occur on Dirk Hartog Island.

may occur on the island.

CR: na

EN: Loggerhead Sea Turtle is known to occur on Dirk Hartog Island.

Leatherback Turtle, Western Barred Bandicoot (Shark Bay), Western Spiny-tailed Skink may occur on the island.

VU: Green Turtle and Hawksbill Turtle are known to occur on the island.

White-winged Fairy-wren (Dirk Hartog Island) is likely to occur on the island.

Banded Hare-wallaby Burrowing Bettong (Shark Bay), Greater Bilby, Malleefowl, Rufous Hare-wallaby, Shark Bay Mouse and Wopilkara/Greater Stick-nest Rat may occur on the island.

7 EPBC listed Marine or Migratory birds (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Dirk Hartog Island:

Bridled Tern, Caspian Tern, Eastern Osprey, Fairy Tern, Silver Gull, Sooty Tern and White-bellied Sea-Eagle.

4 additional Migratory birds are known to occur in the Shark Bay Area and may occur on the island:

Eastern Curlew, Fork-tailed Swift, Oriental Plover and Rainbow Bee-eater.

2 additional birds listed under one or more Australian state/territory legislation are known to occur on Dirk Hartog Island:

Pied Oystercatcher and Southern Emu-wren (Dirk Hartog Island).

8 additional species, not EPBC listed, but listed under one or more Australian state/territory legislation are found in the Shark Bay Area, and may occur on Dirk Hartog Island:

Australian Bustard, Bush Stone-curlew, Rufous Fieldwren (Dorre Island), Shark Bay Worm-lizard, Thick-billed Grasswren (Gawler Ranges), Variegated Fairy-wren (Shark Bay) and Woma (southwest pop), Woylie.

CR: na

EN: *Eucalyptus beardiana* may occur on Dirk Hartog Island.

VU: Common Dragon Orchid may occur on Dirk Hartog Island.

1 additional species listed as rare under WA legislation is found in the Shark Bay area and may occur on Dirk Hartog Island:

Beard's Mallee.

50 additional poorly known flora, listed as Priority Species (1 to 4) under WA legislation, occur in the Shark Bay Area and are likely or may occur on Dirk Hartog:

Acacia drepanophylla and *A. subrigida*, *Acanthocarpus parviflorus* and *A. rupestris*, *Small-headed Angianthus*, *Anthocercis intricata*, Myoporum-like Anthotroche, *Arnocrinum drummondii*, *Brachyscome halophila*, Woolly Beauty-heads, *Calytrix harvestiana*, *Chamelaucium oenanthum*, *Chthonocephalus muellerianus and C. tomentellus*, *Daviesia purpurascens*, *Desmocladus biformis*, *Dicrastylis micrantha* and *Dicrastylis* sp. Denham (M. Lewis 42/92), *Eremophila cuneata* and *E. glabra subsp. Psammophora*, *Eremophila occidens* and *E. splendens*, Lace Net Grevillea, Prickly Plume Grevillea, Rogersons' Grevillea, *Hemigenia saligna*, *Jacksonia dendrospinosa* and *J. velutina*, *Lepidium biplicatum* and *L. puberulum*, *Lepidobolus densus*, *Macarthuria intricata*, *Melaleuca huegelii* subsp. *pritsicensis*, *Olearia occidentissima*, Golden Lambstail, *Physopsis chrysophylla*, *Pileanthus aurantiacus* and *P. bellus*, *Pityrodia glutinosa*, *Ptilotus alexandri*, *Scaevola chrysopogon*, *Sclerolaena stylosa*, *Sondottia glabrata*, *Stenanthemum divaricatum*, *Thryptomene sp. Eagle Gorge (A.G. Gunness 2360)*, *Triodia bromoides*, Shark Bay Featherflower *and featherflowers Verticordia capillaris*, *V. dichroma var. syntoma*, *V. dichroma var.dichroma and V. lepidophylla* var. *quantula.*

Two of these species are endemic to the Shark Bay Area:

Acacia drepanophylla and Shark Bay Featherflower.

SEABIRD/SHOREBIRD BREEDING SITES:

At least 8 seabirds breed on Dirk Hartog Island:

Bridled Tern, Caspian Tern, Eastern Osprey, Fairy Tern, Pied Oystercatcher, Silver Gull,

OTHER NATURAL VALUES:

The northern tip of Dirk Hartog Island was listed on the National Heritage List for cultural reasons in 2006 (McCluskey et al. 2007).

Parts of Dirk Hartog Island contain important

Sooty Tern and White-bellied Sea-Eagle.	biological areas such as breeding areas for waterbirds and turtles, including the Loggerhead Sea Turtle (McCluskey et al. 2007). The Shark Bay Regional Strategy (WA Planning Commission 1997) proposed that Dirk Hartog Island become a national park, and this process began in 2005 (www.dec.wa.gov.au/news).
PEST VERTEBRATES PRESENT: 6 vertebrate pests have been recorded on Dirk Hartog Island, four of these are believed to be currently present. Three of the extant vertebrate pests are a listed EPBC Key Threatening Process: Cat, Goat and House Mouse. Cat eradication has been planned by DEC. Sheep are considered potentially high impacting species, but are largely contained within a sheep station. Camel and Horse are now absent from the island.	**PEST VERTEBRATE IMPACTS:** · Grazing pressure · Cats will have exerted heavy predation pressure on many small mammals as well as on birds and reptiles on the island · Increasing fragmentation, loss of remnants and lack of recruitment impact on the Dirk Hartog Island White-winged Fairy-wren (McCluskey et al. 2007).
OTHER THREATS PRESENT: · Sheltered waters of the marine park such as the eastern side of Dirk Hartog Island are possibly being overfished (CALM 1996). · Recreation sites across Dirk Hartog Island have formerly evolved without consideration for long term sustainability. · Plans for increased tourist accommodation; much of the planning area is located within the Shark Bay World Heritage Property. · Visitors bringing animals ashore. · A potential increase in access and recreational use of the island, including four-wheel driving activities. · Very sandy soils of the Shark Bay area, such as the coastal dunes, are vulnerable to erosion and take considerable time to rehabilitate. · Fire. · Weeds, such as Buffel Grass (*Cenchrus ciliaris*), are widespread over Peron Peninsula and parts of Dirk Hartog Island (McCluskey et al. 2007).	**OTHER THREAT IMPACTS:** · Fish stocks depleted. · As boating activity around these islands increases, coastal sites adjacent to anchorages are becoming more prone to disturbance. · Visitors introducing predators and herbivores such as cats, rabbits, foxes, rats or insects such as cockroaches would have significant impacts. Introduction of rats to Dirk Hartog Island would be catastrophic for the island's Southern Emu-wren (DEC 2007d) and on other species. · Invasive plant species have had significant impacts in some areas. Buffel Grass, a tough perennial bunch grass, was actively spread by the pastoral industry. Buffel Grass can displace native species and can rapidly establish a monoculture. · Fire - the presence of Buffel Grass particularly on parts of South Peron and Dirk Hartog Island creates the ideal fuel source for wildfire; it burns readily, even when green, rapidly regenerates after fire (Tu 2002, cited in DEC 2007a), and is capable of encouraging and carrying wildfires through other vegetation communities that are not adapted to fire. · Coastal sites are generally of a poor standard with signs of landscape degradation and loss of amenity evident. · Potential pollution; i.e. hazardous substances

	and noise.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified. However, several documents cover aspects of Dirk Hartog Island management.

Boat access may be controlled by applying a permit system as a means for ensuring pets are not introduced, preventing campsites from becoming degraded, informing visitors on appropriate behaviour, monitoring numbers and types of visitors and protecting the beach environment (CALM 1996).

The number of private vehicles on the island at any one time will continue to be limited to a maximum of 10 including any tour operator vehicles. The impact of the vehicles on the island will be monitored and reviewed on a regular basis and if negative environmental impacts occur then alternative arrangements may be considered. In summer the tracks become powdery, difficult to traverse and more prone to degradation.

The Western Australia Department of Environment and Conservation (DEC) vision for Dirk Hartog Island is to provide four-wheel drive destinations that also offer a range of nature-based recreation, tourism opportunities and experiences in a remote and natural environment that is managed for ecological restoration. Therefore the island may need to be closed to public vehicle access during summer months which has occurred to date (McCluskey et al. 2007).

Development of ecotourism accommodation on the freehold lots at the island's homestead and on Sunday Island Bay has implications for visitor management, the ecological restoration project and the natural environment of the rest of the island. However, DEC's management plan intends to retain the character of the island as a remote destination in a largely natural, unmodified environment (McCluskey et al. 2007).

Existing plans recommend:

- consideration of including the waters adjoining Bernier and Dorre Islands and the waters west of Dirk Hartog Island and Edel Land in the marine park on the basis of their biological values and existing and proposed use
- declaration of "limited access area" should be applied to important biological areas (i.e. breeding areas) under section 62 of the CALM Act which allows for access only when permission is given (see Section 30 –Visitor Access – Special Access)
- establishing appropriate long term vegetation monitoring plots to measure the recovery, condition, species composition and recruitment following pest animal removal, particularly on Dirk Hartog Island
- implementing a Dirk Hartog Island Ecological Restoration program. Introduced animals, primarily goats and cats, are to be removed then native fauna reintroductions undertaken. The restoration project will also include vegetation restoration, weed control, rubbish removal, soil rehabilitation and surveying of flora and fauna
- fauna reconstruction is occurring on Peron Peninsula, Heirisson Prong, and Faure Island and is proposed to occur on Dirk Hartog Island
- preparing and implementing a fauna reconstruction plan for Dirk Hartog Island including the removal of sheep, goats and cats, construction of monitoring tracks, subsequent reintroduction of native fauna and control of threatening processes across the island
- controlling weeds according to the priority species and priority areas (such as Dirk Hartog Island, South Peron and priority sites such as visitor sites, roads/tracks, bores and old pastoral buildings), as determined in the weed control program by appropriate methods including mechanical removal, use of appropriate herbicides and by biological methods
- a cat eradication program. No foxes occur on Dirk Hartog Island. Since rabbits are also absent, the potential to eradicate cats is high. If cats can be removed, the complete reconstruction of the pre-European native fauna may be possible
- minimising the numbers of introduced animals and, where possible, negate the impacts of problem animals on the key values of the planning area
- establishing and maintaining a register of all feral animals in the planning area and in

adjacent areas. The register is to include details of distribution, relevant biological information, a history of control measures and any information relating to their impact upon native mammals

- preparing a priority control plan and program for each introduced animal and controlling problem animals in accordance with the Department policy and operational guidelines
- developing a monitoring program to evaluate the effectiveness of any control program in improving biodiversity indicators such as fauna abundance
- undertaking trapping, baiting and shooting of pest animals through planned programs with approval of the Director General
- encouraging visitors to report sightings of introduced animals especially on Dirk Hartog Island
- monitoring islands where introduced animals are not present to ensure they remain free of introduced animals
- supporting research into the impacts of introduced predators and herbivores in the planning area
- supporting continued research, development and application of effective baits and vectors for control of introduced animals
- liaising with landholders, local authorities, and the Department of Agriculture, Food and Fisheries (DAFF) regarding control of problem animals within the planning area and the surrounding lands, and including emus along the barrier fence
- not permitting domestic animals in the proposed Francois Peron National Park, Dirk Hartog Island National Park and proposed Edel Land National Park, with the exception of guide dogs and dogs associated with search and rescue operations (see Section 35 – *Domestic Animals*)
- within the planning area, only permitting domestic animals in designated areas of Shell Beach Conservation Park and proposed South Peron (to be named) Conservation Park.

The **Action Plan for the Conservation of Australian Marsupials and Monotremes (Wildlife Australia 1996)** identified the broad objectives and actions required as:

- conserve populations of endangered species on Bernier and Dorre Islands. It proposed that populations of each of these species be reintroduced to areas of their former habitat by the year 2000. Peron Peninsula and Dirk Hartog Island are proposed as major translocation sites once threatening processes such as feral predators and competitors are controlled
- establishment of national parks at Dirk Hartog Island and Edel Land (part of Carrarang Station)
- a need for an integrated management plan for the island that addresses values, threats, opportunities for restoration, and opportunities and constraints for tourism and development, some of which have already been addressed to a degree
- a management plan should identify information gaps and feasibility study requirements for the eradication of cats, mice and goats and associated sustainability issues, e.g. biosecurity needs, surveillance and pest-response needs to ensure foxes, rats etc never establish and others do not recolonise
- the plan should attempt to integrate with other islands in the area and the neighbouring mainland where there are also key stakeholders.

Shark Bay Terrestrial Reserves and Proposed Reserve Additions - Draft Management Plan (McCluskey et al. 2007) indicates that the major foci for managing the natural environment for the term of this plan are to:

- contribute to the ecological restoration of Dirk Hartog Island through the management of introduced species and the reintroduction of native animal species

- establish a wildlife tourism venture based on threatened species
- control introduced animals, in particular feral cats and goats
- increase knowledge into the effects of buffel grass and its control, and subsequent rehabilitation of affected areas
- improve knowledge of the biodiversity attributes of the Shark Bay area to provide the basis for informed decision making
- establish the scientific and management basis for protecting the values of the region from the impacts of unavoidable future climate change.

Saving Our Species Program, Department of Environment and Conservation (DEC), The Government of Western Australia.

In July 2006 DEC introduced *Saving our Species* – a two-year, $15 million biodiversity conservation initiative aimed at boosting efforts to conserve our unique plants, animals and ecosystems. The *Saving our Species* initiative:

- aims to advance the recovery and protection of WA's threatened species and ecological communities by supplementing DEC's ongoing biodiversity conservation management strategies, such as supporting activities that are carried out under recovery plans for individual threatened species and ecological communities, and management plans covering the entire threatened flora in a DEC region or district
- is supporting these strategies by addressing critical biodiversity conservation priorities where significant long-term results can be achieved from a short-term, strategic focus
- has identified priorities including eradicating or reducing weeds and pest animal species to a level where recurrent programs can maintain effective control, protecting and recovering threatened high-value biodiversity assets, filling important gaps in scientific knowledge and research, and meeting 'good neighbour' commitments that aim to strengthen partnerships between DEC and landowners whose properties join DEC-managed lands
- is targeting pest animal species in key areas where there are known impacts and where it is feasible to eradicate or significantly reduce populations in a short period to protect key biodiversity values
- has allocated funds to target populations and species of weeds that can be eradicated over a relatively short period as well as locations where a local 'knock down' of weed populations can bring the weed situation back to a controllable level with regular maintenance operations
- is investing in important biological surveys and research that are essential to future conservation efforts by providing the knowledge on what species and communities occur where, and their conservation status and threats.

FURTHER PEST ERADICATION REQUIREMENTS: Cat, mouse and goat are key issues on the island and need to be addressed in management plans together with enhanced biosecurity (see below).

POTENTIAL ERADICATION RISKS: Given the large size of the island there are significant costs and technical risks particularly for mouse eradication	**POTENTIAL BIOSECURITY RISKS:** Given short distance to mainland (1 km) and the recreational and other activities occurring on the island, there are significant invasion risks, e.g. for rats, foxes and invertebrates.

RECOMMENDED ACTIONS

Build on the 2007 management plan, confirming objectives if required.

Include the following key elements:

- update existing data on status and distribution of threatened and listed indigenous species and pest species; complete additional surveys if needed
- evaluate the cost-effective way forward for managing the highest values e.g. the most threatened of the indigenous species
- in this evaluation pay particular attention to the reinvasion/invasion risk given that the island is

only 1.0 km offshore at the narrowest gap to the mainland so there are potential invasion pathways for rats, foxes and others

- also integrate recommendations from appropriate recovery plans and other formal advice, e.g. turtle recovery plans, advisors for Western Barred Bandicoot and other small mammals and White-winged Fairy Wren, including monitoring recommendations
- evaluate other biosecurity aspects, e.g. risk assessments, efficacy of current biosecurity, and needs for the future
- determine the roles for other stakeholders, including local community and tourism operators.

KEY REFERENCES:

CALM 1996. Shark Bay Marine Reserves Management Plan 1996-2006. Department of Conservation and Land Management (CALM) for the National Parks and Nature Conservation Authority, The Government of Western Australia, Perth, Western Australia.

DAFF 2009. AusBIOSEC – Building on current Sectoral Strategies and Programs. Australian Government Department of Agriculture, Fisheries and Forestry. Available at: www.daff.gov.au. Accessed on 25 June 2009.

DEC 2009a. NatureBase. Department of Environment and Conservation (DEC), Western Australian Herbarium, The Government of Western Australia. Available at: www.calm.wa.gov.au.

DEC 2009b. FloraBase - the Western Australia Flora. Department of Environment and Conservation (DEC), Western Australian Herbarium, The Government of Western Australia. Available at: florabase.calm.wa.gov.au.

DEC 2007a. Saving Our Species – Achievements 2006-07, Department of Environment and Conservation (DEC), The Government of Western Australia.

DEC 2007d. Dirk Hartog Island Southern Emu-wren (*Stipiturus malachurus hartogi*) Fact Sheet, Government of Western Australia.

McCluskey, P., Anthony, C., Gillen, K., Hancock, S., Rose, D., Cowell, C. and Fitzgerald, B. 2007.

McCluskey, P. 2008 Shark Bay World Heritage Property Strategic Plan 2008 – 2020, Department of Environment and Conservation and Department of the Environment, Water, Heritage and the Arts, Canberra.

Shark Bay Terrestrial Reserves and Proposed Reserve Additions - Draft Management Plan, Department of Environment and Conservation, Conservation Commission of Western Australia.

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Dunk (Coonanglebah) Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Dunk (Coonanglebah) Island, Family Islands	**MAP 3**
LATITUDE: 17° 56' S [Decimal Degrees -17.945°]	
LONGITUDE: 146° 09' E [Decimal Degrees 146.158°]	
AREA: 721 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 4 km to the mainland
JURISDICTION: Queensland	**TENURE:** National Park/Reserve/Freehold/UK **STATUS:** Nature conservation reserve/Other Crown land/Mainly freehold land/Unknown

GENERAL GEOGRAPHY: The Family Islands National Park is part of the Great Barrier Reef World Heritage Area. Dunk Island is the largest island of the Family Island National Park. The National Park consists of two parts separated by freehold land.

The highest peak in the park is Mt Kootaloo at 271 m above sea level on Dunk Island. Dunk Island has a varied topography including sandy beaches and rocky shores on the leeward side, slightly undulating slopes, foothills and steeper semi-rugged terrain. A sand spit and beaches are located on the western side, and there are also sandy beaches on the south western end of the island. At least two creeks have water for most of the year (QPWS 2000).

DEMOGRAPHY & HUMAN USE: Management in the past has allowed camping in the Family Islands; camping is currently permitted on Wheeler, Coombe and Dunk islands. Picnic and day visitor facilities are available on Wheeler and Dunk islands. There is a large resort and private residences on separate freehold portions of Dunk Island. The Dunk Island Spit is the most heavily used area in the park. The Spit area has been highly modified, and has a public jetty, café, water sports centre, campground; an airport and the large resort are nearby. With its jetty and close proximity to the mainland, Dunk Island attracts many commercial operators; regular trips to the Spit include a water taxi service.

The national park area on the Spit is leased to the Cardwell Shire Council, and a smaller area has been sub-leased to the Dunk Island Resort. The sub-lease is issued to facilitate day use and camping in the area, and under its provisions, the resort is required to carry out day-to-day management of the sub-lease area. The resort is also responsible for certain management actions on the whole Spit area (QPWS 2000).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Dunk Island supports a mosaic of rainforest (mostly complex mesophyll vine forest), and transitional forest types with emergent eucalypts and rainforest understorey in more exposed areas. Mangrove communities are present on the south side of the island where there is protection from the prevailing winds. An area of wind-sheared heath is present on the northeastern headland of the island (QPWS 2000).

THREATENED FAUNA: 4 EPBC listed threatened fauna species may occur on Dunk Island. **CR:** na	**THREATENED FLORA:** 1 EPBC listed threatened flora species is known to occur on Dunk Island and an additional listed threatened species is likely to occur on the island.

EN: Waterfall Frog, Common Mistfrog, and Lace-eyed Tree Frog may occur on the island. **VU:** Spectacled Flying-fox may occur on the island. 8 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Dunk Island: Beach Stone-curlew, Black-naped Tern, Bridled Tern, Crested Tern, Lesser Crested Tern, Little Tern, Spectacled Monarch and White-bellied Sea-Eagle. 1 additional EPBC listed Marine or Migratory species is likely to occur on the island: Satin Flycatcher. 4 additional EPBC listed Marine or Migratory species may occur on the island: Barn Swallow, Latham's Snipe, Little Curlew and White-throated Needletail. 2 additional fauna species listed under one or more Australian state/territory legislation are known to occur on Dunk Island: Australian Swiflet and Sooty Oystercatcher.	**CR:** na **EN:** na **VU:** Australian Arenga Palm is known to occur on Dunk Island. Curly Pinks is likely to occur on the island.
SEABIRD/SHOREBIRD BREEDING SITES: 5 seabirds, all terns, are known to have breeding colonies within the Family island National Park: Black-naped Tern, Bridled Tern, Crested Tern, Lesser Crested Tern and Little Tern.	**OTHER NATURAL VALUES:** The Family Islands are a National Park within the Great Barrier Reef Marine Park.
PEST VERTEBRATES PRESENT: 2 vertebrate pests have been recorded and are believed to be currently present on Dunk Island; both are a listed EPBC Key Threatening Process: Cane Toad and Pig.	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of Pig and Cane Toad could be expected.
OTHER THREATS PRESENT: · Human disturbance · Coconut trees · Weeds: Lantana, a sensitive plant (*Mimosa* sp.) and Singapore Daisy, each a Declared Plant in Queensland, are known to occur on the island.	**OTHER THREAT IMPACTS:** · Affects ground or beach nesting species. · Coconuts have the capacity to alter the ecology and appearance of the sand spits of the islands.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified. The Family Islands National Park Management Plan (QPWS 2000) provides the framework and guidelines on how Family Islands National Park will be managed. It sets out the considerations, outcomes and strategies that are proposed to form the basis on which day to day management

decisions are made. The following objectives and tasks are derived from this plan (QPWS 2000).

Objectives/Desired Outcomes:

- Maintain the composition, distribution and condition of the islands natural terrestrial ecosystems.
- Ensure that no new weeds or feral animals are introduced.
- Minimise the impacts of introduced plants and animals on the natural ecosystems of the National Park.
- The nesting populaton of seabirds is maintained at least at current levels.

Tasks:

- Identify the causes of any significant changes to the islands' natural ecosystems.
- Address any impacts attributable to human activities (e.g. by changing permitted levels or increasing patrols).
- Remove introduced non-native species will be removed where feasible; particular attention will be given to the eradication of feral pigs from Dunk Island.
- Implement measures to prevent any introduction/re-introduction of non-native species.
- Ensure planting or revegetation work use only species that are native to the island.
- Control the existence of coconut trees by not permitting further planting; coconuts will not be allowed to establish on any beaches where adult trees have not been present previously.
- Encourage and support a thorough flora and fauna survey of all the Family Islands.
- Develop simple and rapid techniques for monitoring the sand spit vegetation.
- Monitor the impact of major research projects (e.g. using fixed point photography or surveys involving transects).

Stakeholders: Cardwell Shire Council, Queensland Parks and Wildlife Service, Dunk Island Resort.

Costs: not specified.

Issues: not specified.

Reports: not specified.

FURTHER PEST ERADICATION REQUIREMENTS: Test feasibility of eradicating the two pests present – pigs and cane toads.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Possibly minimal for pigs but needs testing as does Cane Toad eradication achievability.	Given volume and variety of traffic to the island, there are potentially high biosecurity risks that could include arrival of rodents, exotic invertebrates on the island.

RECOMMENDED ACTIONS:

Conduct regular patrols to the Family Islands to conduct multiple monitoring and management tasks, such as weed eradication (QPWS 2000).

The QPWS 2000 Family Island management plan should be supported to include the following:

- all stakeholders meet to discuss and agree on vision and objectives for managing the entire island and the general approach towards integrating conservation and tourism development
- depending on outcome above, confirm status of pests on the island (including distribution of Cane Toads and surveillance for rodents etc) and test feasibility of eradicating the full suite of vertebrate pests
- irrespective of above two actions, regularly test effectiveness of biosecurity plan and tasks, and

revise these as required

- undertake surveys of key threatened fauna on the island, including Endangered frogs – follow recommendations of recovery plan for Lace-eyed Tree Frog and other formal advice for managing frogs and other threatened species
- review ongoing monitoring needs for indigenous biota and surveillance needs for pests at the island.

KEY REFERENCES

QPWS 2000. Family Islands National Park Management Plan, August 2000. Queensland Parks and Wildlife Service, Queensland Government.

Elcho Island & Howard Island (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Elcho) & lower 50 (Howard)
ISLAND NAME & GROUP: Elcho Island, Elcho Island Group With consideration of Burgungurra, Drysdale, Graham and Stevens islands, to the north-east of Elcho Island, and within the Elcho Island Group. Although not part of the Elcho Island Group, we include consideration of Howard Island here due to its geographical context in close proximity to Elcho Island and the mainland.	**MAP 2**

LATITUDE (Elcho Island):	11° 57' S [Decimal Degrees -11.959°]
LONGITUDE (Elcho Island):	135° 44' E [Decimal Degrees 135.743°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):**
Elcho Island: 28 243 ha Howard Island: 27 324 ha	Elcho Island: 0.8 km to the mainland, 2.2 km to Howard Island. Howard Island: 0 km to the mainland (narrow channels of < 5m which would be connected at low tide) 1.3 km between Elcho and Graham Islands; 2 km between Graham and Drysdale islands; 3.5 km between Drysdale and Burgungurra islands; and 2.7 km between Burgungurra and Stevens islands.
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Aboriginal Freehold and Leasehold

GENERAL GEOGRAPHY: The islands of the Elcho Island Group have low topography, but parts of their shorelines support sand dunes and ironstone cliffs. The Elcho Island Group includes Elcho, Graham, Drysdale, Burgunngura and Stevens' islands. Elcho Island is the largest island in this group. The chain of islands is oriented south-west to north-east, and is located immediately west of the Wessel Islands group. The islands are bounded by the Arafura Sea on the western side and the Cadell and Brown Straits on the east (NRETAS 2008c).

Howard Island lies southwest of Elcho island, barely separated from the mainland by narrow tidal channels.

DEMOGRAPHY & HUMAN USE: The Galiwin'ku (Aboriginal) population is 1700 on the island. Elcho and the neighbouring islands are Aboriginal freehold land and are part of the Arnhem Land Aboriginal Land Trust lands. The land mainly supports Indigenous uses, but the surrounding waters are also used for commercial fishing (NRETAS 2008c).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Elcho Island is dominated by eucalypt woodland, interspersed with pockets of monsoon forest along drainage lines, grading into mangroves in tidal areas (NRETAS 2008c).

THREATENED FAUNA:	**THREATENED FLORA:**
3 EPBC listed threatened fauna species, all	1 EPBC listed threatened flora species is known to

turtles, are known to occur on Elcho Island. 2 additional listed threatened species are likely and 1 additional species may occur on the islands.

CR: na

EN: Olive Ridley Turtle is known to occur on Elcho Island.

VU: Flatback Turtle and Green Turtle are known to occur on Elcho Island.

Water Mouse and Hawksbill Turtle are likely to occur on Elcho island.

Water Mouse and Flatback Turtle are also likely to occur on Howard Island.

Brush-tailed Rabbit-rat may occur on Elcho and/or Howard islands.

10 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Elcho Island:

Bar-tailed Godwit, Black-naped Tern, Black-tailed Godwit, Caspian Tern, Great Knot, Grey Plover, Little Curlew, Little Tern, Oriental Plover and Roseate Tern.

Black-tailed Godwit and Great Knot are also likely to occur on Howard Island.

2 additional listed Marine or Migratory species are likely occur on Elcho and/or Howard islands:

Saltwater Crocodile and White-bellied Sea-Eagle.

6 additional listed Marine or Migratory species may occur on Elcho and/or Howard islands:

Barn Swallow, Fork-tailed Swift, Melville Cicadabird, Oriental Pratincole, Rainbow Bee-eater and Rufous Fantail.

Little Curlew, Little Tern and Oriental Plover may also occur on Howard Island.

3 additional fauna species listed under one or more Australian state/territory legislation are known to occur with the Elcho Island Group:

Australian Bustard - present on Burgungurra Island to north-east of Elcho Island.

Ghost Bat - several colonies on Elcho Island.

Yellow-spotted Monitor - present on Drysdale Island to north-east of Elcho.

occur and 1 additional listed threatened species is likely to occur in the Elcho Island Group.

CR: na

EN: na

VU: Australian Arenga Palm is known to occur on Elcho Island, and likely to occur on Howard Island.

Ectrosia blakei is likely to occur on Elcho Island.

SEABIRD/SHOREBIRD BREEDING SITES:

OTHER NATURAL VALUES:

4 seabirds are known to breed within the Elcho island Group:

Black-naped Tern, Caspian Tern, Little Tern and Roseate Tern (Chatto 2001).

Two nationally significant seabird breeding colonies are known on Burgungurra and Drysdale islands (NRETAS 2008c).

The southern coastline of Elcho Island supports large aggregations of shorebirds with over 20 000 recorded in 1992 and 15 000+ present in 1999 (Chatto 2003, cited in NRETAS 2008c). Important shorebird records have been recorded from several sites on Elcho island and within the island group, including:

Bar-tailed Godwit - roost of 5 000 is internationally significant (NRETAS 2008c).

Extensive Seagrass (*Zostera* sp.) beds in Cadell Strait support a population of Dugong, and Australian Snubfin Dolphin also inhabit these waters. The marine areas within this site are likely to encompass other significant biodiversity values and these are currently being explored and collated in a project by the Marine Biodiversity Group of NRETAS (NRETAS 2008c).

Significant nesting Flatback and Olive Ridley turtle sites are known on the beaches of islands within the Elcho Island Group. Green Turtle nesting is also likely to occur within the group (NRETAS 2008c). Flatback Turtle nesting is also likely on Howard Island.

Two vertebrate species, *Brachyurophis morrisi* and Groote Dwarf Blind Snake, and one plant species, *Spermacoce stigmatosa*, recorded from this site are endemic to the Northern Territory and only found in the Arnhem Coast bioregion (NRETAS 2008c).

PEST VERTEBRATES PRESENT:

4 vertebrate pests have been recorded, and are believed to be currently present on Elcho Island; each of these is a listed EPBC Key Threatening Process:

Black Rat, Cat, Cane Toad and Pig.

The extent of Black Rat populations and feral cats is uncertain (S. Morrison, pers. comm.)

2 vertebrate pests are known to occur on Howard Island:

Cane Toad and European Cattle.

PEST VERTEBRATE IMPACTS:

Pigs are damaging rainforests and swamps on Elcho Island (NRETAS 2008c).

Cane Toads have been reported but it is not known if they are breeding there (Northern Land Council 2004, cited in NREATS 2008c).

OTHER THREATS PRESENT:

- All coastal areas in northern Australia are at risk of degradation from sea-level rise resulting from climate change (Hyder Consulting 2007, cited in NRETAS 2008c).
- Intimate knowledge of traditional fire management on Elcho Island is likely to be being lost - traditional burning techniques have been practiced on Elcho Island until recent times and healthy stands of the fire-sensitive Northern Cypress Pine still persist in the island's woodlands.
- Nine declared Category B weeds and seven other undeclared but problematic environmental weeds (high priority weeds; Smith 2001, cited in NRETAS 2008c) are present around settlements on Elcho Island.

OTHER THREAT IMPACTS:

- In the period 1993-2004, 100% of the Elcho Island site was burnt in fewer than three years. Loss of Aboriginal fire management from the islands would have the potential to significantly degrade environments within the Elcho Island Group.
- Weeds and pigs are damaging sensitive rainforest and wetland habitats, and could significantly degrade environments on Elcho Island if left unchecked.
- Marine debris, including ghost nets, is threatening marine turtle populations in north-east Arnhem Land (Carpentaria Ghost Net Program).
- Illegal netting and crabbing is likely to be affecting local fisheries (NRETAS 2008c).

- Marine debris, including ghost nets.
- Illegal professional netting and crabbing occurs around the islands (NRETAS 2008c).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

A draft sea and land management plan was developed in 2003 (Mahney 2003) for island groups including the Elcho-Drysdale Island group, and the adjoining mainland areas of north east Arnhem Land, to identify important natural resource management issues and future priorities. The island groups also form part of the proposed Marthakal Indigenous Protected Area and Commonwealth funding has been granted to progress this proposal. Indigenous rangers based at Galiwin'ku, on Elcho Island, are working collaboratively with NT Parks and Wildlife staff and are actively trying to maintain the Cane-Toad-free status of the islands, participate in surveys and collection of marine debris, and are managing mission grass and gamba grass around settlements. The islands are part of the proposed Marthakal Indigenous Protected Area (NRETAS 2008c).

Annual surveys of marine debris on selected sandy beaches by Indigenous rangers as part of the Northern Territory Marine Debris Monitoring program (NRETA 2007), plus irregular surveys and collection of fishing nets by Indigenous rangers under the Carpentaria Ghost Net Program (www.ghostnets.com.au).

A botanical survey of Elcho Island was conducted in the mid 1970's (Dunlop et al. 1975), followed by a survey of orchids on the island in 1978 (Clements 1978).

Fire in the tropical savannas is mapped continuously under the North Australia Fire Information Project (www.firenorth.org.au/nafi).

Following NRETA (2005), NRETAS (2008) identify the following management recommendations:

- Continue to support and build capacity of Gumurr Marthakal Rangers to manage threatening processes, monitor threatened species, and document natural resource values.
- In conjunction with Northern Land Council, NT Department of Primary Industry, Fisheries and Mines, traditional owners and other stakeholders, explore the options for conservation of biodiversity around these Island groups including options for joint management.
- Continue to build awareness in local communities about Cane Toads and other invasive species through the Island Ark project.
- Build modern conservation ethics (replacing traditional instruction) into school curricula to equip young Elcho Islanders to manage their land in the future.

FURTHER PEST ERADICATION REQUIREMENTS:

Update pest status for the islands. Cane toads should be eradicated from the remote islands.

Other potential eradications need to be evaluated during management planning.

POTENTIAL ERADICATION RISKS:

Unknown but need to be assessed during management planning.

POTENTIAL BIOSECURITY RISKS: Cane Toad is present on Elcho Island and it is a priority to keep cane toads from the more remote islands in the group (NRETAS 2008c). Currently Howard Island appears to be free of cats, pigs and rats, but its close proximity to the mainland suggests that invasions are likely to occur.

RECOMMENDED ACTIONS:

Landowners and other stakeholders should meet to discuss cultural and biodiversity values and objectives for the islands. This could include identification of pest status and biodiversity values for

all o f t he G roup, id entification o f f urther information n eeds, f easibility s tudies, m anagement approach a nd bi osecurity i ssues and nee ds. The Ranger system used el sewhere could b e developed here for e.g. turtle protection given the islands' importance for several species.

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Erith Island & Deal Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Erith Island & Deal Island, Kent Group With some consideration of Dover, North East and South West islands and Judgement Rocks in the Kent Group.	**MAP 6**
LATITUDE (Erith Island):	39° 26' S [Decimal Degrees -39.449°]
LONGITUDE (Erith Island):	147° 17' E [Decimal Degrees 147.292°]
ISLAND AREAS Erith Island: 320 ha Dover Island: 291 ha Deal Island: 1 567 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** Erith Island: 81 km to mainland; 0.3 km to Dover Island, these islands are likely to be connected during low tide. 1 km between Erith and Deal islands. Deal Island: 50 km from Flinders Island
JURISDICTION: Tasmania	**TENURE:** Nature Conservation Area **STATUS:** National Park (Kent Group National Park) managed by Tasmania's Parks and Wildlife Service. Note: Deal Island is co-managed through a volunteer program.

GENERAL GEOGRAPHY: The Kent Group is an archipelago comprising of three large islands (Deal, Erith and Dover islands), two smaller islands (North East and South West) and their associated offshore rocks, including Judgment Rocks. Kent Group National Park is located approximately midway between the northern extremity of Flinders Island and the southern tip of Wilsons Promontory in eastern Bass Strait. The Kent Group is isolated from mainland Tasmania on the northern side of Bass Strait and access is only possible by boat or helicopter.

Compared to many other islands, these islands are relatively high, and the islands have many steep slopes. Deal Island reaches 305 m above sea level (Parks and Wildlife Service 2005).

DEMOGRAPHY & HUMAN USE: The Kent Group can be accessed by sea or air, but getting there can be relatively difficult. Deal and Erith islands are the two largest islands in the group, and are relatively easy for a mariner to land on. Other islands in the group are much more difficult to land on and have been little visited. Dover, North East and South West islands and Judgment Rocks are largely surrounded by steep rocky shorelines or precipitous cliffs and/or their leeward sides provide little protection from ocean swells. Small fixed-wing aircraft have been known to land on Deal Island in the past but the grass landing strip is now considered to be unsafe and has been closed. Passage by small boat to the Kent Group can also be hazardous due to ocean swells (Parks and Wildlife Service 2005).

Nevertheless, the existence of relatively safe anchorages in the Kent Group has meant the islands have historically been important as a haven for shipping during Bass Strait storm events. The island group continues to be an important safe haven for commercial fishers, and destination for recreational mariners. The group is located within a corridor of other islands stretching across Bass Strait, each within easy eyesight from the next. The waters in and around the group have in the past supported some commercial fishing activities, including by Victorian-based holders of Tasmanian fishing licences. Fish and other marine animals taken include shark, wrasse and other

scalefish, rock lobster and abalone (Parks and Wildlife Service 2005).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES:

The vegetation of Dover and Erith islands is broadly characterised as comprising of ten communities occupying seven broad vegetation types, many of which have variable patterns of dominance (Kirkpatrick 1995, cited in Parks and Wildlife Service 2005):

- low forest dominated by *Allocasuarina verticillata*
- three types of closed scrub; one dominated by *Melaleuca ericifolia*, another by *Leptospermum laevigatum*
- a shrubland/open scrub dominated by *Myoporum insulare*
- open and closed heath
- coastal complex, including rocky shore and fore-dune vegetation
- two tussock grassland types, one dominated by *Poa poiformis* and the other by *Austrostipa stipoides*, and
- a wetland community, dominated by *Juncus* species.

The vegetation of Deal Island has been broadly characterised as comprising 13 communities occupying eight broad vegetation types, many of which have variable patterns of dominance (Harris and Davis 1995, cited in Parks and Wildlife Service 2005).

- 47.5% covered by *Eucalyptus nitida* formations, including low open forest and two types of tall open shrubland
- 24.6% covered by *Allocasuarina verticillata* formations including low closed forest, low open forest and low open woodland
- 20% covered by two tussock grassland types, one dominated by *Poa poiformis* and the other by *Austrostipa stipoides*
- less than 1% covered by a beach dune complex
- 0.4% covered by a closed scrub of *Leptospermum scoparium* and *Melaleuca ericifolia*
- 0.3% covered by a sedgeland, dominated by *Lepidosperma gladiatum*
- 0.1% covered by a closed scrub dominated by *Myoporum insulare*, and
- much of the rest (about 6%) comprising of cliff complex.

THREATENED FAUNA:

1 EPBC listed threatened fauna species is known to be present on both Erith and Deal islands in the Kent Group.

CR: na

EN: Southern Brown Bandicoot is known to be present on both Erith and Deal islands.

VU: na

4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMA) are known to occur on both Erith and Deal islands:

Afro-Australian Fur Seal, Little Penguin, Little Tern and Short-tailed Shearwater.

2 additional EPBC listed Marine or Migratory species are likely to occur on both of these

THREATENED FLORA:

1 EPBC listed threatened flora species is known to be present on Erith Island.

CR: na

EN: Basalt Pepper-cress is known to occur on Erith Island.

VU: na

14 additional flora species listed as threatened under Tasmanian legislation are known to occur within the Kent Group; 9 of these are believed to occur on both Erith and Deal islands:

Banded Greenhood, Coast Pomaderris, Coast Twin-leaf, Common Cudweed, Many-flowered Starwort, Shade Pellitory, Shade Pepper-cress, Slender Cotula and Tiny Arrowgrass.

A lichen (*Xanthoparmelia microphyllizans*), Broom Wheel Fruit, Orange-tipped Caladenia and Scarce

islands: Hooded Plover (eastern) and White-bellied Sea-Eagle. 2 additional EPBC listed Marine or Migratory species may occur on Deal Island: Latham's Snipe and White-throated Needletail.	Centrolepis are known to occur on Deal Island. Lance Beard Heath is known to occur on Erith Island.
SEABIRD/SHOREBIRD BREEDING SITES: Short-tailed Shearwater is known to breed on Erith, North East and South West islands in the Kent Group National Park (Brothers et al. 2001). North East Island is a particularly important breeding site with the summer population of Short-tailed Shearwater estimated to be about 200 000 (Parks and Wildlife Service 2005). Little Penguin is also known to breed on islands within the Kent Group National Park.	**OTHER NATURAL VALUES:** Afro-Australian Fur Seal is known to breed on islands within the Kent Group National Park. Five sites in the Kent Group National Park are listed as Sites of Conservation Significance in the Tasmanian Geoconservation Database (Parks and Wildlife Service 2005): 1. High level Aeolian limestone found on Deal Island 2. Raised sea cave, the 'Great Cave' on Erith Island 3. Lithogically-controlled geomorphology on Judgment Rocks 4. Cobble tombolo, the 'Swashway' between Dover and Erith islands, and 5. Subfossil bone deposits in cross-bedded Aeolian sands, the 'Valley of Dry Bones', Winter Cove, Deal Island. The Kent Group National Park has biogeographic significance. The native flora of the Bass Strait islands is uniquely transitional between mainland and Tasmania flora, and contains many geographic outliers; i.e. flora species which are either at the northern or southern end of their range. As a result there are many examples of flora species that are not normally found in association. The heath community found on the higher parts of Dover Island is considered to have considerable conservation significance since it is unique and only reserved in this location (Kirkpatrick 1995, cited in Parks and Wildlife Service 2005).
PEST VERTEBRATES PRESENT: 7 vertebrate pests have been recorded on Deal Island and 3 species on Erith Island. 3 vertebrate pest species are believed to be currently present on both Erith and Deal islands; each of these species is a listed EPBC Threatening Process: Black Rat, Brown Rat and Rabbit. 2 additional vertebrate pests, both a listed EPBC Threatening Process, are believed to be currently present on Deal Island:	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of the Black Rat, Brown Rat, Cat, House Mouse and Rabbit could be expected. Past impacts from grazing cattle and sheep would have caused land degradation on Deal Island.

Cat and House Mouse. European Cattle and Sheep have been eradicated from Deal Island.	
OTHER THREATS PRESENT: An exotic snail, Dune Snail (*Theba pisana*), is present on both Erith and Deal islands. Weed species likely to have environmental consequences within the Kent Group National Park include Sea Spurge (*Euphorbia paralias*), Mullien (*Verbascum Thapsus*), Ragwort (*Senecio jacobaea*), Horehound (*Marrubium vulgare*), Arum Lily (*Zantedeschia aethiopica*), Scotch Thistle (*Cirsium vulgare*), and Kikuyu (*Pennisetum clandestinum*). Sea Wheat-grass (*Thinopyrum junceiforme*) and Rice Millet (*Piptatherum miliaceum*) are major weeds in need of control on Erith Island (Whinray 2003, cited in Parks and Wildlife Service 2005). Patterson's Curse (*Echium plantagineum* has also been reported in the National Park (Wheatley 2003, cited in Parks and Wildlife Service 2005).	**OTHER THREAT IMPACTS:** Dune Snail has the potential to destroy rare orchids such as the Banded Greenhood.

PAST & CURRENT PEST MANAGEMENT & MONITORING:

No is land specific m anagement p lans w ere id entified, b ut t hese is lands a re c overed in t he Terrestrial Po rtion o f th e Ken t Gro up National Park Manage ment Pl an 2005 (Parks an d W ildlife Service 2005). This pl an provides a basis fo r th e man agement o f th e Ken t Gro up o f islands. I t addresses conservation, development, visitor services and field operations.

Objectives: This plan is intended to provide a broad strategic framework and direction for operational management, identify key actions and also to outline practices and processes to deal with day-to-day circumstances.

Tasks:

- Adopt quarantine measures to assist prevent the arrival of new invasive weed species, including:
    - Ensure that materials, clothing, personal gear, equipment and machinery brought into the park for any works or recreational use are weed free.
    - Only permit landing of any plant materials in the park with the written approval of the management authority, and where the weed free status of any growing medium is assured.
    - Prepare a weed management plan for the park; any weed management initiative targeting Sea Spurge must demonstrate a 5+ year commitment to removal together with an ongoing monitoring and maintenance program.
    - Monitor shorelines for new weed infestations.
    - Ensure that weed eradication, control, and containment actions and priorities are based on clear, well documented contemporary knowledge and procedures as set out in the District Weed Plan.
    - Seek volunteers to assist in control and eradication where suitable planned and programd works and effective supervision are available.

- Weed management will be linked with protection of geodiversity and geoconservation values, erosion control and revegetation works.
- Only attempt eradication or control of introduced plants where non-target species are not unduly threatened.
- Monitor and, if necessary, conduct weed management on sites disturbed by events such as wildfires, on-ground management activities and recreation activities.

· Investigate the impacts of introduced exotic fauna species on natural values and establish baseline data to monitor population fluctuations:

- Develop and implement an integrated exotic fauna management plan.
- Eradicate exotic animals in the following order of priority: Cat, Rabbit, Brown Rat, Black Rat and House Mouse.
- Prohibit pets or other domestic animals from coming ashore within the Kent Group National Park; erect a prominent sign on the jetty area at Deal Island and at West Cove on Erith Island to notify visitors of this and any other necessary quarantine restrictions.
- Prohibit the transportation of firewood between the islands to minimise the introduction of pest species.
- Enforce the materials and machinery brought into the park must be cleaned, using appropriate hygiene measures, prior to landing to minimise the chance of introduction of pest species.
- Attempt eradication only where non-target species are not threatened by the proposed methods, unless the threat from the introduced species is greater than the threat from eradication methods.
- Restrict new introductions of fauna to situations where an approved comprehensive scientific assessment has been provided.

Key Stakeholders: Marine Resources, Fishcare, recreational fishers and the commercial fishing industry, Parks and Wildlife Service of Tasmania, Erith Mob (a group from Melbourne, whose summer pilgrimage originated with historian Stephen Murray-Smith in the 1960s), volunteers.

Costs: Not specified. Volunteer caretakers on Deal Island are estimated to cost $1 250 per week.

Issues: Flora groups on the main islands of the Group that are still little studied include fungi, mosses and liverworts. Better knowledge of island fungi is a priority because of their role in biotic processes.

This remote set of islands provides many opportunities for monitoring changes in vegetation under particular conditions. Currently the only monitoring is regular checking of shorelines for new weed infestations and the maintenance of the monitoring plots established by the Australian Bush Heritage Fund on Erith Island.

FURTHER PEST ERADICATION REQUIREMENTS: Consider removal of rats, cats, rabbits and potentially mice from all islands (see Recommended Actions).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Standard methods of rodent and rabbit removal would pose significant risks for some threatened fauna, e.g. Southern Brown Bandicoot and shorebirds, and would need to be addressed in feasibility studies.	See also under Weeds (section 'Past and Current Pest Management'). Distance between Deal and Erith islands is insufficient to preclude reinvasion by rats through swimming. Also inter-island visitation represents a potential threat for re-introducing pest animals.

RECOMMENDED ACTIONS:

Review progress of existing management plan and other documents, including monitoring programs by stakeholders. Aspects that may need particular attention include:

· Update status and distribution of key threatened species, e.g. Southern Brown Bandicoot and seabirds

- Update status distribution of pest species
- Build on existing management plan by completing feasibility studies for pest eradication, including feasibility of removing mice, implications of managing Erith/Dover only and not removing mice (or combination of pests) from Deal, the viability of using specific pest-control methods and testing of operational plans
- Review existing biosecurity and risk assessments and implement any approved changes accordingly and continually test and upgrade procedures.

KEY REFERENCES

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Faure Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Faure Island	**MAP 8**

LATITUDE:	25° 51' S [Decimal Degrees -25.855°]
LONGITUDE:	113° 53' E [Decimal Degrees 113.895°]

AREA: 5 194 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 6.1 km to the mainland
JURISDICTION: Western Australia	**TENURE:** Crown leasehold **STATUS:** Pastoral lease, Australian Wildlife Conservancy, Midwest

GENERAL GEOGRAPHY: Faure Island, in the midst of the Shark Bay World Heritage Area off Western Australia, was purchased in 1999 by the Australian Wildlife Conservancy (AWC).

DEMOGRAPHY & HUMAN USE: Faure I sland i s curren tly i naccessible to to urists but future pl ans (beyond the next five years) could include the implementation of a managed visitor program.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:	**THREATENED FLORA:**
6 EPBC listed threatened fauna species are known to occur and 2 additional threatened species are likely to occur on Faure Island. **CR:** na **EN:** Loggerhead Sea Turtle and Western Barred Bandicoot (Shark Bay) are known to occur on Faure Island. Western Spiny-tailed Skink is likely to occur on the island. **VU:** Banded Hare-wallaby, Burrowing Bettong (Shark Bay), Greater Stick-nest Rat/Wopilkara and Shark Bay Mouse are known to occur on Faure Island. Slender-billed Thornbill (western) is likely to occur on the island. 5 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Faure Island: Bridled Tern, Caspian Tern, Fairy Tern, Pacific Gull and Wedge-tailed Shearwater. 5 additional listed Marine or Migratory	No EPBC listed, or otherwise listed, threatened flora species are known to occur on Faure Island. **CR:** na **EN:** na **VU:** na

species are likely to occur on the island: Common Greenshank, Eastern Curlew, Grey Plover, White-bellied Sea-Eagle and Wood Sandpiper. 1 additional listed Marine or Migratory species may occur on the island: Oriental Plover.	
SEABIRD/SHOREBIRD BREEDING SITES: 4 seabirds are known to breed on Faure Island: Bridled Tern, Caspian Tern, Pacific Gull and Wedge-tailed Shearwater.	**OTHER NATURAL VALUES:** Faure Island is now a wildlife sanctuary of national significance. AWC aimed to restore the biodiversity values of Faure Island and make it a haven for threatened species that once existed throughout the region. Five of Australia's rarest and most endangered species have been successfully reintroduced back to Faure Island, restoring its original biodiversity (Parsons and Page 2009). Loggerhead Sea Turtle nesting is known in the area/on the island.
PEST VERTEBRATES PRESENT: 5 vertebrate pests have been recorded on Faure Island; 3 of these are currently believed to be present: House Mouse (an EPBC Key Threatening Process), European Cattle and Sheep. Stock numbers of sheep and cattle have been heavily reduced. Cats and goats have been eradicated (Parsons and Page 2009). A single, contained, horse is also believed to be present.	**PEST VERTEBRATE IMPACTS:** Cat predation and herbivory and trampling impacts of goats were an issue until these vertebrate pests were eradicated in recent years. Grazing and trampling impacts of cattle and sheep are contained. Mice remain the only uncontrolled vertebrate pest on Faure Island and their general impacts could be expected.
OTHER THREATS PRESENT: Introduced weeds such as African Boxthorn and Lupins.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: Parsons and Page (2009) recently provided an update on pest management and monitoring on Faure Island.

Since purchasing Faure Island in 1999, the AWC has worked with stakeholders to implement an ambitious and successful transformation of the > 5 000 ha island by removing cats and goats and by reducing stock numbers. Faure Island is now a wildlife sanctuary of national significance. Five of Australia's rarest and most endangered species have been successfully reintroduced back to Faure Island, restoring its original biodiversity.

A baseline biological survey of the island was carried out leading to the development of clear objectives for the project:

- protect the existing flora, fauna and ecosystems of Faure Island
- enhance and rehabilitate Faure Island's ecosystems and biodiversity
- contribute to the recovery of threatened species endemic to the Shark Bay World Heritage Area
- encourage support and awareness of Faure Island and its value in the recovery of

endangered species

- support research contributing to improved conservation management of threatened arid zone fauna.

An intensive feral eradication program began with help from the Western Australia Department of Environment and Conservation (DEC), volunteer groups and contractors. This involved the broadscale trial of DEC-produced Eradicat® baits for cat control, and aerial shooting and trapping of goats. During the following 18 months, surveys were carried out to monitor the success of the control program and the impacts of their removal on existing species.

After removing feral predators and the majority of feral goats from the island, AWC and its partners carried out translocations of a suite of threatened mammals to Faure Island. The most appropriate species to be reintroduced were determined based on historical records and a survey of subfossil remains. The following five threatened mammals species were reintroduced to the island:

1. Burrowing Bettong (Shark Bay)

2. Shark Bay Mouse

3. Banded Hare-wallaby

4. Western Barred Bandicoot (Shark Bay)

5. Greater Stick-nest Rat/Wopilkara.

Ongoing monitoring has confirmed that four of the five reintroduced species have successfully established and populations are breeding and growing in size. The status of the greater stick-nest rat population is uncertain at present. To complement the mammal reintroductions, a number of onground management activities have been conducted, including reducing stock (sheep) numbers, controlling introduced weeds (e.g. African Boxthorn and Lupins), closing and rehabilitating tracks, and removing fences and waterpoints.

The successful reintroduction of mammals to Faure Island would not have been possible without the involvement of a number of stakeholders, including:

DEC, Invasive Animals CRC, CSIRO, Perth Zoo, Conservation Volunteers Australia Inc, Western Australia Museum, Useless Loop Community Biosphere Project Group Inc, and the previous landholders: the Hoult family.

AWC has had incredible success reintroducing locally extinct species back to Faure Island, which can be attributed to the hard work in making this > 5, 000 ha island feral-free. AWC intends to ensure that continuous monitoring and intensive management retains this island as a safe haven for threatened fauna into the future.

FURTHER PEST ERADICATION REQUIREMENTS:

Sheep and Cattle; also evaluate potential for House Mouse management (see Recommended Actions below).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Minimal risks in eradicating Sheep and Cattle; significant non-target risks (to small indigenous mammals) in removing House Mouse using existing standard methods.	Given distance to mainland (6.1 km) low risk of invading pest vertebrates. Assisted reinvasion is also low because of the recognition of the site's value for threatened species recovery. Appropriate precautions, e.g. tourist exclusion, appear to be in place. There is a need to maintain this high level of biosecurity into the future (see Recommended Actions).

RECOMMENDED ACTIONS:

Complete eradications of remaining Sheep and Cattle.

With stakeholders, develop a formal management plan for the island and its biota, including visitor use.

Evaluate the impacts of the House Mouse on indigenous biota, and if these are significant, assess feasibility of appropriate management of this pest species.

Encourage national research into environmentally acceptable methods of eradicating the House Mouse that does not place indigenous mammals, such as those on Faure Island, at significant risk.

Develop a comprehensive biosecurity plan for Faure Island that examines risks assessments and quarantine methods, and which is regularly reviewed and updated.

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Figure of Eight, North Twin Peak & other islands of the Recherche Archipelago (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Figure of Eight Island of the West Group, Recherche Archipelago and North Twin Peak Island, Recherche Archipelago. With some consideration of South Twin Peak Island, Middle Island (WA) and other islands within the Recherche Archipelago.	**MAP 8**

LATITUDE (Figure of Eight Island):	34° 01' S [Decimal Degrees -34.027°]
LONGITUDE (Figure of Eight Island):	121° 36' E [Decimal Degrees 121.607°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):**
Figure of Eight Island: 246 ha North Twin Peak Island: 277 ha Middle Island (WA): 986 ha	Figure of Eight Island: 12 km to the mainland, 90 km to North Twin Peak Island North Twin Peak Island: 8 km to the mainland, 29 km to Middle Island. Middle Island (WA): 8 km to the mainland.
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve **STATUS:** Nature Reserve A22796

GENERAL GEOGRAPHY: The Recherche Archipelago Nature Reserve is made up of over 100 islands and 1200 'obstacles to shipping', comprising of reefs, islets and rocks. The Recherche Archipelago Nature Reserve covers more than 7 000 ha of land area and stretches 230 km from east to west and up to 50 km offshore. The islands of the Recherche Archipelago represent the high points of the Albany-Fraser Oregon, now flooded by the ocean. Most of the islands are exposed to high or moderate wave action and there are few safe anchorages or landings. In form and character, the islands resemble the granite headlands of the coastal mainland reserves. Granite peaks reach a considerable height on several of the islands including 183 m on Twin Peaks. Only Middle Island, the largest island in the Recherche Archipelago, has a recognised foreshore dune complex. There is also a 1 km 'pink lake' (Lake Hillier) on the island (DEC 2007e).

DEMOGRAPHY & HUMAN USE: The Recherche Archipelago is a difficult place on which to land in most instances; therefore visitation is generally low in all areas except Woody Island, which has a commercial tourist operation. Middle island is a popular anchorage, with good access and safe landing. A boardwalk was installed on Middle Island to protect its fragile foredune system from impacts of low level visitation. This was proving successful until it was destroyed by a wildfire in 2006/07. Islands most likely to receive visitation due to their location, landing options and recreational interest are: Investigator, Figure of Eight, Cull, Remark, Sandy, Hook, Wilson, Mondrain, North Twin Peak and Daw islands. Boat (and/or helicopter) access to Figure of Eight Island and Cull Island may be required to service the unmanned beacons, which include two automated light stations, and one automated weather station.

Since 2002, the Western Australia Government Department of Conservation (DEC) has allowed a licensed operator to conduct day cruises to Middle Island for sightseeing and bushwalking

activities. Little is known of the level of visitor use of other islands such as Investigator, Figure of Eight, Cull, Remark, Wilson, Mondrain, North Twin Peak or Daw or whether they are suitable for day use (DEC 2007e).

In the 1800s, the sealers and the whalers came to the area to hunt, until the seal industry collapsed in the 1840s due to unsustainable harvesting. The sealers and whalers often took up quarters on the islands of the Recherche. Middle Island in particular, was used by early European settlers for seal and whale processing and for salt mining as evidenced by remains of a tramline and other artifacts and ruins. There is other evidence of non-indigenous occupation and usage of the Recherche Archipelago including remnants of sealing and pastoral infrastructure on Woody, North Twin Peak, Cull and Goat islands (DEC 2007e).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown on North Twin Peak Island, but approximately 325 native flora species have been identified from the islands of the Recherche Archipelago and several, including Woody, Mondrain, and Middle, support eucalypt forest over 10 m tall (DEC 2007e).

An uncontrolled fire in 1977 destroyed much of the vegetation communities on Middle Island, which has previously supported a complex mixture of vegetation associations ranging from low scrubs to melaleuca and eucalypt forests (Tingay and Tingay 1981). The island's vegetation has regenerated over the last 30 years.

THREATENED FAUNA:

1 EPBC listed threatened fauna species is known, 1 additional listed threatened species is likely to occur on these islands within the Recherche Archipelago.

CR: na

EN: Western Ground Parrot is likely to occur on North Twin Peak Island.

VU: Cape Barren Goose (south-western)/ Recherche Cape Barren Goose is known to occur on Figure of Eight Island.

9 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on one or more of these islands:

Black-faced Cormorant – Middle Island

Crested Tern - Figure of Eight Island

Flesh-footed Shearwater/Fleshy-footed Shearwater - Figure of Eight and North Twin Peak islands

Great-winged Petrel - Figure of Eight and Middle islands

Little Penguin - Figure of Eight and North Twin Peak islands

Pacific Gull - Figure of Eight and Middle islands

Short-tailed Shearwater - Figure of Eight and North Twin Peak islands

Silver Gull - Figure of Eight Island

White-faced Storm-Petrel - Figure of Eight Island

THREATENED FLORA:

1 EPBC listed threatened flora species is known to occur on these islands within the Recherche Archipelago.

CR: na

EN: Twin Peak Island Mallee is known to occur on North Twin Peak Island.

VU: na

5 additional EPBC listed Marine or Migratory species are likely to occur on one or more of these islands:

Caspian Tern - Figure of Eight and North Twin Peak Island

Eastern Reef Egret – Middle Island

Great-winged Petrel - North Twin Peak Island

Little Shearwater - Figure of Eight and North Twin Peak Island

White-bellied Sea-Eagle - Figure of Eight and North Twin Peak Island

1 additional species listed as a Priority species under WA legislation is known to occur on North Twin Peak Island:

Carpet Python.

SEABIRD/SHOREBIRD BREEDING SITES:

9 seabirds are known to breed on Figure of Eight Island:

Cape Barren Goose (south-western)/ Recherche Cape Barren Goose, Crested Tern, Flesh-footed Shearwater/Fleshy-footed Shearwater, Great-winged Petrel, Little Penguin, Pacific Gull, Short-tailed Shearwater, Silver Gull and White-faced Storm-Petrel.

3 of these seabirds are also known to breed on North Twin Peak Island:

Flesh-footed Shearwater/Fleshy-footed Shearwater, Little Penguin and Short-tailed Shearwater.

3 seabirds known to breed on Middle Island are:

Black-faced Cormorant, Great-winged Petrel and Pacific Gull.

OTHER NATURAL VALUES:

North Twin Island sits within the Recherche Archipelago Nature Reserve, which is a Class A reserve to Low Water Mark (EDOWA 2003).

On the mainland Twin Peak Island Mallee is limited to Cape Le Grand National Park and is characteristically a small slender-stemmed mallee tree no higher than 2 m. Along a watercourse on the western slopes of North Twin Peak Island, this threatened mallee is tall, reaching up to 8 m high (DEC 2007e).

Carpet Python occurs on North Twin Peak islands in the Recherche Archipelago Nature Reserve. Due to habitat clearing and degradation it has declined over much of south-western Australia, and it is now specially protected to try and deter people from poaching it from the wild.

Two subspecies of rock-wallabies are found on only four of the islands in the Recherche Archipelago. The Western Australia subspecies of Tammar Wallaby is found on Middle and North Twin Peak islands within the Recherche Archipelago.

PEST VERTEBRATES PRESENT:

2 vertebrate pests have been recorded on Figure of Eight Island; 1 of these is believed to be currently present:

House Mouse, which is listed along with three species of rat as an EPBC listed Key Threatening Process.

Sheep were grazed on Figure of Eight Island until around 1950.

1 vertebrate pest has been recorded from North Twin Peak Island but is believed to be no longer present:

PEST VERTEBRATE IMPACTS: No specific information, but general impacts on the House Mouse on Figure of Eight Island could be expected.

Black Rat.	
OTHER THREATS PRESENT: · Frequent fire · Unmonitored visitation.	**OTHER THREAT IMPACTS:** · Twin Peak Island Mallee may be impacted from frequent fire, although the fire response of the species is still unknown. The primary threat to the species is low population size/numbers (DEC 2007). · Shingle-back, Gould's Goanna, and Crowned Snake may eat some seabird eggs and chicks on Middle Island.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plans were identified.

The major issues that have been identified to date in managing the natural environment of the Esperance Coastal Reserves include the issues of:

- maintaining corridors of native vegetation and protecting important habitats
- managing threatened vegetation communities and flora species such as the Twin Peak Island mallee.

While there are real practical and safety limitations to fighting fires on islands (and in remote areas), the planning process will consider management options to do so, where conservation values are known, or presumed to be high. This includes islands such as Figure of Eight, Boxer, Wilson, Mondrain, North Twin Peak, Middle and Salisbury islands. There have been operational issues in the past preventing the use of water bombers to fight wildfires on the islands due to availability, cost and the risk of flying over the ocean.

With the vast expanses of land covered, another crucial issue for fire management is cooperation between the Department, volunteer bushfire brigades, the local community and the Fire and Emergency Services Authority (DEC 2007e).

Carpet Python is also listed as Priority 4 under Western Australia legislation as it has been identified as in need of monitoring. A subspecies recovery outline has been prepared by the Australian Nature Conservation Agency (Cogger et al. 1993).

FURTHER PEST ERADICATION REQUIREMENTS:

Clarify pest status and distribution in the Group. If Black Rats are still present, plans should be made to remove them. House Mouse is less urgent for removal given the islands values are primarily as seabird islands, but plans should be made for their eventual removal.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Rodent removal by standard methods would incur risks for geese, parrots and possibly others and require careful management.	Natural invasion risks are low given distances offshore, however visitor use will involve some unknown risk which needs to be assessed and managed.

RECOMMENDED ACTIONS:

Stakeholders should develop a management plan for the islands. Key components of a plan should include:

- Management objectives – this may initially require updated information on biodiversity values (e.g. confirm status of Western Ground Parrot and others)
- Update information on pest status and distribution - confirm distribution of rodents and any other pests present
- Feasibility studies, e.g. assess the costs and benefits of rodent removal, and the potential non-

target effects of their removal and appropriate mitigation methods

- Biosecurity risk assessments, biosecurity efficacy and requirements for surveillance and contingency measures in the future
- Visitor use and associated management
- Monitoring programs for indigenous biota.

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Fraser Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Fraser Island World Heritage Area	**MAP 3**

LATITUDE:	25° 15' S [Decimal Degrees -25.250°]
LONGITUDE:	153° 10' E [Decimal Degrees 153.167°]

AREA: 166 170 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 2.6 km to the mainland (single channel) Minimum swimming distance of 1 km (approx) between Fraser Island and a series of small islands that link with the mainland
JURISDICTION: Queensland	**TENURE:** National Park/State Land/Freehold/UK/Reserve/Lands Lease/State Forest **STATUS:** Nature conservation reserve/Vacant Crown land/Mainly freehold land/Unknown/Other Crown land/Crown leasehold land Administered by the Fraser Coast Regional Council.

GENERAL GEOGRAPHY: Fraser Island is located off Queensland's east coast, adjacent to Hervey Bay. The island is 124 km long and between 5 and 25 km wide. It is the world's largest sand island, and is listed as a World Heritage Area because of its outstanding natural heritage values (EPA 2005).

DEMOGRAPHY & HUMAN USE: Fraser Island has the townships of Happy Valley and Eurong which are primarily holiday communities with small permanent populations providing accommodation and support for visitors to Fraser Island. The resident population was 360 people in 2006. The number of visitors to the island has significantly increased in recent years. Visitors include holidaymakers from overseas and backpackers as well as Australian families and recreational fishers (EPA 2005).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The island's tall rainforests, which have developed on sand dunes in the Region, are believed to be unique in the world. Satinay (*Syncarpia hilli*) is one of the largest and most outstanding of the trees found, and is confined largely to the Region.

More than 870 species of flowering plants and ferns including a number of rare and endemic plants have been identified in Cooloola, within the Great Sandy National Park. The Great Sandy Strait is one of the l east disturbed large estuaries in southern Queensland comprising one-third tidal mudflats and sandflats with the remainder consisting of mangroves, seagrass, saltmarsh, sandy spits and forested islands.

THREATENED FAUNA: 13 EPBC listed threatened fauna are known to be present on Fraser Island, and 3	**THREATENED FLORA:** 6 EPBC listed threatened flora species are likely or

additional threatened species may occur on the island.

CR: na

EN: Loggerhead Sea Turtle, Leatherback Turtle and Olive Ridley Turtle are known to occur on Fraser Island.

Regent Honeyeater and Swift Parrot may occur on the island.

VU: Black-breasted Button-quail, Water Mouse, Flatback Turtle, Green Turtle, Grey-headed Flying-fox, Hawksbill Turtle, Painted Button-quail (Houtman Abrolhos), Red Goshawk, Sugar Glider, Wallum Sedge Frog are known to occur on Fraser Island.

Australian Painted Snipe may also occur on the island.

56 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Fraser Island:

Arctic Tern, Australian Pelican, Bar-tailed Godwit, Beach Stone-curlew, Black Noddy, Black-naped Tern, Black-tailed Godwit, Brahminy Kite, Broad-billed Sandpiper, Cattle Egret, Caspian Tern, Common Greenshank, Common Sandpiper, Common Tern, Crested Tern, Curlew Sandpiper, Double-banded Plover, Eastern Curlew, Eastern Osprey, Eastern Reef Egret, Great Egret, Great Knot, Greater Sand Plover, Grey Plover, Grey-tailed Tattler, Gull-billed Tern, Kelp Gull, Latham's Snipe, Lesser Crested Tern, Pacific Golden Plover, Little Curlew, Little Penguin, Little Tern, Marsh Sandpiper, New Zealand Fur Seal, Oriental Plover, Oriental Pratincole, Pacific Gull, Pectoral Sandpiper, Red Knot, Red-capped Plover, Red-necked Stint, Richard's Pipit, Roseate Tern, Ruddy Turnstone, Rufous/Nankeen Night Heron, Sanderling, Sharp-tailed Sandpiper, Silver Gull, Sooty Tern, Wandering Tattler, Whimbrel, Whiskered Tern, White-bellied Sea-Eagle, White-fronted Tern and White-winged Tern.

3 listed Marine or Migratory species are likely to occur on the island:

Lesser Sand Plover, Satin Flycatcher and Terek Sandpiper.

4 additional listed Marine or Migratory species may occur on Fraser Island:

Black-faced Monarch, Fork-tailed Swift, Rainbow Bee-eater and White-throated Needletail.

35 additional fauna species listed under one may occur on Fraser Island.

CR: na

EN: Pineapple Zamia is likely to occur on Fraser Island.

VU: Bacon Wood, Minute Orchid, Stinking Cryptocarya and *Sophora fraseri* are likely to occur on the island.

Marbled Balogia may occur on the island.

or more Australian state/territory legislation are present on Fraser Island. These include:

Beccari's Freetail Bat, Black Bittern, Bush Stone-curlew, Common Blossom Bat, Common Death Adder, Common Planigale, Cooloolah Tree Frog, Eastern Bent-winged Bat, Eastern Chestnut Mouse, Eastern Tube-nosed Bat, Feathertail Glider, Freycinet's Frog, Glossy Black-Cockatoo, Ground Parrot, Hoary Wattled Bat, Lace Monitor, Lewin's Rail, Little Bent-winged Bat, Little Friarbird, Long-nosed Potoroo, Marbled Frogmouth, Masked Owl, Northern Long-eared Bat, Pale Field Rat, Pied Oystercatcher, Powerful Owl, Red-tailed Black-Cockatoo, Squirrel Glider, Sooty Oystercatcher, Superb Fruit-Dove, Swamp Wallaby, Turquoise Parrot, Wallum Froglet, Wompoo Fruit-Dove and Yellow-bellied Sheathtail Bat.

SEABIRD/SHOREBIRD BREEDING SITES: Unknown, but will include many of the listed Marine and/or Migratory species above that breed in Australia.

OTHER NATURAL VALUES: The Great Sandy Straits, Tin Can Bay and parts of Hervey Bay were listed under the Ramsar Convention in 1999, primarily for the protection and conservation of waterfowl and wader habitat. It is recognised as one of the three most important summer stopovers for trans-equatorial migratory wading birds in Australia.

Loggerhead Sea Turtle nests on Fraser Island.

The Great Sandy Region contains one of the very few specialised habitats for the vulnerable Illidge's Ant-blue Butterfly (*Acrodipsas illidgei*) (EPA 2005).

PEST VERTEBRATES PRESENT:

19 vertebrate pests have been recorded and are believed to be currently present on Fraser Island. Five of these are a listed EPBC Key Threatening Process:

Black Rat, Cane Toad, Cat, House Mouse and Pig.

5 additional potentially high impact vertebrate pests are:

Common Myna, Dingo*, Domestic Dog, House Crow and Horse.

9 remaining medium or low impact vertebrate pests are:

Asian House Gecko, Brown Hare, Common Blackbird, Common Starling, European Goldfinch, Mallard, House Sparrow, Rock Dove and Spotted Turtle-Dove.

*The Dingo on Fraser Island is considered to be the purest strain of Dingo in Australia.

PEST VERTEBRATE IMPACTS:

The *Recreation Areas Management Act 1988* restricts the introduction of domestic dogs and cats to Fraser Island. Domestic cats and dogs are not permitted in protected areas.

Domestic dogs can have the following impacts:

- threat to the genetic purity of the Fraser island Dingo
- introduction of the disease of *Parvovirus*
- predation of native fauna
- present a threat to visitors.

Dingo predation directly impacts on Long-nosed Potoroo and Swamp Wallaby.

Cats and black rats can impact upon native fauna through predation.

Pigs can have the following impacts:

- directly impact on the Vulnerable Water Mouse
- damage habitat through digging for tubers and roots for food
- they have the ability to transport fungal pathogens.

Feral horses (brumbies) can have the following

	impacts: · trampling · selective grazing resulting in increased erosion of these areas · spread seeds of weed species on their coats, hooves and in faeces. Both pigs and horses are causing erosion on Fraser Island (EPA 2001).
OTHER THREATS PRESENT: · Vehicle use on beaches · Development and tourism · Possible groundwater extraction · Resource harvesting.	**OTHER THREAT IMPACTS:** · Habitat degradation and impacts on flora and fauna communities. · The greatest concern in considering groundwater extraction from natural systems is extraction during drought periods when demand by the community is highest but availability is lowest. Extraction at such times is likely to increase ecological stress within the natural system by reducing already diminished ground and surface water levels below those necessary for plant and animal survival. Continual use of groundwater at a rate greater than the rate of natural recharge of the aquifer may be expected to result in a lowering of the watertable.

PAST & CURRENT PEST MANAGEMENT & MONITORING

The overall objectives of **Fraser Island Dingo Management Strategy (EPA 2001) are to:**

- ensure the conservation of a sustainable wild dingo population on Fraser Island
- reduce the risk posed to humans by dingoes at all recognised visitor nodes to an acceptably low level
- reduce the frequency and intensity of aggressive and destructive behaviour by the Island dingoes towards visitors and local residents to the greatest extent practicable
- reduce, and eventually eliminate, the incidence of deliberate and inadvertent dingo-feeding by visitors, residents and resort and island staff, and the availability of other sources of human food
- provide Fraser Island visitors with a safe, enjoyable opportunity to view dingoes in an environment as near as possible to their natural state.

The following strategies to manage dingoes on Fraser Island form components of that response:

Strategy 1

Comprehensive scientific research and monitoring will be undertaken to ensure the principles and practices of dingo management are sound.

Strategy 2

Awareness programs will continue to encourage appropriate behavior towards dingoes by Island visitors, residents and staff.

Strategy 3

The dingo–human interaction will be managed by increasing Island-wide facilities and services that discourage dingoes from interacting with people and obtaining human food, and by prohibiting dingo feeding.

Strategy 4

Programs will be implemented to modify dingo behaviour and habits which threaten human safety and wellbeing.

Strategy 5

Any dingo identified as dangerous will be destroyed humanely using accepted methods after receiving appropriate approvals.

Strategy 6

A cull to a sustainable level may be undertaken if research can show the population is not in balance with the seasonal availability of natural foods.

Strategy 7

An ongoing program of monitoring and review will be conducted to assess risk levels at key visitor nodes across the Island and determine the effectiveness of dingo management strategies in maintaining these levels at an acceptable (low) level.

Actions involving direct management of dingoes (culling or destroying individuals) should not need to continue indefinitely.

The **Great Sandy Region Management Plan 1994 – 2010 (EPA 2005) includes the following actions:**

1. A survey will be undertaken to determine the extent and impact of feral animal populations in the Region.
2. A feral animal management strategy will be developed and implemented for all declared (economic, social and environmental) pest species in the Region. Management strategies may also be required for specific management areas. The strategy will contain an inventory, control methods, control programs and action plans.
3. The population of mosquito fish in the water bodies of the Great Sandy Region will be monitored and control strategies implemented as necessary.
4. Postgraduate tertiary studies into the control of feral animals in the Great Sandy Region will be encouraged.
5. Feral horses will be removed from Fraser Island and Cooloola.
6. Management effort to control cat, dog and pig numbers in the Great Sandy Region will be maintained at a very high level, consistent with a feral animal management strategy.

This approach involving survey (1) and management strategies (2) is ideal. The key is to identify the key biodiversity areas (sites with key populations of threatened and sensitive species) and the threatening processes present at each, and evaluate whether localized control/eradication is cost-effective or whether island-wide eradication/control is needed.

Initial monitoring and assessment of the impact of vehicles on beach fauna commenced in 1995-1996. Monitoring by field staff continues and has been extended to include terns on Fraser Island.

FURTHER PEST ERADICATION REQUIREMENTS: Initially evaluate the impacts of Black Rat, Cane Toad, Cat, House Mouse and Pig on indigenous biota as part of the management planning process for Great Sandy Bay Region (see Recommended Actions, below).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
This will be dependent on species to be targeted, but the large size of island presents many logistic issues.	High visitation rates with incoming freight and other goods present significant risk of pest invasion. The c.1 km swimming distances which are in sheltered waters present opportunities for some pests to invade unassisted, e.g. Brown Rat, Black Rat, Pig, Cane Toad.

RECOMMENDED ACTIONS:

Initially review the progress of the Great Sandy Region Management Plan 1994 – 2010 (EPA 2005) to determine progress made on specific objectives (refer Past and Current Pest Management and Monitoring). This includes horse eradication from Fraser Island and control of pigs, dogs and cats.

Concurrently review the status and distribution of threatened and other listed biota on Fraser Island, and if necessary collect additional field data on key species, including the many Endangered and Vulnerable species present.

If not already completed, undertake a series of feasibility studies examining the ability of key biota to recover under different pest management scenarios ranging from pest eradication to sustained control or localised control/exclusion. Look for local synergies for pest management regimes to benefit multiple species.

This approach should also take into account the reinvasion potential of several pests given that the island is only 1.0 km offshore at the narrowest point of the channel and the amount of visitation to the island by the public. The efficacy of the current biosecurity and needs for the future should also be assessed.

Recovery plans and other formal advice should also be taken for threatened species, e.g. Wallum Sedge Frog, Red Goshawk and turtle species.

Stakeholders need to be part of the management planning process throughout, particularly given that there are many residents, several of whom can potentially provide effective surveillance and monitoring on the island.

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French Island (VIC)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: French Island	**MAP 5**

LATITUDE:	38° 21' S [Decimal Degrees -38.358°]
LONGITUDE:	145° 21' E [Decimal Degrees 145.365°]

AREA: 17 378 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 2.4 km to the mainland
JURISDICTION: Victoria	**TENURE:** Nature Conservation Reserve/Free **STATUS:** French Island National Park (Reserve #83), administered by Parks Victoria and Freehold

GENERAL GEOGRAPHY: French Island is the largest island along the Victorian coastline. It is located about 10km south of Tooradin and 60 km south-east of Melbourne, located within the Western Port (Parks Victoria 2007) and has no linking bridge or causeway.

French Island lies in the middle of Western Port. The land adjoining Western Port and French Island lies with in the South-eastern Coastal Plain Bioogeographic Regi on descr ibed in the Int erim Biogeographic Regionalisation for Australia (IBRA) and the Gippsland Plain Victorian Bioregion described in Victoria's Biodiversity – Directions in Management (NRE 1997). Western Port itself comprises one of the Victorian Embayments of the Interim Marine and Coastal Regionalisation for Australia (DSE 2003).

DEMOGRAPHY & HUMAN USE: There are about 50 permanent residents and 120 part time residents on the island. About one third of the island is used for private land uses, primarily for agricultural purposes. There is very limited commercial development. There is also a restriction on Park visitors bringing their own motor vehicles to the island and to the Park.

Currently about 8000 people visit the island each year, this is lower than about a decade ago when larger ferries brought a total of about 14 000 visitors to the island.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: French Island Marine National Park protects intertidal mudflats fringed by one of the most extensive areas of salt marsh and mangrove communities in Victoria (Weir and Heislers 1998; Parks Victoria October 2007). The island is encompassed by the Western Port Ramsar site (DSE 2003).

The island supports twenty-nine vegetation sub- communities, now generally absent on the mainland, within 10 major vegetation communities. Two additional communities are either extinct (e.g. Blue Gum forest) or greatly reduced in size (e.g. Manna Gum coastal woodland) (Weir and Heislers, 1998).

The island also contains very expansive and rich heathlands, remnant sclerophyll forest and woodlands, extensive freshwater swamp and ephemeral communities, largely drained elsewhere in the region, consisting of four major communities and six sub-communities (Vanderzee 1992, Weir and Heislers 1998).

THREATENED FAUNA:	**THREATENED FLORA:**
5 EPBC listed threatened fauna are known to occur on French Island and/or Western Port Ramsar site, and a further 7 listed species are	7 EPBC listed threatened flora species are likely or may occur on French Island, which are six orchids and one grass.

likely or may occur on the island.

CR: Orange-bellied Parrot is known to occur on French Island.

EN: Yellow-tufted Honeyeater is known to occur in Western Port Ramsar site and is likely to occur on the island.

Smoky Mouse is likely to occur, Regent Honeyeater and Swift Parrot may also occur on the island.

VU: Australian Painted Snipe, Southern Brown Bandicoot (eastern) and Southern Elephant Seal are known to occur in the Western Port Ramsar site and are likely to occur on the island.

Southern Bell Frog is likely to occur, Australian Painted Snipe, Grey-headed Flying-fox, Long-nosed Potoroo (SE mainland) may also occur on the island.

45 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMBA) are known to occur on French Island and/or in Western Port Ramsar site:

Arctic Jaeger, Bar-tailed Godwit, Black-faced Cormorant, Broad-billed Sandpiper, Cape Barren Goose, Caspian Tern, Common Diving-Petrel, Common Sandpiper, Common Tern, Crested Tern, Curlew Sandpiper, Double-banded Plover, Eastern Curlew, Fairy Tern, Glossy Ibis, Great Egret, Great Knot, Greater Sand Plover, Grey Plover, Grey-tailed Tattler, Gull-billed Tern, Intermediate Egret, Lesser Sand Plover, Little Egret, Little Tern, Magpie Goose, Musk Duck, Oriental Plover, Oriental Pratincole, Pacific Gull, Pectoral Sandpiper, Red Knot, Red-necked Stint, Ruff (Reeve), Rufous/Nankeen Night Heron, Sanderling, Short-tailed Shearwater, Terek Sandpiper, Whimbrel, Whiskered Tern, White-bellied Sea-Eagle, White-faced Storm-Petrel, White-fronted Tern and White-winged Tern.

In addition, Hooded Plover (eastern) has been recorded on the island incidentally.

A further 5 listed Migratory or Marine species may occur on the island:

Fork-tailed Swift, Latham's Snipe, Pacific Golden Plover, Rainbow Bee-eater and White-throated Needletail.

24 additional fauna species listed under one or more Australian state/territory legislation are known to occur on French Island:

Australasian Bittern, Australasian Shoveler, Baillon's Crake, Barking Owl, Black-chinned

CR: na

EN: 2 orchids, Maroon Leek-orchid and Metallic Sun-orchid are likely to occur on French Island.

VU: 4 orchids, Dense Leek-orchid, French Island Spider-orchid, Green-striped Greenhood, Leafy Greenhood, are likely to occur on French Island. River Swamp Wallaby-grass may occur on the island.

9 additional flora species listed under Victoria state/territory legislation are known to occur on French Island:

Blotched Sun-orchid, Bog Clubmoss, Broad-lip Leek-orchid, Lizard Orchid, Long Pink-bells, Plum Orchid, Swamp Onion-orchid, Veined Spider-orchid and Viscid Daisy-bush.

9 additional flora species listed under Victoria state/territory legislation are known to occur in Western Port Ramsar site and may occur on the island:

Coast Wirilda, Creeping Rush, Marsh Saltbush, Marsh Sun-orchid, Salt Lawrencia, Sea-lavender, Spotted Gum, Tiny Arrowgrass and White Mangrove.

Honeyeater, Blue-billed Duck, Brown Quail, Chestnut-rumped Heathwren, Hooded Robin, Freckled Duck, Grey Goshawk, Grey-crowned Babbler, King Quail, Lace Monitor, Lewin's Rail, New Holland Mouse, Pied Cormorant, Powerful Owl, Royal Spoonbill, Sooty Oystercatcher, Spotted Quail-thrush, Swamp Antechinus, Swampland Cool-skink and White-footed Dunnart.	
SEABIRD/SHOREBIRD BREEDING SITES: 3100 Short-tailed Shearwater were recorded breeding on French Island in 1978. In addition, Lewin's Rail, Pied Cormorant, and Royal Spoonbill are known to breed on the island.	**OTHER NATURAL VALUES:** French Island is part of UNESCO's The Mornington Peninsula and Western Port Biosphere (www.biosphere.org.au). Two thirds of French island is dedicated to National Park. The island is encompassed by the Western Port Ramsar site (DSE 2003) which is recognised as a wetland of international significance and one of the three most important areas for migratory waders in Victoria (Parks Victoria 2007). Five sites of botanical significance have been identified (Opie et al. 1984, cited in Weir and Heislers 1998) because of the diverse range of communities or notable species present (Weir and Heislers 1998). Koalas were introduced to the island in the 1880s and continue to have a high reproductive rate (Weir and Heislers 1998). King Quail, Critically Endangered (VIC), breed on the island.
PEST VERTEBRATES PRESENT: 27 vertebrate pests are known to be present on French Island, including 6 listed as EPBC Key Threatening Processes: Black Rat, Cat, Goat, House Mouse, Pig and Rabbit. However, feral pigs have been eradicated and pigs are now only present as domestic livestock. 3 additional potentially high impact species are contained as domestic livestock only: European Cattle, Horse and Sheep. 5 additional potentially high impact vertebrate species believed to be currently present on French Island are: Alpaca, Domestic Dog, Domestic Ferret, Llama and Sambar. 13 additional medium or low impact vertebrate species are believed to be currently present on the island:	**PEST VERTEBRATE IMPACTS:** Domestic animals including cattle from adjoining farms, rabbits, goats and pigs have the potential to damage and degrade the intertidal area from trampling and eating vegetation, and potentially threaten fragile salt marsh and mangrove vegetation in the parks (Parks Victoria 2007). Keeping foxes off the island and controlling cats, which are a particular threat to ground-dwelling fauna, are essential for the protection of small mammals and ground frequenting birds (Weir and Heislers 1998). The island has a small population of Sambar, which are protected wildlife under the *Wildlife Act 1975* (Vic.), but exotic fauna under the National Parks Act. Their impact on the vegetation, soils and wetlands appears to have been minimal, but no systematic assessment has been made. Hunting is not permitted in the Park, but has occurred in the past (Weir and Heislers 1998). Pests adversely affecting native species or their habitats are rabbits, cats, goats, Starlings, Blackbirds and Indian Mynahs, as well as feral

Common Blackbird, Common Pheasant, Common Starling, Domestic Goose, Eurasian Tree Sparrow, European Goldfinch, European Greenfinch, House Sparrow, Indian Peafowl, Red Junglefowl, Rock Dove, Skylark and Spotted Turtle-Dove.	honeybees and European Wasps. A small population of the Greylag Goose is centred on private property and should not be allowed to spread. Rabbits and cats are widespread and are considered the most serious pests. Swift action has prevented feral pigs, which appeared in 1997, from becoming established in the Park (Weir and Heislers 1998). It has been estimated by rangers that there are several thousand cats on the island, which are a serious threat to fauna such as the Orange-bellied Parrot, Long-nosed Potoroo, King Quail, Shearwaters at breeding sites and Pelican chicks. Effective control requires a major coordinated program for the whole island, coupled with preventing recruitment of domestic cats to the wild population. This becomes particularly vital as rabbit numbers decline due to the Rabbit *Calicivirus* disease (Weir and Heislers 1998). The high numbers of breeding Pied Oystercatchers on French Island compared with most other parts of Victoria may be attributed to the absence of foxes (DEC 2003).
OTHER THREATS PRESENT: · Weeds - terrestrial plant pest species can be a problem in parts of the intertidal areas within the park · Exotic honeybees and European Wasps · *Spartina anglica*, commonly known as Cord or Rice Grass, is a serious threat to estuaries and coastal environments; it is an introduced pest plant and is declared as a noxious aquatic species under the *Fisheries Act 1995* (Vic.) · Straying domestic stock · Recreational activities · Shipping activities · Altered water regimes · Salinity · Development · Erosion - over the past 5 to 10 years, there has been accelerated erosion of the coastline along the north-eastern arm of Western Port (DEC 2003) · (re)Invasion by Red Fox.	**OTHER THREAT IMPACTS:** · *Spartina* thrives near sources of fresh water and has the ability to spread rapidly, choking estuaries and bays and causing sediment accretion, channelisation and altered hydrology (Parks Victoria 2007). · There is an annual relocation program for Koalas, however over-browsing of food trees still occurs and tree mortality is a major problem over the whole island. · Weeds are one of the greatest threats to the Park, particularly to herbaceous plants such as the rich orchid flora. The main threat is from weed spread near farmland, and along roadsides, tracks and firebreaks. Weed invasion is facilitated by disturbance to soil and vegetation cover by vehicles, machinery, hard hoofed animals, grazing and fire, and by introduction through soil and gravels. · Domestic stock can also cause significant damage. Such problems are increased by the significant proportion of absentee landholders with stock on the island. · Extensive areas of saltmarsh, mangroves and seagrass have been lost as a result of domestic stock. Light winds are enough to stir up the fine silts deposited in the area, which take days to settle and adversely affect fish and other marine life. · Visitor impacts are varied and dispersed and mainly relate to recreational boating activities

	(including wind surfing and jet-skiing), disturbance by people walking their dogs, and disturbance by helicopters and light aircraft. · Pollution from shipping, port activities and associated industrial activities represents a risk to Ramsar values (DEC 2003).

PAST & CURRENT PEST MANAGEMENT & MONITORING: Feral goats cause damage on French Island, although only small numbers remain and an eradication program is underway in the French Island National Park (DEC 2003).

On several occasions feral pigs were introduced to French Island for illegal hunting activities. Parks Victoria officers have successfully removed them each time (DEC 2003).

Foxes do not occur on French Island and it is essential that this situation is maintained (DEC 2003).

FURTHER PEST ERADICATION REQUIREMENTS: A management plan is needed and this should have input from stakeholders on and off the island. Key things to address are long term vision and objectives of the park and island as a whole. This will then identify key biodiversity areas and actions that are needed to determine the feasibility of managing habitats, native species and key pests. For example, is it feasible to eradicate cats from the island and can this be integrated with rabbit and rodent eradication or localised control?

Note that quantitative information on the impact of foxes, cats and dogs is not available but observations indicate that fox and cat populations are increasing in the Western Port Ramsar site. Increasing urbanisation will potentially result in increased fox densities in some areas, as well as increased domestic cat predation on native wildlife (DEC 2003).

Other eradication work and assessments are underway, including:

- Active management of *Spartina* strands within Western Port is required (Parks Victoria 2007).

- Determine the population level, distribution and impact of Sambar in the Park, and implement appropriate control measures as and when necessary.

Yaringa Marine National Park, French Island Marine National Park and Churchill Island Marine National Park Management Plans (Weir and Heislers 1998; Parks Victoria 2007):

- Encourage adjacent landowners to establish or maintain boundary fencing to reduce the risks associated with domestic livestock.
- Continue integrated terrestrial pest plant and animal control program, support programs with adjacent land managers, and coordinate programs conducted by volunteers.
- Liaise with coastal land managers to coordinate *Spartina* control programs.
- Develop and implement, with public involvement, a comprehensive wildlife management plan, with prescriptions for habitat management (including appropriate fire regimes) and control of threats to maintain viable populations of the indigenous species.
- Develop a strategic plan for the Park to eliminate goats and pigs, and eliminate or control all other vertebrate pests and introduced species such as Greylag Goose, with emphasis on feral cats and rabbits (capitalising on the release of the *Calicivirus*) under the Strategic Plan for Rabbit *Calicivirus* Disease release in Victoria.
- Co-operate with the island community in developing a contingency plan to eradicate any foxes arriving on the island.
- Monitor and eradicate concentrations of feral honeybees and European Wasps where practicable.
- Encourage the development of co-operative programs with landholders for the elimination or control of major pest plants and animals on the island, and for monitoring to detect any arrival of new invasive weeds and introduced animals, particularly foxes.

- Develop and implement a program to improve public awareness on threats posed by weeds, appropriate introduced animals and the need to discourage the keeping of introduced species which may escape.

POTENTIAL ERADICATION RISKS:	POTENTIAL BIOSECURITY RISKS:
Given the large size of the island and presence of human communities, there are significant fiscal costs and risks of eradication failure and ongoing biosecurity issues all of which would need to be addressed in feasibility studies.	Generally a low risk of unassisted reinvasion because of distance (2.4 km) from the mainland. However, Red Fox (re)invasion seems to be a risk. Significant risks of invasion of rodents, invertebrate pests, etc via recreational, commercial and domestic boating.

RECOMMENDED ACTIONS: Investigate the establishment of a Biosphere Reserve incorporating French Island.

Overall, support the national park initiative to develop a management plan for the island. This should include gathering updated information on the status and distribution of indigenous species and pest species, some of which will require targeted survey. Also develop associated plans and studies to determine feasibility of pest eradication and risk assessments of invasion and methods of sustaining effective biosecurity. From these results, develop operational plans and support for the eradication or management of pests and for the associated biosecurity plans that need to be continually tested and refined.

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Great Dog Island & Babel Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Great Dog) & lower 50 (Babel)
ISLAND NAME & GROUP: Great Dog & Babel islands, Outer islands of the Furneaux Group	**MAP 6**
LATITUDE (Babel Island): 40° 15' S [Decimal Degrees -40.251°]	
LONGITUDE (Babel Island): 148° 15' E [Decimal Degrees 148.254°]	
ISLAND AREAS Great Dog Island: 358 ha Babel Island: 437 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** Great Dog Island: 1.7 km to Cape Barren Island (TAS) Babel Island: 2.6 km to Cape Barren Island (TAS)
JURISDICTION: Tasmania	**TENURE:** Babel and Great Dog islands are Private (Aboriginal) land **ACCESS:** Permission from Aboriginal Land Council of Tasmania is required

GENERAL GEOGRAPHY: The Furneaux Islands group lies to the north east of mainland Tasmania and consists of more than fifty islands of varying sizes (DPIWE 1999).

Great Dog Island is a relatively flat granite island approximately 3.7 km long and up to 1.6 km wide. The highest point, Great Dog Hill, is 65 m above sea level. The island has several fine sandy beaches and a small satellite islet near the south-eastern end (Skira and Brothers 1988).

Babel Island is a pear-shaped granite island, approximately 3 km long and 2.8 km at the widest part. The highest point is 197m with gentle slopes leading to the waters edge. The island has two large sandy areas at West Beach and South East Beach. Fine sandy soil is present over the whole island even on tops of ridges (Towney and Skira 1985).

DEMOGRAPHY & HUMAN USE: There is a range of existing and potential uses of the marine environment in the Furneaux Group area, including shipping, commercial fishing, abalone diving, recreation, tourism, marine farming and conservation uses. The Aboriginal communities of the islands have strong traditions of coastal activities, such as taking seafood for personal and communal consumption, and gathering shells and kelp as materials for craft goods such as necklaces and baskets. Abalone diving is a major fishery for the Furneaux Islands. A closed area for the taking of abalone in the water between Little Green Island and Great Dog Island was established with the support of the Flinders Island abalone divers to allow for protection of a good nursery site (DPIWE 1999).

Great Dog Island has a homestead built about 70 years ago. Sheep paddocks are on the north side of the island. Seven of the original 12 Muttonbird (Short-tailed Shearwater) processing sheds are scattered around the foreshores (Skira and Brothers1988).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES:

The main vegetation on Great Dog Island is *Poa* Tussock (*Poa poiformis*) and there is an extensive mixed forest on the north-eastern side of She-oak (*Casuarina stricta*), Oyster Bay Pine (*Callitris rhomboidea*), *Eucalyptus viminalis*, *Bursaria spinosa*, *Acacia verticillata*, *Melaleuca ericifolia*,

Leptospermum scoparium and *L. laevigatum* (Skira and Brothers1988).

Great Dog Island also has the following species of significance at the local level: *Callitris rhomboidea*, *Eucalyptus globules*, *Microsorum pustulatum* and *Sambucus gaudichaudiana*. *Eucalyptus viminalis* is significant at a regional level (Brothers et al. 2001).

The main vegetation on Babel Island is *Poa* Tussock (*Poa poiformis*) with patches of tea tree *Leptospermum sp.* and the declared plant, African Boxthorn (*Lycium ferocissimum*) (Towney and Skira 1985). Two weeds (*Senecio elegans* and *Mesembryanthemum crystallinum*) and the native species (*Swainsona lessertiifolia*) are of biogeographic interest on Babel Island (Brothers et al. 2001).

THREATENED FAUNA:

2 EPBC listed threatened fauna species may occur on Great Dog and/or Babel islands.

CR: na

EN: Swift Parrot and Wedge-tailed Eagle (Tasmanian) may occur on Babel Island.

VU: na

10 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Great Dog and/or Babel islands.

Black-faced Cormorant - both islands

Cape Barren Goose - both islands

Caspian Tern - Great Dog Island

Crested Tern - Babel Island

Little Penguin - both islands

Pacific Gull - both islands

Silver Gull - both islands

Short-tailed Shearwater - both islands

White-faced Storm-petrel - Great Dog Island

White-fronted Tern - Great Dog Island

5 additional EPBC listed Marine or Migratory species are likely or may occur on Great Dog and/or Babel islands:

Curlew Sandpiper, Hooded Plover (eastern), Sanderling, Satin Flycatcher and White-bellied Sea-Eagle.

2 additional fauna species not listed under the EPBC Act but listed under one or more Australian state/territory legislation are known to occur on both Great Dog and/or Babel islands:

Pied Oystercatcher and Sooty Oystercatcher.

2 additional species listed under state legislation have been recorded on Babel Island:

Chappell Island Tiger Snake and Tasmanian

THREATENED FLORA:

2 EPBC listed threatened flora species are likely or may occur on Great Dog and/or Babel islands.

CR: na

EN: Northern Leek-orchid is likely to occur on Great Dog Island.

VU: Grassland Greenhood may occur on Great Dog Island.

4 additional flora species listed as threatened under Tasmanian State legislation are known to occur on these islands:

Shade Pellitory – both islands

Banded Greenhood and Broad-lip Bird Orchid – Great Dog Island

Coast Twin-leaf – Babel Island.

Pademelon.	
SEABIRD/SHOREBIRD BREEDING SITES: 10 seabirds are known to breed on Babel and/or Great Dog islands: Black-faced Cormorant – Babel Island Cape Barren Goose- both islands Caspian Tern – Great Dog Island Crested Tern – Babel Island Little Penguin - both islands Pied Oystercatcher - both islands Short-tailed Shearwater - both islands Sooty Oystercatcher - both islands White-faced Storm-petrel White-fronted Tern – Great Dog Island. Babel and Great Dog islands are each significant sites for breeding Short-tailed Shearwater, with records of 2.86 million in 1983 (Towney and Skira 1985) and 1 million in 1986 (Skira and Brothers 1988), respectively. Great Dog Island is also a significant site, to a lesser extent, for the White-faced Storm-petrel, with a record of 3 400 birds in 1986 (Skira and Brothers 1988). These islands are also important Little Penguin breeding grounds.	**OTHER SIGNIFICANT NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT Five vertebrate pests have been recorded and are believed to be currently present on Great Dog Island, including 4 species listed as an EPBC Key Threatening Process: Black Rat, Cat, House Mouse and Rabbit. Cat and House Mouse are also believed to be present on Babel Island. In addition, potentially high impacting Sheep are grazed on Great Dog Island.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of Cat predation, Black Rat and House Mouse activities, and Rabbit and Sheep grazing could be expected. Nesting seabirds are impacted directly by cats and rats, and indirectly impacted upon by rabbits and sheep.
OTHER THREATS PRESENT: African Boxthorn (*Lycium ferocissimum*) – is a Declared Plant Class 2 under Queensland Legislation (DPI 2009). Harvesting of seabird chicks and burning of *Poa* tussock grass may still be happening.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING:

No statutory management plans are in place for either Babel Island or Great Dog Island

(Tasmanian Sea Canoeing Club 2005).

FURTHER PEST ERADICATION REQUIREMENTS: All pests should be removed – pending further survey these are provisionally Cat, Black Rat, House Mouse, Sheep and Rabbit.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Challenge of eradicating House Mouse but technically feasible. Risk of damage to seabird burrows needs to be assessed and mitigated for. Owners need to be fully supportive.	Islands are just outside rat swimming distances from "mainland" so will be relatively secure from natural reinvasion after eradications. However, there is significant boating activity including craft that land at the islands, so risks are significant and need addressing.

RECOMMENDED ACTIONS:

The landowners are the key people here for the current and ongoing management of the islands. A meeting or meetings should be held amongst owners and any other stakeholders to discuss the potential way forward in restoring these islands and support that they will need to achieve this. Some existing ranger models from NT may help in this case.

Following meetings, survey the islands to confirm status of indigenous species and pest species.

With landowners/stakeholders develop a vision, objectives and management plan for the island using the survey findings as a basis for the plan.

Several additional components may need researching as feasibility studies in support of the management plan and eradication of the full suite of vertebrate pests if possible. Ideally the pests should be targeted at one time, i.e. poison for mice, rats and rabbits, during which most cats also die, and follow-up hunting and trapping for surviving rabbits and cats.

This approach may not be possible however given that some susceptible non-target species may be present, e.g. Swift Parrot, Wedge-tailed Eagle, oystercatchers, Hooded Plover and Pademelon, appropriate plans need to be developed to mitigate risks to those species.

Existing biosecurity efficacy and future biosecurity needs will also need to be assessed prior to the eradications.

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Goold Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Goold Island	**MAP 3**

LATITUDE:	18° 10' S [Decimal Degrees -18.167°]
LONGITUDE:	146° 10' E [Decimal Degrees 146.171°]

AREA: 795 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 15 km to the mainland 5 km to Hinchinbrook Island
JURISDICTION: Queensland	**TENURE:** National Park **STATUS:** Nature conservation reserve

GENERAL GEOGRAPHY: Goold Island is located about 15 km north-east of Cardwell in the centre of Rockingham Bay, Far North Queensland. It is a high forested island with sheltered beaches, surrounded by other national park islands in the Family Islands Group. The intertidal areas around both Brook and Goold National Parks are part of the Townsville/Whitsunday State Marine Park. Farther reefs and waters around the islands are part of the central section of the Great Barrier Reef Marine Park, which is zoned Marine National Park B (QPWS 1999a). The island has three creeks which carry water for most of the year; one flowing to the southern beach is almost permanent.

DEMOGRAPHY & HUMAN USE: Goold Island was originally used by Aborigines who relied heavily on the marine environment. Since Cardwell was established in 1865, the island has been a popular destination for recreational users. Increased recreational use has impacted upon the spit area.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Goold Island is covered in open forest dominated by eucalypts and wattles and has a developing understorey of rainforest species in some parts. Rainforest patches in gullies are relatively sheltered from fire. A stand of mangroves lines the estuary of a creek on the island's southern side (QPWS 1999a).

THREATENED FAUNA:

5 EPBC listed threatened fauna species may occur on Goold Island.

CR: Mountain Mistfrog may occur on Goold Island.

EN: Common Mistfrog, Lace-eyed Tree Frog and Waterfall Frog may occur on the island.

VU: Spectacled Flying-fox may occur on the island.

In addition, Sharp-snouted Day Frog, now listed as Extinct (DEWHA 2009), could potentially still occur on the island.

4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) may occur on Goold Island:

THREATENED FLORA:

2 EPBC listed threatened flora species are likely to occur and 1 additional species may occur on Goold Island.

CR: na

EN: na

VU: Australian Arenga Palm and Curly Pinks are likely to occur on Goold island.

Minute Orchid may occur on the island.

Barn Swallow, Latham's Snipe, Little Curlew and White-throated Needletail. 1 EPBC listed Marine or Migratory species is likely to occur on Goold Island: Satin Flycatcher.	
SEABIRD/SHOREBIRD BREEDING SITES: Beach Stone-curlew is known to breed on the island (Marchant and Higgins 1993).	**OTHER SIGNIFICANT VALUES:** Goold Island is part of the Great Barrier Reef World Heritage Area. Early European explorers, including Cook, reported the presence of Aboriginal people on Goold Island and the area is of cultural and spiritual significance to the descendants of the original indigenous inhabitants. Middens and stone fish traps are found on the island. The Brook Islands, Goold Island and the southern Family Islands are an integral part of the landscape of Rockingham Bay. These small undisturbed tropical islands are aesthetically attractive and a major attraction for tourists. The tall, densely forested cone of Goold Island in the centre of Rockingham Bay is an impressive feature when approached from any direction (QPWS 1999a).
PEST VERTEBRATES PRESENT: One vertebrate pest has been recorded and is believed to be currently present on Goold Island: Cane Toad, a listed EPBC Key Threatening Process.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of Cane Toad could be expected.
OTHER THREATS PRESENT: Recreational use by visitors.	**OTHER THREAT IMPACTS:** Recreational use erodes the beach and opens the vegetation around camping sites (QPWS 1999a).

PAST & CURRENT PEST MANAGEMENT & MONITORING: Goold Island National Park is covered in both the Brook Islands National Park and Goold Island National Park Management Plans (QPWS 1999a) and the Hinchinbrook Island National Park Management Plan (QPWS 1999b). These plans were developed to facilitate pest management planning and to guide on-ground pest management activities in Queensland EPA managed areas. The primary objectives for EPA pest management are to:

- protect natural and cultural values, including threatened species and ecosystems, by eradicating pests or significantly reducing impacts
- prevent the introduction or spread of any declared plant or animal on the EPA estate
- undertake pest control programs in cooperation with neighbouring landholders, other State agencies and local government in accordance with EPA's Good Neighbour Policy.

Key stakeholders with an interest in EPA pest management include:

- all direct users of EPA managed areas and their industry and interest groups. These groups include (in no particular order or priority) pastoralists, timber and other resource users (for tenures under both the *Nature Conservation Act 1992* and *Forestry Act 1959*), mining and extractive industries, fishing and recreation groups
- neighbouring landholders and their industry/interest groups

- the conservation movement
- State agencies and entities, in particular: Department of Natural Resources and Mines, Department of Primary Industries (Forestry), Department of Main Roads, Queensland Rail; and local governments.

In accordance with its Good Neighbour Policy, EPA will co-operate with neighbouring landholders, government departments and local authorities to meet its legislative requirements for pest plant and animal control (QPWS 2003).

FURTHER PEST ERADICATION REQUIREMENTS: The only vertebrate pest known from the island is the Cane Toad. Priorities are to determine feasibility of eradicating Cane Toad and to prevent further invasions of this pest and other pests.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Currently unknown but likely that there would be a significant risk of Cane Toad eradication failing – needs feasibility study.	Low risk of unassisted invasion. High risk of visitors' bringing other pests to the island, e.g. rodents and invasive invertebrates.

RECOMMENDED ACTIONS: QPWS to review progress of Goold Island National Park Management Plan and complete updates (may require field assessments) as follows:

- status and distribution of key indigenous biota (e.g. threatened frogs as guided by specialist advice)
- status and potential for recovery/recolonisation of additional indigenous species
- feasibility study for eradication of Cane Toad
- test biosecurity for the island and revise surveillance, education and response procedures accordingly.

KEY REFERENCES

DEWHA 2009d. Species Profile and Threats Database (SPRAT). Department of the Environment, Water, Heritage and the Arts, Canberra. Available at: www.environment.gov.au.

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Groote Eylandt (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Groote Eylandt)
ISLAND NAME & GROUP: Groote Eylandt, Groote Eylandt Group With consideration of North East Isles and numerous smaller islands in the Groote Eylandt Group.	**MAP 2**

LATITUDE: 13° 56' S [Decimal Degrees -13.933°]

LONGITUDE: 136° 36' E [Decimal Degrees 136.600°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):**
Groote Eylandt: 228 518 ha North East Isles: 424 ha Groote Eylandt is Australia's third largest offshore island (NRETAS 2008; DEWHA 2009).	45 km to the mainland 14 km to Bickerton Island 5 km between Groote Eylandt and North East Isles
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Aboriginal Freehold and Leasehold, Arnhem Land Aboriginal Land Trust

GENERAL GEOGRAPHY: Groote Eylandt is located in an archipelago which also includes 40 smaller islands located off eastern Arnhem Land in the Gulf of Carpentaria (NRETAS 2008).

Groote Eylandt is characterised by extensive lateritic plains, rugged sandstone plateau and hills in the central and southern parts of the island and large dune fields and sand plains in coast areas (NRETAS 2008).

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ ECOLOGICAL COMMUNITIES:

9800 ha of mostly dry vine thickets occur on Groote Eylandt (4% of the NT rainforest estate) within the sandstone plateau and in coastal areas abutting dunefields and sandplains. Small patches of riparian and spring-fed rainforest also occur. The majority of the rainforest patches are small (<10 ha) but 17 patches are >100 ha (Russell-Smith 1991, cited in NRETAS 2008). Overall vegetation types are:

- Savanna woodland dominated by Darwin stringybark and woollybutt
- Sandstone heathlands
- Dune shrublands
- Monsoon vine forests
- Riparian woodlands
- Paperbark swamps (NRETAS 2008).

THREATENED FAUNA:	**THREATENED FLORA:**
7 EPBC listed threatened fauna are known to occur on Groote Eylandt and another is likely to occur. **CR**: na **EN**: Olive Ridley Turtle is known to occur on Groote Eylandt. **VU**: Brush-tailed Rabbit-rat, Northern Quoll,	1 EPBC listed threatened flora species is present in the monsoon rainforest on Groote Eylandt. **CR**: na **EN:** na **VU:** Australian Arenga Palm is known to occur on Groote Eylandt.

Hawksbill Turtle, Flatback Turtle, Northern Hopping-mouse and Green Turtle are known to occur on Groote Eylandt.

Water Mouse is likely to occur on the island.

7 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Groote Eylandt:

Black-naped Tern, Bridled Tern, Brown Booby, Crested Tern, Little Tern, Roseate Tern and Silver Gull.

10 additional listed Marine or Migratory species may occur in the Groote Eylandt island group:

Barn Swallow, Cattle Egret, Fork-tailed Swift, Great Egret, Little Curlew, Melville Cicadabird, Oriental Plover, Oriental Pratincole, Rainbow Bee-eater and Rufous Fantail.

3 additional fauna species listed under Northern Territory legislation are known to occur on Groote Eylandt:

Australian Bustard, Yellow-spotted Monitor and Merten's Water Monitor.

1 additional shrub/tree listed under Northern Territory legislation is known to occur on the island:

Hernandia nymphaeifolia.

SEABIRD/SHOREBIRD BREEDING SITES:

7 seabirds are known to breed on Groote Eylandt:

Black-naped Tern, Bridled Tern, Brown Booby, Crested Tern, Little Tern, Roseate Tern and Silver Gull.

There are 17 seabird breeding colonies on the island, including one colony on a small unnamed islet off the north-east tip of Groote Eylandt, which supports internationally significant numbers (>1% world population) of Crested Tern (NRETAS 2008). Little Tern was found in several substantial colonies in the archipelago in 1994 and 8 other bird colonies at the island have national significance (Chatto 2001; NRETAS 2008).

OTHER NATURAL VALUES:

Groote Eylandt is considered of International Significance by the Northern Territory Government's Site of Conservation Significance (SOCS) assessment (NRETAS 2008).

Groote Eylandt has internationally and nationally significant sites for nesting turtles. The islands support the densest areas of marine turtle nesting in the Northern Territory, and are especially significant for Green and Hawksbill turtles.

The model in Woinarski et al 's study (2007) predicted Northern Quolls were likely to be present on seven islands that have not yet been sampled; each of these is within the Groote Eylandt archipelago.

Many of the threatening processes operating on the Northern Territory mainland are absent from, or at low levels within, the Groote archipelago, offering a rare opportunity to maintain a virtually intact biota in this Site (NRETAS 2008).

PEST VERTEBRATES PRESENT:

7 vertebrate pest species have been recorded, and are believed to be currently present on Groote Eylandt. Three of these are a listed EPBC Key Threatening Process:

Black Rat, Cat and House Mouse.

2 potentially high impact species are:

PEST VERTEBRATE IMPACTS:

There are relatively few species of feral animals within the Groote Archipelago, and they are generally in low abundances, compared to both the NT mainland and some other island groups (NRETAS 2008).

A dense population of Rusa Deer now occurs on North-east Island (off Groote Eylandt), as a result

Domestic Dog and Rusa Deer. The remaining two vertebrate pests are low impact species: Asian House Gecko and Eurasian Tree Sparrow. Cattle, Horse, Donkey, Water Buffalo and Pig are absent, and the Groote Eylandt archipelago islands are currently free from Cane Toads (NRETAS 2008).	of deliberate introduction in the 1950s, and, together with goats, these have denuded much of the vegetation on that island (DNREA 2005).
OTHER THREATS PRESENT: · Weeds - 10 declared category B weeds and 7 undeclared but problematic environmental weeds (high priority weeds; Smith 2001) are present on Groote Eylandt. · A large manganese mine (GEMCO) is located near Angurugu in western Groote Eylandt (NRETAS 2008). · Fishermen and recreational boaters could potentially spread some feral animals, such as Asian House Gecko and Black Rat to smaller islands in the archipelago (NRETAS 2008).	**OTHER THREAT IMPACTS:** · Planned expansion of the GEMCO mine will potentially impact the habitat of some threatened species; strip mining has acute impacts (NRETAS 2008).
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).	
POTENTIAL ERADICATION RISKS: Given the large size of the island, any eradication is going to be expensive and therefore a fiscal risk, as well as presenting significant logistical challenges.	**POTENTIAL BIOSECURITY RISKS:** Seven of the 10 quoll-occupied islands are part of the Groote Eylandt archipelago. Each of these is at risk of Cane Toad invasion should toads arrive on any one island, which is most likely to be Groote, given its size and the amount of traffic to it. Hence, the most substantial risk to the conservation status of Northern Territory island quolls is probably associated with such a colonisation event. A range of quarantining measures is in place on Groote to minimise the chances of toad invasion (Woinarski et al. 2007). Darwin, Gove, Groote Eylandt and Bing Bong are the most important ports and are used by cargo ships carrying raw materials from the mining industry, petroleum products and agriculture (DNREA 2005).
RECOMMENDED ACTIONS: Island communities and other stakeholders should develop a strategic plan for managing the biota of the island and the group as a whole. Vision and objectives should be agreed by consensus and key aspects that the plan should address include the following: · Status and distribution of indigenous biota – updated information may be needed, some of	

which could require targeted surveys to be undertaken

- Status and distribution of pest biota
- Cane Toads and Pigs – given the absence of these species, strengthening biosecurity to prevent the establishment of these and other currently absent pests is of critical importance. This strengthening could include an assessment of risks and likely source of toads, surveillance methods and response plans
- Feasibility of eradicating Cats on the island versus sustained control at key biodiversity sites. The plan should also address impacts and feasibility of control of Black Rat
- Similarly, minimising the spread of significant weeds and maintaining beneficial fire regimes are important management priorities (NRETAS 2008)
- Integrate recommendations of key recovery plans and formal advice, e.g. Northern Quoll Management Plan, turtle recovery plans
- Use appropriate indicators of success, e.g. the distribution and abundance of Northern Quoll, seabird colonies and turtle nests.

KEY REFERENCES

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Woinarski, J., Rankmore, B., Fisher, A., Brennan, K., and Milne, D. 2007. The natural occurrence of northern quolls Dasyurus hallucatus on islands of the Northern Territory: assessment of refuges from the threat posed by cane toads Bufo marinus. Report to The Australian Government's Natural Heritage Trust, December 2007.

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Hermite Island & Trimouille Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Hermite and Trimouille islands, Montebello Islands With some consideration of smaller (<200 ha) islands in the Montebello Islands Conservation Reserve area: Ah Chong, Alpha, Bloodwood, Bluebell, Brooke, Campbell, Crocus, Delta, Ivy, North West, Primrose, Renewal and South East islands.	**MAP 8**

LATITUDE: 20° 28' S [Decimal Degrees -20.467°]

LONGITUDE: 115° 31' E [Decimal Degrees 115.525°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):**
Hermite Island: 1 110 ha Trimouille Island: 511 ha	Hermite Island: 75 km to the mainland, 20 km to Barrow Island Trimouille Island: 84 km to the mainland 4.6 km between Hermite and Trimouille islands
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve (Montebello Islands) **STATUS:** Conservation Park A42196

GENERAL GEOGRAPHY: The reserves lie approximately 1 600 km north of Perth and are in the Pilbara Offshore marine bioregion, which covers an area of 41.5 million ha seaward of contour between North West Cape and Cape Keraudren (DEC 2007b). The Montebello/Barrow Islands comprise a geomorphological and ecological unit that is unique in this area.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The marine and coastal environments of the Montebello/Barrow/Lowendal islands region represent a unique combination of offshore islands, intertidal and subtidal coral reefs, mangroves, macroalgal communities, sheltered lagoons, channels, beaches and cliffs.

The sand habitats are generally unvegetated but may have seasonal vegetation or permanent patches of seagrass or macroalgae and a significant invertebrate fauna. Rocky shores are typically undercut, unvegetated, low limestone cliffs, which support a variety of mollusc species and other invertebrates.

Six species of mangrove are found in the reserves. The Montebello Islands' mangrove communities are considered unique globally as they occur in lagoons of offshore islands. The largest mangrove community of approximately 15 ha is found in Stephenson Channel on Hermite Island, where individual trees can reach 5 m in height (DEC 2007b).

THREATENED FAUNA:	**THREATENED FLORA:**
2 EPBC listed threatened fauna species are known to occur, and a further 3 are likely to	No known EPBC listed, or otherwise listed, threatened flora species are known to occur on

occur on Hermite and/or Trimouille islands and elsewhere within the Montebello Islands area. **CR:** na **EN:** na **VU:** Green Turtle and Wedge-tailed Shearwater are known to occur on Hermite and Trimouille Islands. Flatback Turtle, Hawksbill Turtle are likely to occur in the Montebello Island area, and Hermite Island Worm-lizard is likely to occur on Hermite Island. 21 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on both Hermite and Trimouille islands, as well as elsewhere within the Montebello Islands area: Bar-tailed Godwit, Beach Stone-curlew, Bridled Tern, Brown Booby, Caspian Tern, Common Greenshank, Common Sandpiper, Crested Tern, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Greater Crested Tern, Greater Sand Plover, Lesser Crested Tern, Nankeen Kestrel, Red-necked Stint, Richard's Pipit, Roseate Tern, Silver Gull, Sooty Tern and White-bellied Sea-Eagle. 4 additional EPBC listed Marine or Migratory species may occur on Hermite Islands and elsewhere within the Montebello Islands area: Barn Swallow, Little Curlew, Oriental Plover and Oriental Pratincole.	Hermite or Trimouille islands.
SEABIRD/SHOREBIRD BREEDING SITES: 12 seabirds are known to breed on Hermite and Trimouille islands as well as elsewhere in the Montebello Island area: Bridled Tern, Caspian Tern, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Crested Tern, Lesser Crested Tern, Roseate Tern, Silver Gull, Sooty Tern, Wedge-tailed Shearwater and White-bellied Sea-Eagle. The Montebello Islands are an important area for Wedge-tailed Shearwater. In addition, Beach Stone-curlew is known to breed on Hermite and Trimouille islands as well as elsewhere in the Montebello Island area.	**OTHER NATURAL VALUES:** The Montebello/Barrow islands area is considered to be in a generally undisturbed condition, largely as a result of the relatively low human usage and the existing management of industry activities in the area. (DEC 2007b). The area was identified for consideration as a marine conservation reserve in the Marine Parks and Reserves Selection Working Group (MPRSWG) report for these reasons (MPRSWG 1994, cited in DEC 2007b). Montebello Islands' mangrove communities are considered to be globally unique as they occur in lagoons of offshore islands. Five of the six species of marine turtle found in Western Australia have been recorded in the Montebello Island reserves (DEC 2007b). Green Turtle nesting is known to occur on both Hermite and Trimouille islands, as well as elsewhere in the Montebello Islands area. Flatback and Hawksbill turtles are known to nest on shady beaches within the Montebello Islands Conservation Reserve and

	are likely to nest on Hermite and Trimouille islands. In 1999 and 2000, Shark Bay Mouse was introduced to North West Island in the Montebello Islands area for species conservation reasons. It is now common on this island.
PEST VERTEBRATES PRESENT: Montebello Islands Reserve is protected from ground predators such as Cat, but ongoing control measures are in place. Black Rat was eradicated from the Montebello Islands Reserve in 1996-1999. Both Hermite and Trimouille islands are believed to be currently free from cats and rats.	**PEST VERTEBRATE IMPACTS:** General impacts associated with Cat and the Black Rat can be expected if these species are reintroduced onto islands within the Montebello Islands Reserve. The main identified threats to the Hermite Island Worm-lizard include predation by cats and rats (DEWHA 2008k).
OTHER THREATS PRESENT: · Hydrocarbon exploration and production industry - the Montebello/Barrow islands region is within Western Australia's most productive petroleum area for both oil and gas. · Fishing (commercial and recreational) - the Montebello/Barrow islands reserves are commercially fished for a variety of finfish, sharks and beche de mer. Recreational fishers target a variety of pelagic and reef finfish species, mud crabs and other edible invertebrates. · Pearling - warm pristine waters of the reserves provide optimal conditions for production of high quality pearls by the existing pearling operations. · Water sports - natural values, climate, and scenic nature of islands in the reserves provide the base for a wide range of recreational activities. · Nature-based tourism – e.g. fishing, diving, wildlife viewing, island exploring and surfing (DEC 2007b).	**OTHER THREAT IMPACTS:** · Human disturbance and inbreeding depression could lead to extinction of Hermite Island Worm-lizard. · Hydrocarbon industry – currently the major pressure on turtles in the reserves relates to the impact of lights and flares from hydrocarbon industry and pearling operations on hatchlings. · The main issues in regard to recreational fishing in the reserves are impacts on target species due to fishing, including localised depletion, and associated impacts on the ecological values, for example, from litter or trampling of sensitive habitat. · Mud crabbing was identified as the major pressure on mangrove communities in the reserves, although the overall potential for impacts from this activity is probably low. · Many seabirds are susceptible to disturbance during nesting. Adults will fly off the nest when approached by people, vessels or aircraft exposing the chicks to predators. · Increased boating in the future has the potential to negatively impact on the ecological values of the reserves through an increase in the disposal of effluent and rubbish, as well as through inappropriate anchoring and the installation of moorings in sensitive habitats (DEC 2007b).

PAST & CURRENT PEST MANAGEMENT & MONITORING:

The introduced Black Rat, which may eat seabird eggs and chicks, was eradicated from islands within both the Montebello/Barrow islands region (DEC 2007b). Cats were also eradicated, but ongoing Cat control is in place to prevent reestablishment.

FURTHER PEST ERADICATION REQUIREMENTS: None required at present, but depends on effective

biosecurity.

POTENTIAL ERADICATION RISKS: None at present, but see Recommended Actions.	**POTENTIAL BIOSECURITY RISKS:** Zero risk of natural invasion. Data on Black Rat swimming distances in Australia are scarce, but in the Montebello Islands black rats have crossed channels up to 1.4 km wide, possibly with tidal current assistance (Burbidge 2004). High risks of human-assisted pest invasion, e.g. rodents and invasive ants, carried via equipment and supplies being brought to the island for industry or recreation.

RECOMMENDED ACTIONS:

Confirm status of management plans for the islands and revise accordingly. Plans should incorporate all users/stakeholders of the islands.

Clearly maintaining tight biosecurity is critical and this should include a risk assessment for potential newly arriving pests.

The biosecurity plan should include pest surveillance and response plans in the event that pests invade. The latter should include an evaluation of non-target risks and mitigation measures.

Regularly test the biosecurity plan to minimise the chances of pests arriving and revise plans as needed.

KEY REFERENCES

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Burbidge, A.A. 2004. *Introduced mammals on Western Australian islands: improving Australia's ability to protect its island habitats from feral animals*. Department of Conservation and Land Management, Western Australia.

DEC 2007b. Management Plan for the Montebello/Barrow Islands Marine Conservation Reserves 2007-2017. Management Plan No. 55 including the Montebello Islands Marine Park, Barrow Island Marine Park and Barrow Island Marine Management Area. Department of Environment and Conservation, Marine Parks and Reserves Authority, The Government of Western Australia.

DEWHA 2008k. Approved Conservation Advice for *Aprasia rostrata rostrata* (Hermite Island Worm-lizard), Department of the Environment, Water, Heritage and the Arts, Commonwealth Government of Australia.

Hinchinbrook Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Hinchinbrook Island With some consideration of Haycock, Eva and Agnes islands.	**MAP 3**
LATITUDE: 18° 21' S [Decimal Degrees -18.363°]	
LONGITUDE: 146° 14' E [Decimal Degrees 146.236°]	
AREA: 39 613 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.8 km to the mainland (or less depending on tides, as there is a series of narrow channels)
JURISDICTION: Queensland	**TENURE:** National Park/UK **STATUS:** Nature conservation reserve/Unknown

GENERAL GEOGRAPHY: Hinchinbrook Island is located in the Cardwell Shire. It is separated from the coast and from the regional towns of Cardwell, Ingham and Lucinda by the narrow Hinchinbrook Channel. It is situated halfway between the major cities of Cairns and Townsville (QPWS 1999b).

The Hinchinbrook Island National Park covers the entire island. This largely mountainous island features a long chain of high peaks, culminating in Mt Bowen with an elevation of 1142 m above sea level. At the north-eastern extremity of the island, a peninsula juts to the north consisting of four separate rocky outcrops joined by sand dunes, and there is an extensive deposit of sand about 3 km long and 2 km wide near George Point. Generally, Hinchinbrook Island's dunes are low-lying, but some reach heights of up to 60 m near the northern end of Ramsay Bay (QPWS 1999b).

DEMOGRAPHY & HUMAN USE: Uses of the area are diverse and include bush walking, camping, low-key commercial tourism, cultural activities, recreational fishing and boating and commercial fishing (GBRMPA 2004).

Hinchinbrook Island National Park has been divided into four zones to provide broad guidelines for use and management of the area (QPWS 1999b):

1. Remote - Natural Zone
2. Natural - Recreation Zone
3. Recreation zone
4. Resort lease.

Visits to the island by private and commercial boats are now well established, with several locations being used for day trips. Hinchinbrook Island is a popular camping destination. Camping is allowed at designated areas with a low level of facilities and bush camping with no, or very few, facilities also occurs. A small resort holds a lease on the park at Cape Richards (QPWS 1999b).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The sheltered side of the dunes on Hinchinbrook supports an extensive mangrove and salt flat area on colluvial and alluvial deposits with numerous deep channels (QPWS 1999b).

The flora remains poorly known, despite recent mapping work by Cumming (1995, cited in QPWS 1999b). Thirty plant communities have been identified, some of which are restricted in their range.

About 700 species have been recorded on Hinchinbrook Island, but this is likely to be only part of the flora actually present (QPWS 1999b).

While areas of rainforest occur at low and high altitudes, most of the mountainous part of the island is covered with open forests and low heaths on shallow soil. The mangroves which line Missionary Bay and Hinchinbrook Channel represent one of the largest and most diverse mangrove areas on the Australian continent and include some 31 species of mangrove (QPWS 1999b). Lowland vegetation is of particular importance as it contains several species unique to the area of Hinchinbrook Island and the adjacent mainland (QPWS 1999b).

Some small, but significant areas of *Melaleuca viridiflora* woodland occur on the north coast of Hinchinbrook Island (QPWS 1999b).

THREATENED FAUNA:

8 EPBC listed threatened fauna are known to occur on Hinchinbrook Island, and a further 6 listed species are likely or may occur on the island.

CR: Mountain Mistfrog and Bare-rumped Sheathtail Bat may occur on the island.

EN: Leatherback Turtle, Loggerhead Sea Turtle, Olive Ridley Turtle and Southern Cassowary (Australian)/Southern Cassowary are known to occur on Hinchinbrook Island.

Spotted-tailed Quoll and Star Finch (eastern and southern) are likely to occur on the island.

Waterfall Frog may occur on the island.

VU: Flatback Turtle, Green Turtle, Hawksbill Turtle and Spectacled Flying-fox are known to occur on Hinchinbrook Island.

In addition, the Sharp-snouted Day Frog which is now listed as Extinct (DEWHA 2009d), was likely to occur, and may still be found on the island.

4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on the island:

Beach Stone-curlew, Little Tern, Pied Imperial Pigeon and Saltwater Crocodile.

6 additional EPBC listed Marine or Migratory species may occur on the island:

Barn Swallow, Fork-tailed Swift, Latham's Snipe, Little Curlew, Rainbow Bee-eater and White-throated Needletail.

1 species listed under Queensland State legislation is known to occur on the island:

Sooty Oystercatcher.

THREATENED FLORA:

4 EPBC listed threatened flora species are likely to occur on Hinchinbrook Island.

CR: na

EN: na

VU: Australian Arenga Palm, Beard Heath, Curly Pinks and Minute Orchid are likely to occur on Hinchinbrook Island.

2 additional flora species are not listed, but are restricted to Hinchinbrook Island and adjacent mainland:

Banksia plagiocarpa and Lance-leaved Sundew.

In addition, *Comesperma praecelsum* is known only from Hinchinbrook Island.

SEABIRD/SHOREBIRD BREEDING SITES:

Unknown, but likely to be a breeding area for Beach Stone-curlew and some other species.

OTHER NATURAL VALUES:

Hinchinbrook Island is a National Park within the Great Barrier Reef World Heritage Area.

Hinchinbrook Island is a stopover area for

	migratory birds and is recognised as important for a range of seabirds, shorebirds and the Pied Imperial Pigeon (GBRMPA 2004). Plant communities of the island are a major food source for Pied Imperial Pigeon (QPWS 1999b). Eva and Agnes islands are undisturbed and have a range of natural values. In particular, Eva Island has seabird and Pied Imperial Pigeon nesting.
PEST VERTEBRATES PRESENT: 2 vertebrate pests are believed to be currently present on Hinchinbrook Island, both are a listed EPBC Key Threatening Process: Cane Toad and Pig. Pigs occur on southern and western coastal areas of Hinchinbrook Island. They appear to be restricted by the high rugged mountains and have not become established on the east coast or the northern peninsula part of the island (QPWS 1999b).	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts digging and trampling of feral pigs and toxicity of cane toads could be expected. Pigs are likely to be impacting on Southern Cassowary.
OTHER THREATS PRESENT: · Un-exploded ordinance. Haycock Island may require detailed evaluation for potential risks associated with unexploded ordnance. · Fire exclusion. · The increasing visitor pressure at some of the popular sites is approaching critical levels (QPWS 1999b).	**OTHER THREAT IMPACTS:** Vegetation changes have been noticed on the island. Other potential effects from human activities include (GBRMPA 2004): · the impact of human activities on marine ecosystems · the disturbance of marine turtles, particularly when they are feeding · the damage to coral from direct human activities including anchoring · the disturbance of birds when they are roosting or nesting · the potential for the scenic integrity of the Planning Area to be degraded by human activities. The large Port Hinchinbrook Resort has impacted on the adjacent Hinchinbrook Island National Park. Some vegetation changes in lowland areas are evident where young rainforest is growing under, and eventually replacing, tall eucalypt forest. These could be due to irregular and infrequent cyclone damage followed by fire, or could be due to a decrease in fires of human origin since Aboriginal people disappeared from the island about the turn of the century. These areas now appear incapable of carrying a fire and the option to burn is gone. A possible consequence of the exclusion of fire is that large areas of open forest will disappear, along with a significant part of the island's biodiversity (QPWS

	1999b).

PAST & CURRENT PEST MANAGEMENT & MONITORING: Necessary steps were taken to add Haycock, Eva and Agnes islands to the Hinchinbrook Island National Park so that all of Hinchinbrook and its satellite islands are protected and managed as one unit. It is proposed that further scientific research of the Hinchinbrook Island National Park continues (QPWS 1999b).

Introduced Animals - Guidelines and actions (QPWS 1999b).

- Eradicate feral pigs. Eradication programs will be carried out in the George Point and Zoe Bay areas. Particular efforts will be made to keep pigs out of the area between Zoe Bay and Cape Richards.
- If any other feral animals are identified, they will be removed if feasible control measures are available.

Introduced Plants - Guidelines and actions (QPWS 1999b).

- Weed outbreaks will be monitored, with particular emphasis on the area of the special lease and adjoining areas.
- Occurrence of Rhoeo discolor (a small succulent ornamental garden escapee) at The Haven will be assessed and action taken to contain or eradicate it.
- Coconuts will be controlled at the following sites: Nina Bay — limit the spread of the existing patch, thin out if necessary; Macushla — leave adult plants and naturally occurring seedlings; Ramsay Bay and Little Ramsay Bay — remove any adult coconuts and remove any seedlings which establish; Zoe Bay and other sites — leave adult plants, but remove seedlings which establish. No coconuts will be planted on the national park.
- Removal of large mango trees will not be a priority, unless there is a particular reason to remove an individual tree.

FURTHER PEST ERADICATION REQUIREMENTS: Pigs (see Recommendation Actions below).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Some minor non-target risks during pig eradication and potential for reinvasion would need to be addressed during feasibility studies and appropriate action and ongoing surveillance.	Close proximity to mainland (0.8 km) and wide tidal flats means that there are significant risks of invasion by mammalian pests and Cane Toads.

RECOMMENDED ACTIONS:

Review the current status and success of the pig eradication program and adapt program as necessary to achieve eradication.

Additional needs include:

- Identify key biodiversity areas
- Identify the extent of Cane Toads and other pests potentially present
- The above two needs will help the management planning process, particularly in assessing the feasibility of island-wide biota management versus more localised management, and these should be developed in a Hinchinbrook Island management plan
- Evaluate current biosecurity efficacy and revise and implement as appropriate
- Carry out ongoing surveillance for pigs and if necessary manage a buffer zone along the mainland
- Integrate recommendations from recovery plans (Mountain Mistfrog and Bare-rumped Sheathtail Bat) into a Hinchinbrook Island Management Plan.

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Hunter Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Hunter Island	**MAP 6**
LATITUDE: 40° 32' S [Decimal Degrees -40.537°]	
LONGITUDE: 144° 44' E [Decimal Degrees 144.746°]	

AREA: 7 046 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 4.8 km to the mainland 3.9 km between Hunter and Three Hummock islands
JURISDICTION: Tasmania	**TENURE:** Crown Leasehold **STATUS:** Crown Lease

GENERAL GEOGRAPHY: Unknown.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:

1 EPBC listed threatened fauna species is known to occur and 1 additional listed threatened species is likely to occur on Hunter Island.

CR: Orange-bellied Parrot is known to occur on Hunter Island.

EN: Wedge-tailed Eagle (Tasmanian) is likely to occur on the island.

VU: na

2 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Hunter Island:

Short-tailed Shearwater and White-bellied Sea-Eagle.

2 additional listed Marine or Migratory species are likely to occur on the island:

Hooded Plover (eastern) and Satin Flycatcher.

3 additional listed Marine or Migratory species may occur on the island:

Fork-tailed Swift, Latham's Snipe and White-throated Needletail.

THREATENED FLORA:

2 EPBC listed threatened flora species are likely to occur and 1 additional listed threatened species may occur on Hunter Island.

CR: na

EN: Northern Leek-orchid is likely to occur on Hunter Island.

VU: Leafy Greenhood is likely to occur and Grassland Greenhood may occur on the island.

SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT: One vertebrate pest has been recorded and believed to be currently present on Hunter Island, and is potentially high impact: European Cattle.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of the European Cattle could be expected.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: Confirm pest status of the island – if no recent data, carry out survey.

POTENTIAL ERADICATION RISKS: These are dependent on updated findings of pest status or surveys**.** For example, if only cattle are present then risks will be readily managed, but if rodents are also present then any eradications would involve significant risk management around Orange-bellied Parrots, eagles, plovers and others.	**POTENTIAL BIOSECURITY RISKS:** Potentially low given the distance offshore, but much depends on human use, associated risks and future planning.

RECOMMENDED ACTIONS:

State to provide updated information on pest status of the island.

If no recent data, carry out full biota survey including indigenous and pest species - include data that will help with assessing feasibility of eradications.

Prepare management plan for the island that also outlines feasibility of pest eradications, cost-effectiveness of different approaches and biosecurity measures that need to be implemented.

KEY REFERENCES

Bryant, S. L. and Jackson, J. 1999. Tasmania's Threatened Fauna Handbook: what, where and how to protect Tasmania's threatened animals. Threatened Species Unit, Parks and Wildlife Service, Hobart. Available at: www.dpiw.tas.gov.au. Accessed 28 May 2009.

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Indian Island (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Indian Island	**MAP 2**

LATITUDE:	12° 37' S [Decimal Degrees -12.631°]
LONGITUDE:	130° 30' E [Decimal Degrees 130.502°]

AREA: 2 702 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.4 km to the mainland
JURISDICTION: Northern Territory	**TENURE:** Vacant Crown Land **STATUS:** A reserve protected and managed under the Territory Parks and Wildlife Conservation By-laws (2002) (NRETAS 2008j).

GENERAL GEOGRAPHY: Indian Island is a well forested island about 17km long by 3 km wide. It is located at the entrance to Bynoe Harbour (Chatto and Baker 2008).

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Woodland; Heathland; Open and Closed forest; Scrub; Mangrove and dune vegetation are known on Indian Island (Woinarski et al. 2007; DEWHA 2009k).

THREATENED FAUNA: 2 EPBC listed threatened fauna species are likely to occur and 2 additional listed threatened species may occur on Indian Island. **CR:** na **EN:** na **VU:** Flatback Turtle and Water Mouse are likely to occur on Indian Island. Brush-tailed Rabbit-rat and Masked Owl (Kimberleys) may occur on the island. 12 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are likely to occur on Indian Island: Bar-tailed Godwit, Black-tailed Godwit, Common Sandpiper, Great Knot, Greater Sand Plover, Grey Plover, Lesser Sand Plover, Ruddy Turnstone, Saltwater Crocodile, Sanderling, Whimbrel and White-bellied Sea-Eagle. 7 additional EPBC listed Marine or Migratory	**THREATENED FLORA:** No EPBC listed, or otherwise listed, threatened flora species are known to occur on Indian Island. **CR:** na **EN:** na **VU:** na

species may occur on the island: Barn Swallow, Little Curlew, Little Tern, Melville Cicadabird, Oriental Plover, Oriental Pratincole and Rufous Fantail.	
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Flatback Turtle nesting is likely to occur on Indian Island.
PEST VERTEBRATES PRESENT: One vertebrate pest has been recorded and may be currently present on Indian Island, although it was not recorded in 2004: Cat, a listed EPBC Key Threatening Process.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of the Cat could be expected.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.
PAST & CURRENT PEST MANAGEMENT & MONITORING: Unknown.	
FURTHER PEST ERADICATION REQUIREMENTS: Unknown.	
POTENTIAL ERADICATION RISKS: Reinvasion from the mainland is a key risk and there may be others that would need to be identified.	**POTENTIAL BIOSECURITY RISKS:** Invasion by rats and the Cane Toad is possible given the proximity to the mainland. Reinvasion by cats following any attempt to eradicate would also be a risk.

RECOMMENDED ACTIONS:

Update pest data on the island, likely to be achieved by full survey for invasives.

Update data on indigenous species, likely to be achieved by specialist, targeted surveys for Brush-tailed Rabbit-rat, False Water-rat, Grass Owl and others.

Discuss findings with stakeholders and agree on vision and objectives for the island.

Undertake appropriate planning and feasibility studies as relevant and implement operational work and biosecurity plans.

KEY REFERENCES

Chatto, R. and Baker, B. 2008. The Distribution and Status of Marine Turtle Nesting in the Northern Territory, Technical Report 77 to Department of Natural Resources, Environment and the Arts, Northern Territory, 2008. Available at: www.nt.gov.au. Accessed on 15 June 2009.

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Woinarski, J., Rankmore, B., Fisher, A., Brennan, K., and Milne, D. 2007. The natural occurrence of northern quolls *Dasyurus hallucatus* on islands of the Northern Territory: assessment of refuges from the threat posed by cane toads *Bufo marinus*. Report to The Australian Government's Natural Heritage

Trust, December 2007.

Inglis Island & the English Company Island Group (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Inglis)
ISLAND NAME & GROUP: Inglis Island, The English Company Island Group (ECIG) With consideration of Astell, Cotton, Pobassoo, Truant and Wigram islands within the ECIG. The parallel Wessel Islands Group are included on a separate island profile.	**MAP 2**

LATITUDE:	12° 02' S [Decimal Degrees -12.044°]
LONGITUDE:	136° 13' E [Decimal Degrees 136.221°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):**
Inglis Island: 8 164 ha Wigram: 2 278 ha Truant Island: 305 ha Pobassoo: 391 ha	Inglis island: 1.5 km to mainland, 9 km to Pobassoo Island within the ECIG Pobassoo Island: 1.4 km to mainland, 0.3 km to Cotton Island Wigram Island: 6 km to mainland, 0.9 km to Cotton Island Truant island: 21 km to the mainland, 13 km from Wigram Island ECIG to Wessel islands Group: 15 km between Inglis and Alger islands; 18 km between Wigram and Raragala islands; 24 km between Truant and Marchinbar islands.
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Arnhem Land Aboriginal Land Trust

GENERAL GEOGRAPHY: The ECIG has a total area of 15 400 ha and comprises 47 islands, including the Bromby Island chain off Cape Wilberforce (NRETAS 2008d).

Both ECIG and nearby Wessel Islands groups are dominated by rugged sandstone plateaus and hills. Most of the islands have a cover of low vegetation, including grasslands, heathlands, coastal thickets and eucalypt woodlands, with smaller areas of paperbark forest and mangroves (NRETAS 2008d).

DEMOGRAPHY & HUMAN USE: The English Company Island Groups are Aboriginal freehold land held by the Arnhem Land Aboriginal Land Trust. The land mainly supports Indigenous uses. Other uses include conservation, recreation, tourism and commercial fisheries. The island groups are part of the proposed Marthakal Indigenous Protected Area, which covers a broader area including the Elcho–Drysdale Island group and the adjoining mainland areas of north east Arnhem Land. European influence on the islands has been minimal and extensive areas of the native vegetation remain intact (NRETAS 2008d).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Along with the Wessel Islands Group, this site

supports 3500 ha of mostly dry rainforest (or 1% of the NT rainforest estate) that is widely distributed across the islands. The majority of rainforest occurs as small patches <10 ha , but four patches are >100 ha (Russell-Smith 1991, cited in NRETAS 2008d).

THREATENED FAUNA:

6 EPBC listed threatened fauna species are known to be present on Inglis Island and a seventh is likely to occur on the island. 4 listed threatened species of turtle occur throughout the ECIG.

CR: na

EN: Northern Quoll is known to occur on Inglis Island only.

Olive Ridley Turtle is known to occur throughout the ECIG.

VU: Brush-tailed Rabbit-rat is known to occur on Inglis Island and may occur elsewhere in the ECIG.

Flatback, Green and Hawksbill turtles occur on Inglis Island and elsewhere in the ECIG.

Water Mouse is likely to occur on Inglis Island.

16 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMA) are known to occur on Inglis Island and elsewhere in the ECIG:

Barn Swallow, Black-naped Tern, Black-tailed Godwit, Bridled Tern, Crested Tern, Fork-tailed Swift, Great Knot, Little Curlew, Melville Cicadabird, Oriental Plover, Oriental Pratincole, Rainbow Bee-eater, Roseate Tern, Rufous Fantail, Saltwater Crocodile and White-bellied Sea-Eagle.

An additional species listed under Northern Territory legislation is known to occur on Pobassoo and Cotton Island within the ECIG:

Yellow-spotted Monitor.

THREATENED FLORA:

1 EPBC listed threatened flora.

CR: na

EN: na

VU: Australian Arenga Palm is known to occur on Cotton Island and may occur elsewhere in the ECIG.

Although not listed as threatened, one endemic plant species is only known from this site (*Trachymene longipedunculata*). Two additional non listed plant species recorded in this site are only known from the Arnhem Coast bioregion (*Spermacoce stigmatosa and Trachymene longipedunculata*).

SEABIRD/SHOREBIRD BREEDING SITES:

4 seabirds are known to breed within the ECIG:

Black-naped Tern - 1993 (colony S022) on the small islands north of Inglis in the ECIG, and (S023) in NE of ECIG and others

Bridled Tern - 1300/1993 (colony S023) in NE of ECIG

Roseate Tern - 350/1993 (colony S023) in NE of ECIG

Crested Tern - 1996 (colony S126) on the small rock and sand island NW of Inglis Island (Chatto 2001).

OTHER NATURAL VALUES:

- The conservation values of islands generally, are high due to their isolation and the protection they offer from threats to biodiversity operating on the mainland and this is evident by use of the islands for mammal translocation programs (Taylor and Woinarski 2004, cited in NRETAS 2008d).
- The island groups are part of the proposed Marthakal Indigenous Protected Area.
- Internationally significant Olive Ridley Turtle nesting sites on northern beaches in the ECIG.
- Populations of translocated Northern Quolls have been monitored at plots established on the English Company Islands over the period

	2003-2008 (Rankmore et al. 2008; NRETAS 2008d). · The Wessel and English Company Island groups are important for the study of island biogeography and for study of areas that remain largely removed from European influence (Woinarski et al. 2000, cited in NRETAS 2008d). · The marine areas within this site are likely to encompass significant biodiversity values and these are currently being explored and collated in a project by the Marine Biodiversity Group of NRETAS (NRETAS 2008d).
PEST VERTEBRATES PRESENT: 5 vertebrate pests are present within the ECIG. Two of these, Black Rat and Goat, are a listed EPBC Threatening Process. European Cattle and Water Buffalo are present on Inglis Island. Black Rat and Goat are present on Truant Island; the Domestic Dog may also be present on the island. Domestic Dog is present on Wigram Island. Cane Toads are so far absent from the ECIG.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of the Black Rat, Goat, European Cattle, Water Buffalo, Domestic Dog and Cane Toad could be expected. Black Rat could impact heavily on nesting terns and other small fauna species including indigenous rats.
OTHER THREATS PRESENT: · Two species of exotic ants occur on two of the English Company Islands, but these species are also widespread on the north Australian mainland and on tropical islands elsewhere (Woinarski et al. 1998, cited in NRETAS 2008d). · Four Category B weeds (*Cenchrus echinatus*, *Senna alata*, *Tribulus cistoides*, *Tribulus terrestris)* are recorded from this site. Exotic plants comprise less than 3% of the known flora on the islands and their distribution is mostly restricted to disturbed areas around airstrips and buildings (Woinarski et al. 2000, cited in NRETAS 2008d). · Cyclones occur frequently off north-east Arnhem Land and cause extensive disturbance to the islands (Palmer et al. 2007, cited in NRETAS 2008d). · Limited resources for active management of fire and weeds on the islands are a potential problem (NRETAS 2008d).	**OTHER THREAT IMPACTS:** Ants can disrupt invertebrate communities while weeds can alter entire ecosystems.

PAST & CURRENT PEST MANAGEMENT & MONITORING: Details of past and current monitoring

programs are provided in Wessel and English Company island groups Sites of Conservation Significance (NRETAS 2008d):

- Populations of translocated Northern Quolls have been monitored at plots established on the English Company Islands over the period 2003-2008 (Rankmore et al. 2008, cited in NRETAS 2008d).
- Olive Ridley Turtles nesting in the Wessel Islands has been monitored using satellite-relayed data loggers to help address knowledge gaps about turtle behaviour (McMahon et al. 2007, cited in NRETAS 2008d).
- Irregular surveys and collection of fishing nets on island beaches by Indigenous rangers under the Carpentaria Ghost Net Program (www.ghostnets.com.au).
- Fire in the tropical savannas is mapped continuously under the North Australia Fire Information Project (www.firenorth.org.au/nafi).

NRETAS (2008) recommend the following management actions:

- Continue to support and build capacity of Gumurr Marthakal Rangers to manage threatening processes, monitor threatened species, and document natural resource values.
- Continue to monitor the Northern Quoll translocated populations and implement the management program under the Island Ark project.
- In conjunction with Northern Land Council, NT Department of Primary Industry, Fisheries and Mines, traditional owners and other stakeholders, explore the options for conservation of biodiversity around these Island groups including options for joint management.
- Continue to build awareness in local communities about Cane Toad, Cat and other feral plants and animals through the Island Ark project.

This site is covered in the Draft Land and Sea Management Plan Marthakal Region (Mahney 2003), which has not yet been obtained.

FURTHER PEST ERADICATION REQUIREMENTS:

All islands – remove any arriving Cane Toads

Inglis - eradicate Water Buffalo and Cattle

Truant – eradicate rats and Goats

Other islands – evaluate benefits of eradications and feasibility.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Standard techniques for large mammal removal are likely to have low impact, but rat removal by standard methods could place many indigenous species at risk so needs feasibility study.	The key absence of Cane Toads is significant. However there are risks of this pest invading during floods and/or with freight and other goods.

RECOMMENDED ACTIONS:

With stakeholders review and agree on management objectives for the islands and formalise a management plan with operational derivatives. Key needs of the plan are:

- Maintain effective biosecurity against Cane Toads.
- Undertake regular surveillance for Cane Toads in likely colonizing areas (boat arrival points) and in terrestrial areas on Inglis Island close to the mainland source areas.
- Evaluate risk assessments for other pests to potentially arrive and implement appropriate biosecurity and surveillance and test and update regularly.
- Assess feasibility of removing Cattle and Water Buffalo from Inglis Island and proceed with

operational planning and raising support and capacity.

- Assess feasibility of eradicating Black Rats and Goats from Truant Island and proceed with operational planning accordingly.
- Assess the likely benefits of eradicating pests from other islands and determine the feasibility of these tasks.
- Maintain monitoring programs for populations of key sensitive species, e.g. Northern Quoll, Brush-tailed Rabbit-rat and Water Mouse, colonies of nesting terns, and turtle nests. Integrate recommendations from recovery plans (e.g. Northern Quoll, turtle species) and other technical advisors.

There is also a need to work closely with programs on other archipelagos with similar pest and biosecurity issues, e.g. the neighbouring Wessel Islands.

KEY REFERENCES

Chatto, R. 2001. The distribution and status of colonial breeding seabirds in the Northern Territory. Technical Report 70, 2001. Parks and Wildlife Commission of the Northern Territory, Palmerston, NT.

DEW 2005. The biological effects, including lethal toxic ingestion, caused by Cane Toads (Bufo marinus). Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the List of Key Threatening Processes under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), 12 April 2005. Available at: www.environment.gov.au. Accessed 28 May 2009.

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Kangaroo Island (SA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Kangaroo Island	**MAP 7**

LATITUDE:	35° 45' S [Decimal Degrees -35.762°]
LONGITUDE:	137° 37' E [Decimal Degrees 137.619°]

AREA: 441 617 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 14 km to the mainland
JURISDICTION: South Australia	**TENURE:** Mixed **STATUS:** Kangaroo Island Council

GENERAL GEOGRAPHY: Kangaroo Island has 457 km of coastline. It is a diverse landscape of plateau areas, sedimentary basins, small hills and rises, a fault-line escarpment, coastal dunes and limestone plain areas (Kangaroo Island Natural Resources Management Board 2008).

DEMOGRAPHY & HUMAN USE: Kangaroo Island had approximately 4 240 residents in 2008. The island also receives regular visitors.

Land coverage and usage comprises (Pisanu 2009a):

- Native vegetation (47.06%)
- Sand/cliff line (1.04%)
- Urban (0.03%)
- Agriculture (50.60%)
- Forestry (0.48%)
- Wetland (0.77%).

Native vegetation land ownership includes government (54.74%), heritage agreements (9.41%) and other (35.85%). Around 121 000 ha (almost 30% of the Island) is held within National Parks, Wilderness Protection Areas and Conservation Parks. Native vegetation on privately owned land constitutes approximately 85 000 ha (Kangaroo Island Natural Resources Board 2003).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Kangaroo Island is part of the Kanmantoo Interim Biogeograhic Framework of Australia region (Environment Australia 2000). There are two sub-regions within the Kanmantoo region; Kangaroo Island comprises the entire Kangaroo Island sub-region (Kangaroo Island Natural Resources Board 2003).

Terrestrial, aquatic, coastal estuarine and marine ecosystems are found on the island (Kangaroo Island Natural Resources Management Board 2008).

Mallee (68.25% cover) includes *Eucalyptus cosmophylla*, *E. diversifolia*, *E. remota* and *E. rugosa*. Woodland (29.16% cover) includes *Allocasuarina verticillata*, *Eucalyptus baxteri*, *E. cladocalyx* and *E. cneorifolia*. Shrubland (3.55% cover) includes Saline Marsh and Calcareous cliff (Pisanu 2009a).

THREATENED FAUNA:	**THREATENED FLORA:**
6 EPBC listed threatened fauna species occur on Kangaroo Island and an additional	1 EPBC listed threatened flora species occurs on Kangaroo Island and an additional 15 are likely or

2 listed threatened species are likely or may occur on the island.

CR: na

EN: Glossy Black-Cockatoo, Southern Brown Bandicoot and Kangaroo Island Dunnart are known to occur on Kangaroo Island.

Leatherback Turtle has also been recorded as a vagrant.

VU: Malleefowl and Australian Sea-lion are known to occur on Kangaroo Island.

Western Whipbird (eastern) is likely to occur and Australian Painted Snipe may occur the island.

14 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Kangaroo Island:

Caspian Tern, Eastern Osprey, Fairy Tern, Hooded Plover (eastern), Little Penguin, New Zealand Fur Seal, Pacific Gull, Red-necked Stint, Ruddy Turnstone, Sharp-tailed Sandpiper, Short-tailed Shearwater, Silver Gull, Sooty Tern, White-bellied Sea-Eagle.

2 EPBC listed Marine or Migratory species are likely to occur on Kangaroo Island:

Common Greenshank and Grey Plover.

6 EPBC listed Marine or Migratory species may occur on Kangaroo Island:

Cattle Egret, Fork-tailed Swift, Great Egret, Latham's Snipe, Rainbow Bee-eater and White-throated Needletail.

2 additional fauna species listed under one or more Australian state/territory legislation occur on Kangaroo Island:

Pied Oystercatcher and Sooty Oystercatcher.

Five additional (unspecified) fauna species listed under one or more Australian state/territory legislation occur on Kangaroo Island (Pisanu 2009b).

may occur on Kangaroo Island.

CR: na

EN: Greencomb Spider-orchid, Osborn's Eyebright, Kangaroo Island Phebalium and Small-flowered Daisy-bush are likely to occur on Kangaroo Island.

Mount Compass Swamp Gum may occur on the island.

VU: Kangaroo Island Pomaderris is known to occur on Kangaroo Island.

Downy Star-bush, Hindmarsh Correa, Kangaroo Island Logania, Kangaroo Island Spider-orchid, Kangaroo Island Turpentine Bush, MacGillivray Spyridium, Ptilotus beckerianus, Spiral Sun Orchid, Twining Finger Flower and Yellow Bush-pea are likely to occur on the island.

170 additional (unspecified) flora species listed under one or more Australian state/territory legislation occur on Kangaroo Island (Pisanu 2009b).

SEABIRD/SHOREBIRD BREEDING SITES:

6 seabirds are known to breed on Kangaroo Island:

Caspian Tern, Fairy Tern, Little Penguin, Pacific Gull, Short-tailed Shearwater and Silver Gull.

Eastern Osprey is likely to breed on the island.

OTHER NATURAL VALUES: Floral biodiversity of Kangaroo Island comprises 1 086 species of plants, of which 46 are endemic. Faunal biodiversity comprises 30 species of mammals, 198 species of birds, 29 species of reptile and 7 species of amphibians (Pisanu 2009b).

Australian Sea-lion and Glossy Black-Cockatoo are known to breed on Kangaroo Island.

Malleefowl, a conservation introduction, also breeds on the island.

PEST VERTEBRATES PRESENT:

Including translocated natives, 36 feral vertebrates have been recorded and are believed to be currently present on Kangaroo Island (DEWHA 2009; Phil Pisanu, pers. comm.).

5 of the vertebrate pests are an EPBC listed Key Threatening Process:

Black Rat, Cat, Goat, House Mouse and Pig.

6 potentially high impact species are:

Alpaca, Common Ringtail Possum, Domestic Dog, Domestic Ferret, Fallow Deer and Red Deer.

However, Alpaca and Domestic Ferret are contained as domestic animals only.

16 of the remaining feral vertebrate species are translocated natives:

Australian Brush-turkey, Bar-shouldered Dove, Cape Barren Goose, Crested Pigeon, Diamond Dove, Emu, Gang-gang Cockatoo, Koala, Laughing Kookaburra, Magpie Goose, Muscovy Duck, Peaceful Dove, Platypus, Spinifex Pigeon, Wonga Pigeon and Zebra Finch.

3 additional native species were previously introduced to the island but are believed to no longer be present:

Burrowing Bettong, Heath Rat and Southern Hairy-nosed Wombat.

6 remaining medium or low impact feral vertebrate species are:

Common Starling, European Goldfinch, House Sparrow, Guinea Pig, Indian Peafowl and Wild Turkey.

Guinea Pig is contained as domestic animals only.

PEST VERTEBRATE IMPACTS:

There is little doubt that if dogs and cats are left to roam across Kangaroo Island in an uncontrolled manner, there will be permanent and long-term damage to biological systems on the Island.

Whole species such as the endemic and endangered Kangaroo Island Dunnart could disappear completely.

The compounding of this negative flow will impact on Kangaroo Island's attractiveness to tourism operators and the farming community alike (Kangaroo Island Council 2005).

Fallow and Red Deer populations are currently at a level where eradication may be achieved.

OTHER THREATS PRESENT:

- failure to manage water in a sustainable and equitable way
- land degradation and ongoing loss of natural biodiversity
- the threat of the introduction of unwanted foreign species (and the associated absence of a biosecurity strategy);
- inappropriate development approval processes, including an inadequate natural resource component in established planning procedures.

OTHER THREAT IMPACTS:

- disruption of natural water regimes and water contamination
- decline in soil health particularly associated with soil acidity, waterlogging, salinity, soil fertility
- risks to threatened species, associated with fragmentation of habitat and ecosystems, pests and diseases (Kangaroo Island Natural Resources Board 2003).

PAST & CURRENT PEST MANAGEMENT & MONITORING:

A Kangaroo Island pest management plan focuses on cat and dog management (Kangaroo Island Council 2005) and presents a whole of island planned approach to dog and cat management. It will enable Kangaroo Island Council to serve its community, preserve the environment and meet its responsibilities under the *Dog and Cat Management Act 1995*. The aim of the plan is to create an environment which encourages responsible dog and cat ownership and minimizes the negative environmental, social and economic impact of owned and un-owned, or stray, dogs and cats on Kangaroo Island.

Objectives:

- enforce the provisions of the *Dog and Cat Management Act 1995*
- apply fair, responsible and effective dog and cat management, that promotes responsible dog and cat ownership
- maintain effective impoundment capabilities for dogs and cats
- Council support of community based initiatives to capture and humanely destroy feral populations in council controlled areas of Kangaroo Island
- formulate and implement an education campaign to promote responsible dog and cat ownership, as it applies to and impacts on Kangaroo Island and its residents.

The successful implementation of this plan relies on:

1 A positive decision from Council to support this plan, along with a level of unified commitment from councillors to support plan implementation and work collaboratively with staff and the constituency to promote and execute the plan

2 Successful delivery of a comprehensive education campaign that engages all the people of Kangaroo Island and Councilor's alike

3 Development of fair and responsible implementation strategies to turn the plan into an effective operational model on Kangaroo Island

4 Effective enforcement of the Act, Regulations and any local council by-laws, orders and resolutions.

Key stakeholders include: Agricultural Kangaroo Island (AgKI); Dog and Cat Management Board - Department o f En vironment and Heritage (DEH)**;** Kangaroo Island C at Co ntrol Committee (KICCC); K angaroo I sland Natural Resource Board (KINREB); K angaroo I sland V eterinary Clinic; Primary In dustries and R esources (PIRSA); a nd Urban Ani mal Ma nagement Advi sory Gr oup (Australian Veterinary Association).

KI Natural Resources Management Strategic Plan 2009–2019 (Kangaroo Island Natural Resources Management Board 2008) recommends that:

- all non National Park foreshores of Kangaroo Island are recognised as 'Fragile Areas'
- Council makes an application to the Minister for authorization of designated council officers to seize, detain, destroy or otherwise dispose any unrestrained cat found on the foreshore or within a harbour of Kangaroo Island
- by-laws be enacted to address the issue of 'Dog Attack' in a 'Fragile Area', with similar penalties for attacks against wildlife to those that currently exist in the Dog and Cat Management Act for dog attack
- Kangaroo Island Council should formally recognise Kangaroo Island as a 'unique place' and support a 'total control' dog and cat management model
- Introduce laws that provide:
    - External boundary protection (Island Entry Only)
    - Protection of native fauna from un-wanted dog and cat harassment or attack, in areas that lie outside of council care and control (e.g. National Parks).

FURTHER PEST ERADICATION REQUIREMENTS: The 5 EPBC key threatening process species all merit eradication or sustained control at key biodiversity areas following management planning – see Recommended Actions (below).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Given island size and human demographics there would be significant risks of failure for some eradication programs. Given diversity of non-target species present, there would also be significant non-target risks associated with most eradication programs, e.g. poisoning risks to dunnarts, bandicoots, plovers, etc., if toxins are used for rodent management. Ongoing management of some threats may also be challenging depending on management objectives.	Kangaroo Island is currently free of two key vertebrate pests that are an EPBC listed Key Threatening Process: Rabbit and Red Fox. The introduction of these species could have a devastating impact on the biodiversity values on this island, and measures should be taken to ensure that they are not brought to the island by visitors; for example, implementing and revising a biosecurity plan.

RECOMMENDED ACTIONS: We recommend the involvement of key stakeholders in the development and implementation of a Kangaroo Island management plan. Key needs of the plan are:

- Agree on vision and objectives for biodiversity management both at a local level and an island-wide level
- Identify feasibility studies and other assessments that would be needed, e.g. further survey to establish indigenous fauna status and distribution, pest vertebrate distribution and risk assessments for specific eradication programs
- Integrate guiding documents that would help with the management planning process, including pest TAPs, South Australian island evaluations (DEHK 2008), recovery plans for Glossy Black Cockatoo, and other formal advice documents at the national and state level
- Evaluate biosecurity risks and efficacy. This should include current risks and potential future risks following potential eradications, along with biosecurity needs, current efficacy and ability to deliver quarantine requirements into the future.

KEY REFERENCES

DEH 2008. Introduced Animals on South Australia's Islands: Improving Australia's ability to protect its island habitats from feral animals. Government of South Australia, Department for Environment and Heritage.

Kangaroo Island Council 2005. Dog and Cat Management Plan 2005. A Planned Response to The Dog and Cat Management Act 1995. Kangaroo Island Council. Available at: www.kangarooisland.sa.gov.au. Accessed 28 May 2009.

Kangaroo Island Natural Resources Board 2003. Integrated Natural Resource Management Plan for Kangaroo Island, November 2003. Kangaroo Island Natural Resources Board, Kingscote, South Australia. Available at: www.nrm.sa.gov.au. Accessed 9 June 2009.

Kangaroo Island Natural Resources Management Board 2008. KI Natural Resources Management Strategic Plan 2009–2019. Draft Kangaroo Island Natural Resources Management Plan 2009. Kangaroo Island Natural Resources Management Board, Government of South Australia. Available at: www.nrm.sa.gov.au. Accessed 9 June 2009.

Mooney, P.A. and Pedler, L.P. 2005. Recovery Plan for the South Australian subspecies of the Glossy Black-Cockatoo (*Calyptorhynchus lathami halmaturinus*): 2005-2010. Department for the Environment and Heritage South Australia.

Pisanu, P. 2009a. KI Reserves. Data sent by email to L.A. Shilton on 2 June 2009.

Pisanu, P. 2009b. KI Biodiversity Overview. Data sent by email to L.A. Shilton on 2 June 2009.

Long Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Long Island	**MAP 3**

LATITUDE:	22° 07' S [Decimal Degrees -22.128°]
LONGITUDE:	149° 54' E [Decimal Degrees 149.905°]

AREA: 6 387 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.5 km to the mainland, 1.5 km to Quail Island (QLD)
JURISDICTION: Queensland	**TENURE:** National Park **STATUS:** Nature conservation reserve

GENERAL GEOGRAPHY: Unknown.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: 4 EPBC listed threatened fauna species are likely to occur on Long Island (QLD). **CR:** na **EN:** Star Finch (eastern and southern) is likely to occur on Long Island (QLD) **VU:** Water Mouse, Flatback Turtle and Yakka Skink are likely to occur on the island. 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are likely to occur on Long Island (QLD): Eastern Curlew, Great Knot, Satin Flycatcher and Whimbrel. 6 additional EPBC listed Marine or Migratory species may occur on the island: Barn Swallow, Fork-tailed Swift, Latham's Snipe, Little Curlew, Rainbow Bee-eater and White-throated Needletail.	**THREATENED FLORA:** 1 EPBC listed threatened flora species is likely and 1 additional listed threatened species may occur on Long Island (QLD). **CR:** na **EN:** na **VU:** Beard Heath is likely to occur on Long Island (QLD) Minute Orchid may occur on the island.
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Flatback Turtle nesting is likely to occur on Long Island (QLD).
PEST VERTEBRATES PRESENT: 1 vertebrate pest has been recorded and is believed to be currently present on Long	**PEST VERTEBRATE IMPACTS:** No specific information but the general grazing and trampling impacts of goats could be expected.

Island (QLD): Goat, a listed EPBC Key Threatening Process.	
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: Consider eradicating Goat.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Habitat alteration may impact positively or negatively on some threatened fauna, e.g. Star Finch.	Close proximity to the mainland means that other pests could potentially invade the island unassisted.

RECOMMENDED ACTIONS:

Update information on the status of indigenous fauna and pests on the island. Key indigenous fauna include Star Finch, Water Mouse, Yakka Skink and turtles. Determining habitat needs of the Star Finch are also considered important and additional specialist advice is recommended.

Key pest animals to initially survey are Goats (known to be present) and other potentially invading species from the mainland, e.g. rodents, Cats, Red Fox and Cane Toad.

Develop management objectives and a management plan for the island and complete feasibility studies that include pest eradication, ongoing management of indigenous biota, biosecurity risks and sustainability of pest-free status.

KEY REFERENCES

DEWHA 2008l. Approved Conservation Advice for *Neochmia ruficauda ruficauda* (Star Finch (eastern)). Approved Conservation Advice (s266B of the Environment Protection and Biodiversity Conservation Act 1999). Available at: www.environment.gov.au. Downloaded on 7 July 2009.

Long Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Long Island	**MAP 6**

LATITUDE: 40° 21' S [Decimal Degrees -40.366°]

LONGITUDE: 147° 59' E [Decimal Degrees 147.991°]

AREA: 316 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.9 km to mainland Cape Barren Island (TAS)
JURISDICTION: Tasmania	**TENURE:** Mixed Lands **STATUS:** Multiple Land Tenure, CL, Crown Lease

GENERAL GEOGRAPHY: Long Island is located adjacent to the north western section of Cape Barren Island (DPIWE 1999).

DEMOGRAPHY & HUMAN USE:

The island is zoned Rural and is leased for grazing (DPIWE 1999). A special zone of approximately 16.14 ha has been identified in the Marine Farming Development Plan as suitable for farming a number of species including abalone (DPIWE 1999).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: No EPBC listed threatened fauna occur on Long Island. **CR:** na **EN:** na **VU:** na 3 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) occur on Long Island (TAS): Little Penguin, Pacific Gull and Silver Gull. 3 additional EPBC listed Marine or Migratory species are likely to occur on Long Island (TAS): Curlew Sandpiper, Hooded Plover (eastern) and Sanderling. 2 additional fauna species listed under one or more Australian state/territory legislation occur on Long Island. Pied Oystercatcher and Sooty Oystercatcher.	**THREATENED FLORA:** 1 EPBC listed threatened flora may occur on Long Island. **CR:** na **EN:** na **VU:** Grassland Greenhood may occur on Long Island.

SEABIRD/SHOREBIRD BREEDING SITES: No reference found, but many of the species listed above could potentially breed here.	**OTHER NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT: One vertebrate pest occurs on Long Island and has a high impact potential: Sheep	**PEST VERTEBRATE IMPACTS:** No reference found, but trampling of nests and seabird burrows is a potential impact of sheep.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING:

No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: Sheep.

POTENTIAL ERADICATION RISKS: Minor, e.g. trampling nests and burrows.	**POTENTIAL BIOSECURITY RISKS:** Within swimming range of rats should they be present on Cape Barren Island.

RECOMMENDED ACTIONS:

With landowners and other stakeholders agree on management ahead e.g. removal of sheep.

Implement a biosecurity plan including effective surveillance for other invasive pests, e.g. rats.

KEY REFERENCES

DPIWE 1999. Marine Farming Development Plan Furneaux Islands, Department of Primary Industries, Water and Environment Tasmania.

Lord Howe Island (NSW)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Lord Howe Island	**MAP 4**

LATITUDE: 31° 30' S [Decimal Degrees -31.515°]

LONGITUDE: 159° 04' E [Decimal Degrees 159.068°]

AREA: 14 555 ha	**DISTANCE (km) TO NEAREST OTHER LAND & TYPE (mainland/island):** 570 km to the mainland
JURISDICTION: New South Wales	**TENURE:** National Conservation Reserve, other crown land, and private land. **STATUS:** Lord Howe Island Permanent Park Preserve

GENERAL GEOGRAPHY: Lord Howe Island is remnant of a large shield volcano with varied landscape dominated by steep basaltic cliffs, rolling hills, some flat land and offshore islands. Mount Lidgbird (777 m) and Mount Gower (875 m) dominate the southern end of the island. Offshore islands range from being located a few hundred metres offshore (Gower Island), to c.1 km (Admiralty Islands, Blackburn Island and Muttonbird Island), while Balls Pyramid lies about 23 km to the south-east.

DEMOGRAPHY & HUMAN USE: There is no archaeological evidence of early inhabitation. The main island was first settled in 1834 and has been populated ever since. It has a permanent resident population of c. 350. About 10 percent of Lord Howe Island's forests have been cleared for agriculture, and another 20 percent has been disturbed by domestic livestock. The main industries on the island are a palm nursery and tourism. There is a limit of 400 tourists on the island at a time.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Lord Howe Island comprises a distinct terrestrial ecoregion within which there are several distinctive ecosystems – closed forest, scrub, duneland, cliff, stream and rock stack systems.

Thirty four vegetation communities are recognised in the Lord Howe Island Group (LHIG) plan (see below). Most of these communities contain some species of plant that are endemic to the island. At least 18 of these communities are considered threatened. Many of these communities are very restricted in extent due to natural and anthropogenic factors, e. g. clearance, weed invasion, climate change. The island shares many plant and animal affinities with Australia, New Guinea, New Caledonia and New Zealand.

THREATENED FAUNA: 11 EPBC listed threatened fauna species occur on Lord Howe Island. 5 additional threatened species are likely to occur and 1 additional species may occur on Lord Howe Island. **CR:** Lord Howe Island Phasmid is known to occur on Lord Howe Island. Masters' Charopid Land Snail, Mount Lidgbird Charopid Land Snail and Whitelegge's Land Snail are likely to occur on Lord Howe Island.	**THREATENED FLORA:** One EPBC listed threatened flora occurs on Lord Howe Island and an additional listed flora is likely to occur. **CR:** Phillip Island Wheat Grass occurs on Lord Howe Island. *Calystegia affinis* (a creeper) is likely to occur on Lord Howe Island. **EN:** na **VU:** na

EN: Loggerhead Sea Turtle, Lesser Frigatebird, Swift Parrot, Lord Howe Placostylus/Flax Snail and Gould's Petrel are known to occur on Lord Howe Island. **VU:** Green Turtle, White-bellied Storm-Petrel (Tasman Sea), Lord Howe Woodhen, Lord Howe Island Skink and Painted Snipe occur on Lord Howe Island Lord Howe Island Gecko and Lord Howe Island Currawong are likely to occur on the island. Kermadec Petrel (western) may occur on the island. 60 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMBA) are known to occur on Lord Howe Island: Brown Noddy, Common Sandpiper, Fork-tailed Swift, Flesh-footed Shearwater/ Fleshy-footed Shearwater, Ruddy Turnstone, Cattle Egret, Sharp-tailed Sandpiper, Red Knot, Curlew Sandpiper, Pectoral Sandpiper, Red-necked Stint, Great Knot, Double-banded Plover, Greater Sand Plover, Lesser Sand Plover, Oriental Plover, White-winged Tern, Great Egret, Eastern Reef Egret, Latham's Snipe, Oriental Pratincole, Wandering Tattler, White-throated Needletail, Caspian Tern, Bar-tailed Godwit, Black-tailed Godwit, Rainbow Bee-eater, Australasian Gannet, Eastern Curlew, Little Curlew, Whimbrel, Sooty Tern, Red-tailed Tropicbird, Glossy Ibis, Pacific Golden Plover, Grey Plover, Grey Ternlet, Black-winged Petrel, Providence Petrel, Little Shearwater, Wedge-tailed Shearwater, Little Tern, Crested Tern, Common Tern, Black-naped Tern, Masked Booby, Grey-tailed Tattler, Common Greenshank, Marsh Sandpiper, Buff-breasted Sandpiper, Terek Sandpiper. 6 additional fauna species listed under one or more Australian state/territory legislation occur on Lord Howe Island: Australasian Bittern, Lord Howe Island Earthworm, Lord Howe Island Golden Whistler, Lord Howe Island Wood-eating Cockroach, Lord Howe Island Silvereye and White Tern.	7 additional flora species listed under one or more Australian state/territory legislation occur on Lord Howe Island: *Carmichaelia exsul* (a shrub), *Chamaesyce psammogeton* (a herb), *Coprosma inopinata* (a shrub), Hutton's Geniostoma, Knicker Nut, Mountain Xylosma and *Polystichum moorei* (a fern).
SEABIRD/BREEDING SITES: White Tern is known to breed on Lord Howe Island (Higgins and Davies 1996).	**OTHER NATURAL VALUES:** The management plan includes long lists of endemic species of ants, beetles and spiders that may still survive on Lord Howe Island and if so, would benefit from pest removal.
PEST VERTEBRATES PRESENT:	**PEST VERTEBRATE IMPACTS:**

5 vertebrate pests have been recorded on Lord Howe island; 2 of these are believed to be currently present, both are a listed EPBC Key Threatening Process: Black Rat and House Mouse. Cat and Pig have been successfully eradicated, and Goat has been effectively eradicated.	Previously severe impacts of goats, including on unique vegetation assemblages and endemic plants. Severe impact of rats on a range of seabirds, landbirds, lizards and invertebrates. Declines of many species coincided with rat arrival e.g. wood-eating cockroach and c.10 species of beetle. Perceived impacts of mice on invertebrates and probably other biota.
OTHER THREATS PRESENT: Red fire ant, frogs and two species of reptile have also established on Lord Howe Island, while masked owls have been introduced in an early attempt to control rats. Song thrush and blackbird were introduced.	**OTHER THREAT IMPACTS:** Ant impacts on other invertebrates. Although masked owls are threatened under EPBC, they could potentially impact on birds and lizards of Lord Howe, e.g. woodhen, petrels, storm-petrels and white terns. Introduced passerines, lizards and frog species could impact on indigenous invertebrates.

PAST & CURRENT PEST MANAGEMENT & MONITORING:

The *Lord Howe Island Regional Environmental Plan 1986* was updated and adopted in 2005. Lord Howe Island (LHI) is a World Heritage site. The framework for World Heritage management is provided in **Lord Howe Island World Heritage Property Strategic Plan for Management 2000-2005 (Manidis Roberts 2000)**.

There are existing recovery plans and action plans for LHI species, including the Lord Howe Woodhen, Lord Howe Island Placostylus (a land snail), Lord Howe Island Currawong, lizards and several seabird species. These plans have been important in recognising the impacts of mammalian pests, including pigs, goats and cats. These pest species were targeted in the 1980s, with cats and pigs eradicated and goats reduced to a few non-reproductive individuals (DECC 2007).

A Lord Howe Island Biodiversity Management Plan (LHIBMP) has been prepared by the Department of Environment and Climate Change (DECC) in conjunction with the Lord Howe Island Recovery Team and the LHI Board. It covers all islands in the LHIG. Many members of the Lord Howe Island community have assisted in the preparation of the plan and continue to play an important role in its implementation.

The LHIBMP describes the natural values (including identification of hotspots for specific groups of biota), threats to the natural values and objectives for management. There are 15 key threatening processes relevant to LHI of which 9 are listed on the EPBC Act. Key threats and potential include:

- climate change impacts on biota
- land clearance
- livestock damage
- impacts of existing pests, e.g. rodents and invasive plants, on indigenous biota
- invasion of further pests e.g. red fire ant, cane toad
- impacts of disease e.g. *Phytophthora.*

Ship rats have had a serious impact on biota ranging from seabirds to invertebrates and plants. Many endemic species are now confined to rat-free offshore islands (e.g. White-throated Storm-petrel, Kermadec Petrel and LHI Phasmid are now confined to Balls Pyramid). Many endemic palms are impacted on by rats which eat seeds.

The LHIBMP identified 19 priority objectives and management actions aimed at mitigating the threatening processes. Seven of these objectives (1, 6, 12, 14, 15, 17 and 18) were directly related to pest vertebrate management. Objectives were:

1 To prevent the introduction of exotic fauna, flora and pathogens to the LHIG

2 To retain native vegetation

3 To control the impacts of introduced pathogens on native species

4 To eradicate (where feasible) and control existing weeds to reduce their impact on the biodiversity of the LHIG

5 To undertake revegetation/ rehabilitation works in high conservation priority areas

6 To eradicate (where feasible and where there is a worthwhile biodiversity outcome) or control introduced fauna and reduce their impact on biodiversity

7 To reduce impacts of groundwater pollution

8 To enhance positive interactions and reduce negative interactions between humans and wildlife

9 To reduce the impact of commercial, cultural and illegal collecting

10 To reduce human impacts

11 To monitor consequences of climate change and develop contingency plans for 'at risk' species

12 To encourage the conservation and protection of significant species, populations and ecological communities

13 To promote recovery of individual threatened flora taxa

14 To improve knowledge and management of threatened and significant fauna species

15 To protect and enhance threatened fauna habitat

16 To reduce impacts of fishing and marine debris on threatened sea birds

17 To undertake recovery actions for threatened fauna species identified in existing documents

18 To investigate the appropriateness of the reintroduction of locally extinct fauna after rodents have been eradicated

19 To coordinate implementation of the LHIBMP and regularly evaluate the biodiversity benefits of implementation.

Each of the vertebrate pest related objectives have a series of management tasks in the plan. Thus for Objective 6 ('eradicate or control introduced fauna') tasks include:

- Convene a Rodent Eradication Taskforce to oversee the planning and implementation of a rodent eradication program for the LHIG.
- Assess, and where appropriate, undertake the recommendations contained in the Feasibility and Cost-benefit studies.
- Evaluate the potential use of toxins other than brodifacoum that have less potential impact on non-target species.
- Prepare a Logistics Plan for the eradication of rodents from the LHIG.
- Continue studies where necessary to minimise the potential impacts on non-target species such as the Lord Howe Woodhen and the Lord Howe Currawong.
- Undertake environmental assessment for the proposal to eradicate introduced rodents. If the proposal is assessed as likely to have a significant impact to threatened species, prepare a Species Impact Statement under the *Threatened Species Conservation Act 1995*.

FURTHER PEST ERADICATION REQUIREMENTS: Planning underway for removing the last invasive mammals.

POTENTIAL ERADICATION RISKS:	POTENTIAL BIOSECURITY RISKS:
There are significant risks to non-targets (e.g. woodhen and currawong) that need to be addressed in feasibility studies.	Ongoing risk of further invasives arriving with supply ships, visitors etc. These need to carefully managed by implementing a biosecurity plan.

RECOMMENDED ACTIONS:

Complete planning process and undertake the planned eradications and associated tasks.

Review biosecurity on a regular basis.

KEY REFERENCES:

DECC 2007. Lord Howe Island Biodiversity Management Plan. Department of Environment and Climate Change (NSW), Sydney.

Higgins P.J. and Davies, S.J.J.F. 1996. *Handbook of Australian, New Zealand and Antarctic Birds* (HANZAB). Volume 3: Snipes to Pigeons. Oxford University Press, Melbourne.

Manidis Roberts 2000. Lord Howe Island Group World Heritage Property Strategic Plan for Management 2000-2005, Report to the Lord Howe Island Board.

Macquarie Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Macquarie Island Group	**MAP 6**

LATITUDE: 54° 37' S [Decimal Degrees -54.618°]

LONGITUDE: 158° 51' E [Decimal Degrees 158.858°]

AREA: 12 785 ha	**DISTANCE (km) TO NEAREST OTHER LAND & TYPE (mainland/island):** 1 500 km to mainland Tasmania 2 000 km to mainland Australia 1 130 km to New Zealand
JURISDICTION: Tasmania	**TENURE:** Crown land, Nature Conservation Area **STATUS:** Nature Reserve, World Heritage Area

GENERAL GEOGRAPHY: The main island comprises steep coastal slopes above coastal terraces, rising to an undulating plateau between 200 m and 300 m above sea level and two peaks over 400 m. A small group of islands, Judge and Clerk Islets, lies about 11 km to the north, and the Bishop and Clerk Islets lie c.37 km south of the main island. There are also numerous sea stacks and reefs close to the island.

DEMOGRAPHY & HUMAN USE: No permanent habitation, but frequently visited by researchers, land managers and tourists.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Macquarie Island is dominated by interconnecting grassland, herbfields, mires and fieldmark. The vascular flora of Macquarie Island consists of 46 species. Small rock stacks occur offshore and as outliers.

There are five main vegetation types on the mainland:

1. Tall tussock grassland on terraces and slopes and well-drained valleys - dominated by *Poa foliosa* tussocks and *Stilbocarpa polaris*
2. Short grassland - extensive
3. Herbfields - on sheltered slopes, valleys and on raised coastal terraces
4. Mires - incorporate bogs and fens, where the water table is at or near the surface
5. Fieldmark - covering approximately half of the island, particularly in the plateau region.

THREATENED FAUNA: 9 EPBC listed threatened fauna species occur on Macquarie Island and an additional 5 are likely or may occur. **CR:** na **EN:** Southern Giant-Petrel and Antarctic Tern (New Zealand) are known to occur on	**THREATENED FLORA**: No EPBC listed threatened flora species are known to occur on Macquarie Island. **CR:** na **EN:** na **VU:** na Four flora species listed under one or more

Macquarie Island. **VU:** Wandering Albatross, Blue Petrel, Southern Elephant Seal, Fairy Prion (southern), Imperial Shag (Macquarie Island), Grey-headed Albatross, Black-browed Albatross are known to occur on Macquarie Island. Subantarctic Fur Seal, Northern Giant-Petrel, Soft-plumaged Petrel are likely to occur on Macquarie Island. Shy Albatross/Tasmanian Shy Albatross may occur on the island. 42 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) occur on Macquarie island: Antarctic Prion, Bar-tailed Godwit, Cape Petrel, Caspian Tern, Common Diving-Petrel, Common Greenshank, Curlew Sandpiper, Eastern Curlew, Fairy Tern, Flesh-footed Shearwater/Fleshy-footed Shearwater, Gentoo Penguin, Great Knot, Great Skua, Grey Plover, Grey Petrel, Grey-backed Storm-petrel, Grey-tailed Tattler, Hooded Plover (eastern), Kelp Gull King Penguin, Lesser Sand Plover, Light-mantled Sooty Albatross, Little Penguin, Little Tern, Macaroni Penguin/Royal Penguin, Macquarie Island Shag, New Zealand Fur Seal, Pectoral Sandpiper, Red Knot, Red-necked Stint, Rockhopper Penguin, Ruddy Turnstone, Short-tailed Shearwater, Slender-billed Prion, Sooty Shearwater, South Georgian Diving-Petrel, Subantarctic Skua (southern), Terek Sandpiper, Whimbrel, White-fronted Tern, White-headed Petrel and Wilson's Storm-Petrel. 2 additional listed Marine or Migratory species may occur on Macquarie Island: Amsterdam Albatross and Campbell Albatross. 1 additional fauna species listed under one or more Australian state/territory legislation occurs on Macquarie Island. Grey Goshawk.	Australian state/territory legislation occur on Macquarie Island. Subantarctic Cushion Plant, Musky Crassula, Windswept Helmet Orchid, a fern (*Huperzia australiana*).
SEABIRD/SHOREBIRD BREEDING SITES: Important breeding island for many species of seabirds. Status of some species needs clarifying e.g. South Georgian Diving Petrel.	**OTHER NATURAL VALUES**: Links with marine areas that are part of a large Marine Reserve supporting diverse fish and marine mammal faunas. Additional species of seal visit the islands. Critical habitat for the Wandering Albatross and Grey-headed Albatross. Important terrestrial plant communities including

	stands of *Stilbocarpa* and *Pleurophyllum.* Three endemic plant species are present - Subantarctic Cushion Plant, Windswept Helmet Orchid and the coastal grass *Puccinellia macquariensis.*
PEST VERTEBRATES PRESENT: 8 vertebrate pests have been recorded on Macquarie island; 6 of these are believed to be currently present. Black Rat, Common Starling, House Mouse, Mallard, Rabbit and Redpoll. Black Rat, House Mouse and Rabbit are each a listed EPBC Key Threatening Process. Feral cats were eradicated by 2000. Weka was eradicated by 1989.	**PEST VERTEBRATE IMPACTS**: Severe impacts of rabbits on plant communities and some seabirds; severe impacts of rats on many seabird species, and suspected general impacts of rodents on plant communities and invertebrates
OTHER THREATS PRESENT: Few alien invertebrates recorded (Parks and Wildlife Service 2007)	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING:

Management at Macquarie Island is based on many decades of environmental research, management and monitoring. A cat eradication plan was put into action in the 1980s and was declared successful in 2002, and introduced Weka have also been eradicated (Copson 2002, Parks and Wildlife Service 2007). A suite of visitor and other guidelines were also established in the early 2000s. In 2006 an integrated management plan for the nature reserve and world heritage area was adopted for Macquarie Island (Parks and Wildlife Service 2007). Since then a pest eradication project plan has been developed to eradicate rabbits, mice and ship rat from the island (Parks and Wildlife Service 2007). These plans are summarised below.

1. ***Macquarie Island Nature Reserve and World Heritage Area Management Plan*** **(Parks and Wildlife Service 2006):**

Vision - The management plan provides background detail on the physical and biological values, history, cultural values, management context, threats (terrestrial and marine flora and fauna), together with overall vision and objectives for the reserve.

The 50 year vision statement for the management plan begins "Macquarie Island is a nature reserve where all of the World Heritage values, biosphere reserve values, National Estate values and state nature reserve values are protected and conserved. There is a relatively unaltered natural diversity, including geodiversity and biodiversity". The vision statement also contains more specific objectives including minimal impact by visitors, recovery of threatened species, no further arrival invasive alien species, and international recognition of the importance of the reserve.

There are 13 desired outcomes for the plan, one of which is the planning, funding and successful eradication of rabbits and rodents.

Objectives - The management plan identifies many broad objectives that need to be implemented in the reserve. The objectives of alien fauna management in the reserve are to:

- eradicate alien fauna species where this is feasible and warranted by the damage being caused or likely to be caused, by such operations
- ensure that eradication operations have no long-term adverse impacts
- control alien fauna where eradication is not practicable, but control is warranted
- monitor alien fauna species numbers and their impacts.

Guidelines are also provided for island biosecurity and impact assessment.

Stakeholders – state and federal government agencies. Although the islands are uninhabited they are a tourist destination. The plan outlines approaches to community consultation and ongoing liaison, education, etc.

Costs – these are provided in pest plan below. The Tasmanian and Australian Governments have each agreed to provide $12.3 million for the project.

Issues/needs identified in the plans if any – the plan identifies generic issues with management and integration among the three different reserves – Macquarie Island Marine Reserve, Macquarie Island World Heritage Area and Macquarie Island Marine Reserve, and related issues e.g. quarantine. Other issues include that the increased numbers of rabbits have adversely impacted on vegetation and some flora and seabird species, following the removal of cats.

2. Parks and Wildlife Service of Tasmania - Macquarie Island pest eradication plan (parts A-H) (Parks and Wildlife Service 2007,2008):

This plan completed in 10 parts during 2007-08 provides detail for all the components of the eradication plan for the three target species. The 10 parts are:

Part A - The Eradication Plan (Overview)

Part B - Operational Plan

Part C - Environmental Impact Assessment

Part D - Occupational Health and Safety Plan

Part E – Project Biosecurity Plan

Part F – Monitoring Plan

Part G - Communications Plan

Part H - Project Plan

Part I - Procurement Plan

Part J – Staff Recruitment and Training Plan

Further pest eradication requirements: Planning and budgets are underway for removing the last invasive mammals.

POTENTIAL ERADICATION RISKS: These are identified and addressed in different sections of the eradication plan.	**POTENTIAL BIOSECURITY RISKS:** Ongoing visitations and risk of invasive animal species getting ashore and establishing.

RECOMMENDED ACTIONS: Complete final eradications and strengthen biosecurity.

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Copson, G.R. 2002, Integrated Vertebrate Pest Management on Subantarctic Macquarie Island 1997–2002. Final Report for National Heritage Trust, Department of Primary Industries, Water and Environment, Hobart.

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Parks and Wildlife Service 2007. Macquarie Island Pest Eradication Plan. Part A: Overview - March 2007. Parks and Wildlife Service, Department of Environment, Parks, Heritage & the Arts, Government of Tasmania, Hobart. Available at: www.parks.tas.gov.au. Accessed 28 May 2009.

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Government of Tasmania, Hobart. Available at: www.parks.tas.gov.au. Accessed 28 May 2009.

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Magnetic Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Magnetic Island	**MAP 3**

LATITUDE:	19° 08' S [Decimal Degrees -19.139°]
LONGITUDE:	146° 50' E [Decimal Degrees 146.835°]

AREA: 5 067 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 6.3 km to the mainland
JURISDICTION: Queensland	**TENURE:** National Park/State Land/Freehold/UK/Reserve/Lands Lease **STATUS:** Nature conservation reserve/Vacant Crown land/Mainly freehold land/Unknown/Other Crown land/Crown leasehold land

GENERAL GEOGRAPHY: Magnetic Island is a large continental island located offshore from Townsville, within the dry tropics region of Northern Queensland, and forms part of the Townsville City Council local government area. The island is surrounded by the Great Barrier Reef Marine Park and lies within the Great Barrier Reef World Heritage Area.

Magnetic Island is well known for its distinctive environment and picturesque landscape which features large granite boulders, stands of Hoop Pine, high quality beaches and fringing coral reefs. The island has about 40 km of coastline. Approximately half of the island's area (2533 ha) is protected by the Magnetic Island National Park (DEWHA 2008m).

The story of Magnetic Island began 275 million years ago when molten granite was pushed up with volcanic force to the surface of the earth. The overlying volcanic rocks have long since weathered away and the underlying granite mass has decomposed along fracture lines, creating today's extraordinary landscape of rounded domes and boulders (tors). Many of the tors are larger than a house and spectacularly perched. Fault lines have eroded to form gullies and valleys. Today, a shallow sea separates the island from the mainland. However, before the sea level rose 7 500 years ago, Magnetic Island was connected to the mainland between Cape Pallarenda and Kissing Point (EPA 2006a).

DEMOGRAPHY & HUMAN USE: Permanent population of over 2000. Popular tourist destination with several resorts and camping grounds.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The island is mostly covered with open eucalypt woodland, with small pockets of rainforest occurring in sheltered gullies. Distinctive Hoop Pines and native kapok are also characteristic of Magnetic Island (DEWHA 2008m).

A variety of marine environments occur around the island including mangrove forests, saltmarshes, fringing coral reefs and seagrass communities which provide important habitat for marine flora and fauna (DEWHA 2008m).

Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions (DEWHA 2008m).

THREATENED FAUNA: 6 EPBC listed threatened fauna species are likely to occur and 1 additional threatened	**THREATENED FLORA:** 4 EPBC listed threatened flora species are likely to occur and 1 additional threatened species may

species may occur on Magnetic Island. **CR:** Bare-rumped Sheathtail Bat is known to occur on Magnetic Island. **EN:** na **VU:** Green Turtle, Striped-tailed Delma, Yakka Skink, Flatback Turtle and Water Mouse are likely to occur on Magnetic Island. Spectacled Flying-fox may occur on the island. 1 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) is known to occur on Magnetic island: Little Tern. 2 additional EPBC listed Marine or Migratory species are likely to occur on Magnetic Island: Satin Flycatcher and White-bellied Sea-Eagle. 5 additional EPBC listed Marine or Migratory species may occur on Magnetic Island: Barn Swallow, Latham's Snipe, Little Curlew, Pied Imperial Pigeon and White-throated Needletail. 1 additional fauna species listed under one or more Australian state/territory legislation is known to occur on the island: Bush Stone-curlew.	occur on Magnetic Island. **CR:** na **EN:** na **VU:** *Croton magneticus*, Frogbit, Beard Heath and *Marsdenia brevifolia* are likely to occur on Magnetic Island. Minute Orchid may occur on the island.
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Magnetic Island lies within the Great Barrier Reef World Heritage Area.
PEST VERTEBRATES PRESENT: 4 vertebrate pests have been recorded and are believed to be currently present on Magnetic Island; 2 of these are a listed EPBC Key Threatening Process: Cane Toad and Cat. 2 potentially high impact species are: Common Myna and Domestic Dog. The remaining vertebrate pest is a potentially low impact species: Indian Peafowl.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of Cane Toad, Cat, Common Myna and Domestic Dog could be expected.
OTHER THREATS PRESENT: · terrestrial disturbance and land clearing · habitat degradation, fragmentation and loss · increased impacts on marine species	**OTHER THREAT IMPACTS** Green Turtle may be impacted by: · bycatch (commercial fisheries) · marine debris

from elevated intensity of boating activities (e.g. boat strike) · increasing disease.	· shark netting · boat strike · aquaculture activities · disturbance or damage to nesting turtles and hatchlings on beaches · harvesting · predation of eggs · pollution · poor water quality. Bare-rumped Sheathtail Bat, Striped-tailed Delma, Little Tern may be impacted by: · habitat loss and degradation, (e.g. from timber removal) · damage to roosting sites from termites and fire · competition for hollows · disease · pesticide residues in fish · oil fouling of both birds and beaches. Flora may be impacted by: · habitat loss and degradation · recreational motorbike riding · inappropriate fire regimes · invasion by introduced pasture species · introduction of invasive species.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific pest management plan was identified, but Magnetic Island is covered under general Queensland Government National Park management plans.

Pest management plan: Areas managed by Queensland Parks and Wildlife Service July 2003 - July 2008 (QPWS 2003a):

In common with all other landholders, QPWS also has a responsibility under the *Land Protection (Pest and Stock Route Management) Act 2002* to control declared plant and animal pests on its lands. Under this legislation, QPWS has developed a Pest Management Plan as a framework to guide its pest management activities. QPWS has also developed a Pest Management System to facilitate pest management planning and to guide on-ground pest management activities.

The plan applies to all QPWS managed areas including:

- protected areas (tenured) managed under the *Nature Conservation Act 1992*
- State forests, timber reserves and forest reserves managed under the *Forestry Act 1959* (noting that a memorandum of understanding and operational guidelines exist with the Department of Primary Industries (Forestry) with respect to the management of areas used for timber production)
- other land held by the Department as reserved or freehold land
- land and water managed under the *Marine Parks Act 1982* (including the day-to-day management under the *Great Barrier Reef Marine Parks Act* (Commonwealth).

The primary objectives for QPWS in managing pests are to:

- protect natural and cultural values, including threatened species and ecosystems, by eradicating pests or significantly reducing impacts
- prevent the introduction or spread of any declared plant or animal on the QPWS estate
- undertake pest control programs in cooperation with neighbouring landholders, other State agencies and local government in accordance with the QPWS Good Neighbour Policy.

Key stakeholders with an interest in QPWS pest management include:

- all direct users of QPWS managed areas and their industry and interest groups. These groups include (in no particular order or priority) pastoralists, timber and other resource users (for tenures under both the *Nature Conservation Act 1992* and *Forestry Act 1959*), mining and extractive industries, fishing and recreation groups
- neighbouring landholders and their industry/interest groups
- the conservation movement
- State agencies and entities, in particular: Department of Natural Resources and Mines; Department of Primary Industries (Forestry); Department of Main Roads; Queensland Rail; and local governments.

In accordance with its Good Neighbour Policy, QPWS will co-operate with neighbouring landholders, government departments and local authorities to meet its legislative requirements for pest plant and animal control.

Magnetic Island merits the development of an integrated management plan that addresses visions and objectives, including key development issues relating to tourist industry and pest management for the island.

FURTHER PEST ERADICATION REQUIREMENTS: Review pests present, their impacts and feasibility for eradication. Cat and Cane Toad are likely to be high priority pests for eradication.

POTENTIAL ERADICATION RISKS: Requires survey updates for both pests and indigenous species and feasibility studies to evaluate risks of eradication programs.	**POTENTIAL BIOSECURITY RISKS:** Unknown, but likely to be significant given populated island and high rate of tourist visitation.

RECOMMENDED ACTIONS: EPA/QPWS to complete management plan with island stakeholders addressing key aspects including:

- vision and management objectives for the island – may require updated information of island's biota, survey if necessary
- feasibility of achieving key eradications (Cat and Cane Toad)
- feasibility of sustainability pest-free status if Cats and Cane Toads are removed
- risk-assessments for other pests arriving (rodents, invertebrate pests etc) and the existing biosecurity efficacy, and needs for sustaining pest-free status, including ongoing surveillance, pest-response plans, etc.
- community and visitor awareness
- monitoring of indigenous biota.

KEY REFERENCES

Baltias, S. 2006. A management plan to help protect the Bush curlew (*Burhinus grallarius*) in the Redland Shire, south-east Queensland. Bayside Branch, Wildlife Queensland, Capalaba,

Queensland.

DEWHA 2008m. Draft EPBC Act Policy Statement 5.1 Magnetic Island Queensland. Department of the Environment, Water, Heritage and the Arts, Canberra, ACT.

EPA 2006a. Magnetic Island, Nature, Culture and History. Queensland Government Environmental Protection Agency, Brisbane. Available at: www.epa.qld.gov.au. Accessed 12 June 2009.

QPWS 2003a. Pest management plan: Areas managed by Queensland Parks and Wildlife Service, July 2003. Queensland Parks and Wildlife Service, Queensland Government, Brisbane.

Maria Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	PRIORITY: Top 50
ISLAND NAME & GROUP: Maria Island With some consideration of smaller islands in the Maria Island National Park and Ile Des Phoques Nature Reserve	**MAP 6**

LATITUDE:	42° 37' S [Decimal Degrees -42.626°]
LONGITUDE:	148° 05' E [Decimal Degrees 148.087°]

AREA: 10 207 ha	**DISTANCE (km) TO NEAREST OTHER LAND & TYPE (mainland/island):** 4 km to mainland 31 km to Schouten Island
JURISDICTION: Tasmania	**TENURE:** Nature Conservation Area **STATUS:** National Park

GENERAL GEOGRAPHY: Maria Island lies off the south-east coast of Tasmania (Parks and Wildlife Service 1998). The Maria Island National Park and Ile Des Phoques Nature Reserve have a total area of about 11 550 ha including a marine area. Except for Lachlan Island in Mercury Passage, the Park includes all the islands, rocks, and reefs adjacent to the coastline, most notably Ile du Nord (Rabbit Island). The landmass stretches some 19.3 km from north to south and is approximately 13 km wide at its widest point (Parks and Wildlife Service 1998).

DEMOGRAPHY & HUMAN USE: Maria Island receives an average of 12 000 visitors per year (Parks and Wildlife Service 1998). Three campgrounds on the island are located at Darlington, French's Farm and Encampment Cove. Although camping elsewhere is not encouraged, firepl aces, rubbish and tree cutting indicate that visitors also camp at other sites including Whaler's Cove, Trigonia Corner and Pine Hut Creek (Parks and Wildlife Service 1998).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Native vegetation on Maria Island consists of a diversity of predominantly dry sclerophyll plant communities, heathlands and coastal vegetation of high conservation value.

Fifteen vegetation types have been recognised (Brown and Bayly-Stark 1979, cited in Parks and Wildlife Service 1998). The most extensive vegetation type is open-forest of *Eucalyptus obliqua*, with *E. globulus* and *E. viminalis* and a shrubby understorey. Most of the low dolerite hills on the western part of the island are covered by open-forest with a mixture of eucalypt species over a predominantly grassy understorey. Tall woodland on talus, plateaus helf tall open-forest, tall woodland with wet sclerophyll understorey, scree slope mosaic and mountain top heath occur on the Maria Range (Parks and Wildlife Service 1998).

THREATENED FAUNA:	THREATENED FLORA:
8 EPBC listed threatened fauna are known to occur with the Maria Island area. **CR:** Orange-bellied Parrot occurs within the area. **EN:** Broad-toothed Stag Beetle, Forty-spotted Pardalote, Swift Parrot, Wedge-tailed Eagle	There is one EPBC listed threatened flora likely to occur and two which may occur. **CR:** na **EN:** na **VU:** Tailed Spider-orchid is likely to occur on Maria

(Tasmanian) and Southern Brown Bandicoot are known to occur within the area. **VU:** Eastern Barred Bandicoot (Tasmania) and one frog (Southern Bell Frog) occur within the area. 34 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur in the Maria Island Area. Arctic Jaeger, Australasian Gannet, Black-faced Cormorant, Blue-winged Parrot, Cape Barren Goose, Caspian Tern, Cattle Egret, Common Diving-Petrel, Crested Tern, Double-banded Plover, Fairy Tern, Fan-tailed Cuckoo, Flame Robin, Fork-tailed Swift, Great Egret, Hooded Plover (eastern), Horsfield's Bronze-cuckoo, Kelp Gull, Latham's Snipe, Little Egret, Little Penguin, Musk Duck, Pacific Gull, Pallid Cuckoo, Pink Robin, Red-capped Plover, Richard's Pipit, Ruddy Turnstone, Sacred Kingfisher, Short-tailed Shearwater, Silver Gull, Swamp Harrier, White-bellied Sea-Eagle and White-throated Needletail. 1 additional EPBC listed Marine or Migratory species is likely to occur within the area: Satin Flycatcher. 3 additional fauna species listed under one or more Australian state/territory legislation occur within the area: Masked Owl, Mt Mangana Stag Beetle and Spotted Quail-thrush.	Island. Grassland Greenhood and Variable Smoke-bush – may occur on the island. There are no known occurrences of additional flora species listed under one or more Australian state/territory legislation.
SEABIRD/SHOREBIRD BREEDING SITES: Unknown	**OTHER NATURAL VALUES:** · Maria Island is the main secure colony of the Forty-spotted Pardalote, which is endemic to Tasmania. The Maria Island population is considered stable and well protected (Parks and Wildlife Service 1998). · Swift Parrot is also known to breed within the Maria Island area. · Native vegetation on Maria Island includes coastal vegetation of high conservation value, due to the presence of geographically significant endemic species, rare or vulnerable species, and several plant communities which are unreserved or poorly reserved elsewhere in Tasmania's State Reserve system. · The apparent absence of the root fungus *Phytophthora cinnamomi* greatly enhances the value of the island for flora conservation (Parks and Wildlife Service 1998).
PEST VERTEBRATES PRESENT: 11 vertebrate pests have been recorded,	**PEST VERTEBRATE IMPACTS:** Deer, cats, rats and mice have impacts on native

and are believed to be currently present, on Maria Island; 3 of these are a listed EPBC Key Threatening Process:

Black Rat, Cat and House Mouse.

Other potentially high impact vertebrate pests include Fallow Deer and a second, unspecified, species of deer.

Eastern Grey Kangaroo was introduced to the island (Terauds 2005).

5 birds of potentially medium or low impact are also present on the island:

Common Blackbird, Common Starling, European Goldfinch, House Sparrow and Skylark.

species and ecosystems.

It is unclear whether the introduced Eastern Grey Kangaroo is significantly impacting (Terauds 2005), although negative impacts on the island's vegetation are likely.

Pest vertebrate impacts could be extremely detrimental to the sustainability of the Forty-spotted Pardalote on Maria Island. Vegetation communities containing *Eucalyptus viminalis* or *Eucalyptus globulus* are important for the survival of endangered and vulnerable bird species.

Key threats to the Orange-bellied Parrot (Bryant and Jackson 1999) include:

- grazing contributing to loss of habitat and food supply
- competition with introduced birds such starlings for nest sites and sparrows and goldfinches for food
- predation by cats while feeding.

OTHER THREATS PRESENT:

- Except for the dolerite based soils, most of the soils on Maria Island are susceptible to erosion
- Vegetation clearance, settlement and grazing have led to the simplification of some native plant communities
- Weeds
- Overgrazing by macropods has exacerbated the weed problem
- Visitor pressures
- Fire. Relatively high fire frequency has occurred on the western side of the island, due to fertile soils that support an understorey of bracken, grasses and sedges. A lower fire frequency of relatively intense fires has occurred on the eastern side of the island. The heathlands on Maria Island appear to have sustained a relatively high fire frequency (Parks and Wildlife Service 1998).

OTHER THREAT IMPACTS:

- Tunnel and gully erosion from past clearing and grazing.
- Invasive plants, such as Canary Broom, have infested native vegetation. It appears to be able to establish and compete successfully in relatively undisturbed situations such as the slopes of Mt Maria and near Pine Hut Creek. It is also very fire prone. Practical and effective options for control have not been found. Thistles have spread widely, even to more remote areas such as the slopes of Perpendicular Mountain. Wild Mignonette is becoming a serious problem, and is very difficult to remove once established.
- Areas nearby campsites have been severely degraded in recent years, including tree death, pollution and erosion (Parks and Wildlife Service 1998).
- Too frequent fire can impact on the Forty-spotted Pardalote through direct habitat degradation and producing an environment that favours more aggressive species and the Orange-bellied Parrot.
- Potential competition and displacement by aggressive birds like Laughing Kookaburra and Noisy Miner moving into disturbed areas is listed as a key threat to the Forty-spotted Pardalote (Bryant and Jackson 1999).

PAST & CURRENT PEST MANAGEMENT & MONITORING: Periodic control programs, involving the trapping and/or poisoning of cats and rats, are carried out. The deer population has been substantially reduced, and in 1994 only several animals remained (Parks and Wildlife Service 1998).

Weeds are dealt with on an ad hoc basis, typically by volunteer school or community groups, using spraying or grubbing out (Parks and Wildlife Service 1998).

Maria Island National Park and Ile Des Phoques Nature Reserve Management Plan 1998 (Parks and Wildlife Service 1998) recommends the following:

Vegetation Conservation

- Review and revise the fire management plan
- Prepare programs for ecological management burning, setting out the fire frequencies necessary to maintain viable populations of species and communities of conservation value
- Implement and regularly review the macropod management program
- Undertake surveys for rare or endangered grassland species
- Research the life cycle of *Cyphanthera tasmanica*.

Animal Conservation

- Prepare programs of ecological management burning, setting out the fire frequencies necessary to maintain habitat and viable populations of species of conservation value
- Implement the relevant recommendations of The Swift Parrot Recovery Plan (updated since this management plan, Swift Parrot Recovery Team 2001).
- Implement the relevant recommendations of The Forty-Spotted Pardalote Recovery Plan (updated since this management plan, Threatened Species Section 2006).
- Maintain a firebreak across the isthmus to help prevent a fire burning over the entire island.
- Maintain regular patrols prior to and during the muttonbird season, particularly during the months of February - May, to discourage people from interfering with rookeries.
- Monitor for disturbance of shore birds breeding success between early September and late February.
- Discourage visitors from feeding animals by making them aware of the harmful effects on wildlife of inappropriate food.

Introduced Animals

- Eradicate introduced species where this is feasible and warranted by the damage being caused and control and manage introduced species where eradication is not possible or warranted
- Monitor introduced animal populations and undertake regular surveys of each species
- Continue to implement and regularly review the macropod management program.

Landscape Management

- Prepare a heritage vegetation study to identify, record and assess the significance of historic plantings and cultural landscapes of Darlington
- Prepare landscape management programs
- Maintain, propagate and re-establish significant historic plantings in keeping with the heritage vegetation study
- Prevent the spread of introduced plant species retained for heritage purposes
- Eradicate, control or contain weeds
- Identify, rehabilitate and revegetate pasture of low heritage significance in accordance with landscape management programs
- Rehabilitate, revegetate or otherwise stabilise disturbed or eroding areas
- Monitor Bloodstone Beach, Chinamans Bay, Pine Hut Creek, the northern end of Shoal

Bay, and other parts of the island for erosion and dune stability

- Construct and maintain suitably designed dune crossings and, where necessary, barriers, at Darlington Bay
- Revegetate or otherwise stabilise and protect damaged dunes
- Revegetate Bernacchi's Creek in the vicinity of the current campground location in accordance with the site plan for the Darlington Zone
- Using indigenous species, revegetate around the new workshop to stabilise the creek bank and screen from visitors
- Undertake revegetation of other creek banks where required.

Specific Management for preservation of Forty-spotted Pardalote:

- Reduce fuel loads by cool, winter, patchwork burning on an 10 to 14 year rotation interval. It is essential to prevent fire reaching the canopy of mature white gum. Likewise prevent firing more frequently than 10 to 14 years as this will lead to habitat degradation favouring more aggressive birds (e.g. noisy miners).
- Overall, consider eradications of key threatening species (cats, rodents) as part of the management planning process.
- There are significant non-target issues for pest eradication planning and feasibility studies, including Orange-bellied Parrot and bandicoot species.

Other management issues to consider and integrate into planning are control of other pests, visitor control, biosecurity and fire.

FURTHER PEST ERADICATION REQUIREMENTS: Cat and Black Rat are priority species to consider for eradication given their likely high impacts on many of the threatened species present, e.g. Orange-bellied Parrot, Swift Parrot, Broad-tooted Stag Beetle, Southern Brown Bandicoot, Eastern Barred Bandicoot, potentially also Forty-spotted Pardalote and other vulnerable fauna, e.g. Hooded Plover. However, details of the small mammal populations are incomplete and some faunal survey work remains to be carried out, including completion of a small mammal inventory (Parks and Wildlife Service 1998).

Maria Island was the site of many introductions in the 1970s including the Forester Kangaroo, Eastern Bar red and Br own ban dicoots, Bennet t's Wallaby and Br ushtail P ossum. A lthough Bennett's Wallaby and Brushtail Possums are present on many Tasmanian islands, it is impossible to be certain of their status, i.e. if they were introduced or occur there naturally. It would be beneficial to run further molecular studies to clarify this uncertainty. A similar situation is found with the Tiger Snake that was introduced to many Tasmanian islands in the 1960s and 1970s (Terauds 2005).

Potential competition and displacement by aggressive birds like Laughing Kookaburra and Noisy Miner moving into disturbed areas is listed as a key threat to the Forty-spotted Pardalote (Bryant and Jackson 1999).

POTENTIAL ERADICATION RISKS: Significant risks unless carefully planned, e.g. eradication of rats using standard methods used elsewhere would endanger parrots, indigenous mammals, plovers, etc. Requires initial feasibility studies.	**POTENTIAL BIOSECURITY RISKS:** Unknown, but unassisted invasion is unlikely given the long distance offshore. However, the high level of visitation implies significant (re)invasion potential, particularly for rodents and invertebrates.

RECOMMENDED ACTIONS

Review progress of Maria Island National Park Management Plan 1998, particularly with respect to eradication of key pest species.

Depending n progress, some additional planning work may be needed, e.g.:

- Review and update objectives of plan with key stakeholders
- Undertake feasibility studies for pest management/eradication
- Integrate pest management advice from relevant recovery plans (e.g. for Orange-bellied Parrot, Swift Parrot, Forty-spotted Pardalote, Eastern Barred Bandicoot) and other formal advice
- Review biosecurity efficacy and needs and incorporate appropriate levels of risk assessment, surveillance, response plans, etc
- Identify community and other stakeholder roles in Maria Island management as appropriate.

KEY REFERENCES:

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Swift Parrot Recovery Team 2001. Swift Parrot Recovery Plan. Department of Primary Industries, Water and Environment, Hobart.

Terauds, A. 2005. Introduced animals on Tasmanian Islands. Biodiversity Conservation Branch, Department of Primary Industries, Water and Environment (DPIWE), Hobart, Tasmania.

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Moa Island & Badu Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Moa Island & Badu Island, Torres Strait With some consideration of Mabuaig Island, Bellevue Islands, Torres Strait	**MAP 3**

LATITUDE:	10° 11' S [Decimal Degrees -10.183°]
LONGITUDE:	142° 16' E [Decimal Degrees 142.267°]

ISLAND AREAS Moa Island: 17 030 ha Badu Island: 10 124 ha Mabuaig Island: 636 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** Moa Island: 52 km to mainland Australia, with 'stepping stone' islands in between; 34 km to Thursday Island (Torres Strait) Badu Island: 90 km to mainland Papua New Guinea, with 'stepping stone' islands in between 2.4 km between Moa and Badu islands; distance potentially reduced to 0.5 to 0.8 km at low tide. Mabuaig Island: 9.5 km to Badu Island.
JURISDICTION: Queensland	**TENURE:** Freehold/Reserve/UK **STATUS:** Mainly freehold land/Other Crown land/Unknown

GENERAL GEOGRAPHY: Badu and Moa Islands are both large continental islands in the western region of the Torres Strait. Two thirds of these islands are comprised of granite hills. A granite ridge on Moa Island, Mt Augustus at 399 m above sea level, is the highest point in the Torres Strait. The geology of both islands is classified as Tertiary and Quaternary in the low sandy areas in the centre of the island and the mangrove areas on the coast (BCS 2005).

DEMOGRAPHY & HUMAN USE: The communities in the Torres Strait outer islands vary in population from 40 (Ugar Island) to 800 (Badu Island). A quarry is in operation at Badu Island, and St Paul's community on Moa Island manufactures concrete blocks and operates a quarry to produce road base and aggregate. Badu community harvests local hardwood species for construction of community infrastructure (BCS 2005).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: There are seasonal wetlands, scattered forests and scrub areas, with low-lying regions tending towards swamp and mangroves on these islands (BCS 2005).

THREATENED FAUNA: 4 EPBC listed threatened fauna may occur on Moa and/or Badu islands and 1 additional listed fauna species is likely to occur. **CR:** Bare-rumped Sheathtail Bat may occur on Moa Island.	**THREATENED FLORA:** 3 EPBC listed threatened flora species are likely to occur on Moa and/or Badu islands. **CR:** na **EN:** na **VU:** Chocolate Tea Tree Orchid, Curly Pinks and Atherton Turkey Bush are likely to occur on Moa

EN: na **VU:** Flatback Turtle is likely to occur on Moa and/or Badu islands. Brush-tailed Rabbit-rat, Hawksbill Turtle and Spectacled Flying-fox may to occur on Moa and/or Badu islands. 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are likely to occur on Moa and/or Badu Islands: Black-winged Monarch – both islands Satin Flycatcher – both islands Spectacled Monarch – both islands White-bellied Sea-Eagle – Badu Island 8 additional EPBC listed Marine or Migratory species may occur on Moa and/or Badu Islands and others are likely to use the island in transit across Torres Strait: Barn Swallow, Fork-tailed Swift, Latham's Snipe, Little Curlew, Melville Cicadabird, Rainbow Bee-eater, Rufous Fantail and White-throated Needletail.	and/or Badu islands.
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT: 2 vertebrate pests have been recorded and are believed to be present on both Moa and Badu islands; both of these are a listed EPBC Key Threatening Process: Cat and Pig. An additional two vertebrate potentially high impact vertebrate pests are believed to be present on Moa Island: Deer and Dog. Cat and Dog are believed to be present on Mabuaig Island.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of these pest vertebrates could be expected.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plans were identified.	
FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).	
POTENTIAL ERADICATION RISKS: Unknown.	**POTENTIAL BIOSECURITY RISKS:** Unknown, potentially significant with boat traffic between the islands.
RECOMMENDED ACTIONS: Develop planning objectives with local communities and other stakeholders.	

Consider information needs e.g. determine the status of threatened species (survey bats, rabbit-rats, turtles and others) and the status of pests.

Consider feasibility of eradicating feral cats, pigs and dogs.

KEY REFERENCES

BCS 2005. Land and Sea Management Strategy for Torres Strait, report for the Torres Strait Natural Resource Management Reference Group, Bessen Consulting Services, November 2005.

Moreton Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Moreton Island, Moreton Bay Area	**MAP 3**
LATITUDE: 27° 11' S [Decimal Degrees -27.183°]	
LONGITUDE: 153° 24' E [Decimal Degrees 153.400°]	
AREA: 17 149 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 20 km to the mainland 3.5 km to North Stradbroke Island (see separate island profile) 15 km to Bribie Island (see separate island profile)
JURISDICTION: Queensland	**TENURE:** National Park **STATUS:** Nature conservation reserve

GENERAL GEOGRAPHY: Moreton Island is a 37 km long, 10 km wide wedge-shaped sand island located on the eastern edge of Moreton Bay in south-east Queensland. Along with North Stradbroke and South Stradbroke islands, Moreton Island forms the eastern boundary of Moreton Bay, a large, shallow, biologically diverse expanse of water (QPWS 2007).

Moreton Bay is a semi-enclosed basin bounded on its eastern side by two of the largest sand islands in the world (EPA 1999).

DEMOGRAPHY & HUMAN USE: There is a resident population on Moreton Island. Most of the island has been designated as a recreation area under the *Recreation Areas Management Act 1988* and is one of only five recreation areas designated throughout Queensland for the management of recreational activities. It is one of the 10 most visited areas managed by QPWS in Queensland, receiving more than 170 000 visitors a year.

The beaches of Moreton Island are the most popular areas for visitors and offer a variety of settings. The eastern side of the island offers beach fishing, relative isolation and both formal and informal camping. Cape Moreton provides cultural attractions with the presence of the lighthouse and associated infrastructure. Surfing, snorkelling and rock fishing are possible off the northern end of the island. The western side of the island is popular for extensive formal and informal camping, snorkelling around The Wrecks, and beach fishing. Boating and swimming in quiet, protected waters are popular, as are general beach activities (QPWS 2007).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Moreton Bay is one of the largest estuarine bays in Australia which are enclosed by a barrier island of vegetated sand dunes.

It is one of only three extensive intertidal areas of seagrass, mangroves and saltmarsh on the eastern coast of Australia that provide habitat for water birds (EPA 1999).

The natural dune processes of erosion, accretion and stabilisation by vegetation and the development and infilling of lakes and swamps have continued relatively undisturbed by human activities. Mt Tempest at 285m is thought to be the highest stabilised sand dune in the world. Moreton Island is also currently the only area in the region where Pleistocene dunes have been naturally destabilised and are being actively reworked by the prevailing winds. Examples of this are seen at The Desert south of Tangalooma and the Big and Little Sandhills.

Few areas in eastern Australia exist where lakes and swamps associated with sand dunes occur in such a natural state and at such high density. More than 70 dune lakes and swamps occur on Moreton Island.

Sedge-dominated swamps, perched and window lakes occur on the island. Perched lakes have formed where the sands have become cemented and capable of holding water and resisting erosion. Three forms of perched lakes occur on Moreton Island.

Moreton Island is the most undisturbed large coastal sand island in south-east Queensland and has considerable value in its preservation of extensive stands of many of the regionally significant coastal lowland communities. These include communities such as mangroves, *Melaleuca* swamps, sedgelands, heath and eucalypt woodlands and open forests. The distribution of these communities is related to the age of the underlying sand deposits, the depth of the water table, nutrient levels, degree of wind and sun exposure and the age of the community.

Mapping of regional ecosystems (vegetation communities currently recognised in State legislation) of the island has recently been undertaken by the Environmental Protection Agency. Eleven regional ecosystems were identified, five of which are listed as 'of concern' in the *Vegetation Management Regulation 2000* (QPWS 2007).

THREATENED FAUNA:

2 EPBC listed threatened fauna species are known to occur on Moreton Island; 5 additional listed threatened species are likely, and a further 4 may occur on the island.

CR: na

EN: Loggerhead Sea Turtle is known to occur on Moreton Island.

Regent Honeyeater may occur on the island.

VU: Wallum Sedge Frog is known to occur on Moreton Island.

Grey-headed Flying-fox, Water Mouse, Green Turtle, Hawksbill Turtle, Western Whipbird (eastern) are known in the Moreton Bay area and are likely to occur on the island.

Three-toed Snake-tooth Skink, Long-nosed Potoroo (SE mainland) and Australian Painted Snipe may occur on the island.

2 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMA) are known to occur on Moreton Island:

Red-capped Plover and Eastern Osprey.

12 additional listed Marine or Migratory species occur in the Moreton Bay area and are likely or may occur on the island:

Bar-tailed Godwit, Black-faced Monarch, Common Sandpiper, Fork-tailed Swift, Grey-tailed Tattler, Latham's Snipe, Rainbow Bee-eater, Red-necked Stint, Ruddy Turnstone, Sanderling, Satin Flycatcher and White-throated Needletail.

3 additional fauna species listed under an

THREATENED FLORA:

4 EPBC listed threatened flora species are likely or may occur on Moreton Island.

CR: na

EN: Lesser Swamp-orchid is likely to occur on Moreton Island.

VU: Stinking Cryptocarya is likely to occur on Moreton Island and Minute Orchid and Marbled Balogia may occur on the island.

No known additional flora species listed under an Australian state's legislation occur on Moreton Island.

Australian state's legislation are known to occur on the island: Pale Field Rat, Pied Oystercatcher and Short-limbed Snake-skink.	
SEABIRD/SHOREBIRD BREEDING SITES: Eastern Osprey is known to breed on Moreton Island. Red-capped Plover and Pied Oystercatcher are common residents and breed on the island.	**OTHER NATURAL VALUES:** Moreton Island is a Conservation Park within the Moreton Bay Area. Most of the island is gazetted as Moreton Island National Park under the *Nature Conservation Act 1992*. The national park covers around 16 900 hectares of land down to high water mark (QPWS 2007). The island has a large population of the Pale Field Rat. Moreton Bay supports appreciable numbers Green, Hawksbill and Loggerhead Turtle Turtles. Loggerhead Turtle nesting has been recorded by rangers on the island since 2002 and this monitoring of nesting marine turtles will continue (QPWS 2007). Most of the island has been included in the internationally recognised Moreton Bay Ramsar Site in recognition of its important wetland sites: the salt marsh, tidal flats, sandy beaches and perched lakes. (QPWS 2007). The natural areas of Moreton Island have a high degree of protection with 95% of the island within national park. The island is also surrounded by the Moreton Bay Marine Park which was declared in 1993 in recognition of its important natural, cultural, recreational and economic values to Queensland. (QPWS 2007). Moreton Bay plays a substantial role in the natural functioning of a major coastal system through its protection from oceanic swells providing habitat for wetland development, receiving and channelling the flow of all rivers and creeks east of the Great Dividing Range from the McPherson Range in the south to the north of the D'Aguilar Range (EPA 1999). Moreton Bay is ranked among the top ten dugong habitats in Queensland (EPA 1999).
PEST VERTEBRATES PRESENT: 5 vertebrate pest species are believed to be currently present on Moreton Island; each of these is a listed EPBC Key Threatening Process: Cane Toad, Cat, Goat, House Mouse and Pig. However, most of the goats have recently been removed from the island, and horses have been totally removed.	**PEST VERTEBRATE IMPACTS:** Feral pigs and cats now represent the biggest threat to the integrity of the native animal communities and threaten native animal communities through predation and/or habitat disturbance (QPWS 2007).

OTHER THREATS PRESENT:

Moreton Bay receives most of the sewage and industrial effluent of the wider Caloundra-Brisbane-Gold Coast metropolitan areas as well as the storm water runoff containing sediment, fertilisers, pesticides and other pollutants from the urban and rural areas (EPA 1999).

The Port of Brisbane is the fastest growing capital city port on the east coast, and is expanding its capabilities to handle a wide variety of cargoes. The Moreton Bay Strategic Plan seeks to integrate the operation and development of shipping channels and other areas of port expansion with the natural environment. (EPA 1999).

As well as being a popular recreational fishing area, the Moreton Bay region supports one of the most productive fisheries in Queensland, representing just under three percent of the Queensland coastline while annually producing about 20 percent of Queensland's commercial seafood catch by weight (Williams 1991, cited in EPA 1999).

In addition to fishing, Moreton Bay is a major area for recreational boating, water sports and other water-related activities including sailing, power boating, water skiing, parasailing, jetskiing, sailboarding, scuba diving, bird watching, marine study and snorkelling (EPA 1999).

QPWS (2007) consider the major threats and potential threats to the conservation of the native flora species and vegetation communities on Moreton Island to be:

- inappropriate fire regimes
- increases in the abundance and dominance of introduced invasive plant species
- new invasions of pest plants and animals
- continued or increasing damage by feral animals (particularly pigs and goats)
- destruction or damage to rare and threatened plant species through recreational activities, and
- vehicle access on the island.

OTHER THREAT IMPACTS:

With the port facilities nearby, major impacts such as the oil spill in March 2009, could occur again. The oil spill occurred on 11 March 2009, when 250 tonnes of oil escaped from the container ship Pacific Adventurer and washed up on Sunshine Coast beaches, Bribie Island and Moreton Island. Moreton Island beaches were declared clean in May 2009 after a massive clean-up effort (Queensland Government 2009).

About 2 500 people worked on the clean-up to remove 3 000 tonnes of oil-contaminated sand removed from Moreton Island.

Gambusia should be prevented from entering any further freshwater systems on the island as it represents a general threat to the native fish and frog species (QPWS 2007).

Vehicle access on the island:

- can initiate and accelerate erosion and reduce new dune formation on sand dunes, especially foredunes, since dune vegetation has a low threshold for damage from vehicle activity
- disturb beach nesting and feeding seabirds and migratory birds which use the shoreline, and
- spread weeds and pathogens through soil and other debris.

PAST & CURRENT PEST MANAGEMENT & MONITORING:

QPWS (2007) recommends the development and implementation of a comprehensive pest plant control strategy for the island, which should include:

- a list of weed species of concern
- distribution map of the weeds
- a description of the weeds and recommended control methods
- priorities for weed control
- mechanisms to reduce the planting of potential environmental weeds, and
- monitoring of weed control activities.

QPWS (2007) also recommends the development and implementation of a scientifically-based and humane feral pig and goat eradication program, which includes:

- a map of the distribution of the noteworthy plant species
- priority areas for control
- methodologies for control
- an assessment of the impacts from fire, weeds, feral animals, recreation and park management
- implementing any approved recovery plans for rare and threatened species to restore the species to a more secure status
- limiting development and impacts in areas supporting vegetation communities or species of conservation concern, and
- liaison with the Department of Natural Resources and Water on implementing control programs
- liaison with tertiary institutions to expand the knowledge of coastal plant communities and species on which to base management decisions
- responsibilities, time frames and budget for strategy implementation, and
- a monitoring program to assess the suitability of the strategy in fulfilling the aims.

QPWS (2007) further recommends:

- increasing publi c awar eness of t he problem of t he i ntroduction of ca ne t oads t o t he island and potential for other animal pests such as fire ants
- limiting the potential disturbance to shorebirds in the roost sites at Mirapool, Heath Island and Reeders Point areas through vehicle management and interpretation signage
- increasing public awareness of the inland bypass road around Mirapool to encourage its use
- prohibiting swimming within the Mirapool Lagoon
- investigating the potential for seasonal fishing closures and appropriate vessel use within the Mirapool Lagoon, in consultation with Queensland DPI Fisheries and the local community
- developing a monitoring program in conjunction with the Queensland Wader Study Group to assess the adequacy of the management of shorebird sites and alter management according to findings
- increasing public awareness of the sensitivity of shorebirds to disturbance
- monitoring populations of all rare and threatened species (birds, fish, frogs and reptiles) as key indicators of habitat condition and natural integrity and adapt management practices to reduce threats
- monitoring the Pied Oystercatcher population and managing threats to this species through education and awareness programs
- barricading off known turtle nesting sites on open beaches or campsites to prevent

disturbance by passing traffic, but ensuring that any foredune fencing allows for the movement of turtles

- ensuring all landscape and building materials brought to the island for use by QPWS are treated in a way that minimises the risk of further cane toad, and new fire ant or other non-native animal introductions
- investigating all reports of cane toads or other new animal pests on the island as soon as practicable and destroy any such animals located
- investigating the adequacy of rubbish and litter management and any associated ecological imbalances
- developing improved waste management strategies in conjunction with Brisbane City Council and other major stakeholders
- implementing a scientifically-based fire management strategy, which takes into account the ecological requirements of native animal species and includes monitoring of the effects of the fire regimes on them.
- improving rubbish and litter management methods on the island.

FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Unknown but risks should be evaluated as part of feasibility studies for eradicating each pest (see Recommended Actions).	Given the distance offshore (20 km) and to North Stradbroke Island (3.5 km) there is little chance of unassisted pest mammals arriving on the island. However, the high visitor use means that there is significant risk of small pests being accidentally introduced in freight and other goods.

RECOMMENDED ACTIONS:

- Carry out a risk assessment for potentially arriving pest species at the island – obvious candidates include rodents, Cane Toads and other pest groups (e.g. invasive ants and pest plants).
- Maintain effective biosecurity for excluding cane toads. This should include action plans/protocols for enhanced biosecurity at entry points, surveillance at key likely arrival points and mechanisms for active response when individuals are detected.
- Maintain effective biosecurity for pest mammals and other pest biota that could easily arrive at the island, surveillance systems, public education and a ready response procedure.
- Assess feasibility of eradication versus control programs for feral pigs and goats, if the former commit resources until successful and continue surveillance for potential survivors as guided by operational advisers.
- Assess feasibility of controlling cats to low levels in key biodiversity areas (depending on the quality of data these may need to be reviewed) versus cat eradication.

KEY REFERENCES

EPA 1999. Moreton Bay Queensland Information Sheet on Ramsar Wetlands. Prepared by Environmental Protection Agency, Government of Queensland, July 1999. Available at: www.wetlands.org. Accessed 28 May 2009.

IA CRC 2009. islandNet Newsletter #1, May 2009. Invasive Animals CRC and Department of the Environment, Water, Heritage and the Arts.

QPWS 2007. South East Queensland Biogeographic Region. Moreton Island National Park, Cape Moreton Conservation Park and Moreton Island Recreation Area Management Plan, April 2007. Environmental Protection Agency, Government of Queensland. Available at: www.epa.qld.gov.au. Accessed 28 May 2009.

Queensland Government 2009. Moreton Bay oil spill. Press Release, 11 May 2009. Available at:

www.qld.gov.au. Accessed 12 July 2009.

Mornington Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Mornington Island, Wellesley Islands	**MAP 3**

LATITUDE:	16° 33' S [Decimal Degrees -16.550°]
LONGITUDE:	139° 24' E [Decimal Degrees 139.400°]

AREA: 100 144 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 29 km to the mainland, but separated by smaller distances due to a series of smaller 'stepping stone' islands to the south-west. 0.5 km to Denham Island which is 5 km to Forsyth Islands, these are 6 km to Bayley Island and 3 km to the mainland.
JURISDICTION: Queensland	**TENURE:** Lands Lease/Reserve/UK **STATUS:** Crown leasehold land/Other Crown land/Unknown

GENERAL GEOGRAPHY: The Wellesley Islands are a group of islands off the coast of northern Queensland, Australia, in the Gulf of Carpentaria. The largest island in the group is Mornington Island. The South Wellesley Islands and the Forsyth Islands are in the same area and all are the local government area of the Mornington Shire.

The South Wellesley Islands are Bentinck Island and Sweers Island. These two islands are included in the Top 100 priority list on a separate island profile.

DEMOGRAPHY & HUMAN USE: Mornington Island is located in the Gulf of Carpentaria and recorded an estimated resident population of about 1 120 people at 30 June 2007. The average annual growth rate from 2002 to 2007 was 1.8 percent.

The community is made up of the Lardil, Yungkal and Kaiadilt tribes. The original people of Mornington Island were the Lardil tribe, which formerly occupied the North Wellesley Islands. Yungkal tribal lands include the islands between Mornington and the mainland.

The Kaiadilt tribal group occupied the South Wellesley Islands (ATSIP 2008).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: 1 EPBC listed threatened fauna species is likely and 1 additional listed threatened species may occur on Mornington Island. **CR:** na **EN:** na **VU:** Flatback Turtle is likely to occur on Mornington Island. Brush-tailed Rabbit-rat may occur on the	**THREATENED FLORA:** No EPBC listed, or otherwise listed, threatened flora species are known to occur on Mornington Island. **CR:** na **EN:** na **VU:** na

island. 20 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMA) are likely to occur on Mornington Island: Bar-tailed Godwit, Black-tailed Godwit, Broad-billed Sandpiper, Common Greenshank, Common Sandpiper, Curlew Sandpiper, Eastern Curlew, Great Knot, Greater Sand Plover, Grey Plover, Grey-tailed Tattler, Pacific Golden Plover, Lesser Sand Plover, Marsh Sandpiper, Red Knot, Red-necked Stint, Ruddy Turnstone, Sanderling, Terek Sandpiper and Whimbrel. 7 additional EPBC listed Marine or Migratory species may occur on Mornington Island: Barn Swallow, Fork-tailed Swift, Little Curlew, Oriental Plover, Oriental Pratincole, Rainbow Bee-eater and Rufous Fantail.	
SEABIRD/SHOREBIRD BREEDING SITES: Unknown, but several species of terns and other seabirds are likely to breed or attempt to breed here.	**OTHER NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT: 3 vertebrate pests have been recorded and are believed to be currently present on Mornington Island; two of these are a listed EPBC Key Threatening Process: Cat and Pig. The third vertebrate pest is potentially high impact: Domestic Dog.	**PEST VERTEBRATE IMPACTS:** No specific information, but general predation impacts from cats and dogs, and digging and trampling impacts from pigs could be expected.
OTHER THREATS PRESENT: The environmental stability of the Wellesley Islands in the Southern Gulf of Carpentaria is at risk from nationally significant weeds including rubber vine and calotrope. Through its ***Working on Country*** contract, the Carpentaria Land Council Aboriginal Corporation will employ Indigenous people to fight these weeds through traditional fire burning techniques and contemporary methods. Activities will also include collecting information for GIS mapping systems (DEWHA 2009l).	**OTHER THREAT IMPACTS:** Introduced weeds are strangling native trees and wiping out vast areas of vegetation which in turn affects the habitats of wallabies, Gouldian finches and the nesting sites of marine turtles (DEWHA 2009l).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

Funding Round 2 of the Working on Country Australian Government Initiative (DEWHA 2009l) is supporting a Southern Gulf Fire and Weed project for Wellesley Islands.

Funding Round 3 of the Working on Country Australian Government Initiative (DEWHA 2009l) is supporting implementation of the Thuwathu/Bujimulla Sea Country Plan by the Wellesley Island Indigenous positions.

Off the coast of North Queensland in the Gulf of Carpentaria lies the Thuwathu/Bujimulla sea country

incorporating the Mornington, Wellesley and Bentinck Islands. Over the next five years, rangers will receive ongoing employment and training to provide environmental services.

The Wellesley Island rangers will harvest turtles and dugongs including monitoring and collection of data. On two of the islands they will undertake seagrass sampling and manage bird colonies. In addition to these activities, they will undertake protection of cultural sites and will continue to record traditional knowledge for future generations.

FURTHER PEST ERADICATION REQUIREMENTS:

Consider feral cats and pigs and better control of domestic dogs (see Recommended Actions).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Technically the risks are likely to be manageable, although there may be social issues in relation to Pig eradication and Dog management.	The inter-island distances are sufficiently high to prevent unassisted invasion of most species, but human assisted invasion of invasives such as rodents, Cane Toads and invasive invertebrates are likely to be significant and need to be managed.

RECOMMENDED ACTIONS:

Significantly, the island appears to be rodent-free. Community and other stakeholders should meet to discuss biodiversity and pest issues, potential solutions and a plan for moving forward. A plan could address the following aspects:

- identify cultural objectives and biota management objectives for Mornington Island
- identify existing knowledge held by the local community in relation to status of indigenous biota and pest biota
- where necessary carry out targeted surveys for key pest and indigenous species
- revisit management objectives and feasibility of pest eradications
- also scope biosecurity efficacy and needs for the future, including surveillance and pest-response plans for rodent invasions and other invasions should they occur. This aspect could potentially use ranger models developed elsewhere.

KEY REFERENCES

ATSIP 2008. *Mornington Island: Quarterly report on key indicators in Queensland's discrete Indigenous communities October – December 2008*. Aboriginal and Torres Strait Islander Partnerships (ATSIP), Queensland Government. Available at: www.atsip.qld.gov.au. Accessed on 7 July 2009.

DEWHA 2009l. *Indigenous Communities Working on Country*. Caring for Country, Australian Government funding initiative, Department of the Environment, Water, Heritage and the Arts, Canberra, ACT. Available at: www.environment.gov.au/indigenous/workingoncountry. Accessed on 7 July 2009.

Mount Chappell Island & Badger Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	PRIORITY: Top 100 (lower 50)
ISLAND NAME & GROUP: Mount Chappell and Badger Islands, Chappell Islands. With consideration of Goose Island, Chappell Islands.	**MAP 6**

LATITUDE (Mount Chappell Island):	40° 16' S [Decimal Degrees -40.274°]
LONGITUDE: (Mount Chappell Island):	147° 55' E [Decimal Degrees 147.927°]

ISLAND AREAS	DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):
Mount Chappell Island: 321 ha Badger Island: 1 234 ha	Mount Chappell Island: 50 km to mainland Tasmania, 8.5 km to Flinders Island (TAS) Badger Island: 46 km to mainland Tasmania, 10 km to Cape Barren Island (TAS) 1.5 km between Mount Chappell and Badger Islands
JURISDICTION: Tasmania	**TENURE:** Aboriginal freehold and lease **STATUS:** Aboriginal Land, Aboriginal Land Council of Tasmania

GENERAL GEOGRAPHY: Located in the Bass Strait off the north-eastern tip of Tasmania, Mount Chappell Island and Badger Island (Chappell Islands) form part of the dispersed Furneaux Group of islands (DEWR 2007a).

DEMOGRAPHY & HUMAN USE: Seal colonies on Mount Chappell and Badger islands had been destroyed by 1838. Between 1860 and 1995 the islands had been cleared for pasture and heavily grazed by sheep. Muttonbirds (Short-tailed Shearwater) were also harvested, but the majority of these activities ceased in 1975. Both Mount Chappell and Badger islands were handed back to the Aboriginal community in 1995 by the Tasmanian Government (DEWR 2007a).

Permission is required from the Aboriginal Land Council of Tasmania to access these islands (Tasmanian Sea Canoeing Club 2005).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:	THREATENED FLORA:
2 EPBC listed threatened fauna species may occur on Mount Chappell and/or Badger islands. **CR:** na **EN:** Wedge-tailed Eagle (Tasmanian) and Swift Parrot may occur on Mount Chappell and/or Badger islands. **VU:** na	1 EPBC listed threatened flora species may occur on Mount Chappell and/or Badger islands. **CR:** na **EN:** na **VU:** Grassland Greenhood may occur on Mount Chappell and/or Badger islands.

7 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Mount Chappell and/or Badger Islands. Short-tailed Shearwater – both islands Little Penguin – both islands Fairy Tern – both islands Hooded Plover (eastern) – both islands Cape Barren Goose – Mount Chappell Island White-bellied Sea-Eagle - Mount Chappell Island White-fronted Tern - Mount Chappell Island 2 additional fauna species listed under one or more Australian state/territory legislation are known to occur on Badger Island: Pied Oystercatcher and Sooty Oystercatcher.	
SEABIRD/SHOREBIRD BREEDING SITES: 6 seabirds are known to breed on Mount Chappell and/or Badger islands. Cape Barren Goose – Mount Chappell Island; 154 in 1986. Fairy Tern, Little Penguin, Pied Oystercatcher (2 in 1986), Sooty Oystercatcher (8 in 1986) – Badger Island. Short-tailed Shearwater – both islands; 64 000 in 1986 record on Mount Chappell Island.	**OTHER NATURAL VALUES:** An endemic species of snake, Mount Chappell Island Tiger Snake (*Notechis ater*), is the largest snake in Tasmania (King Island Natural Resource Management Group 2003).
PEST VERTEBRATES PRESENT: 3 vertebrate pests have been recorded and are believed to be present on both Mount Chappell and Badger islands; 2 of these are a listed EPBC Key Threatening Process: Cat and House Mouse. Sheep are also of potentially high impact on both islands. 1additional listed EPBC Key Threatening Process vertebrate pest is present on Chappell Island: Black Rat. 1 additional potentially high impact vertebrate pest is present on Badger Island: European Cattle.	**PEST VERTEBRATE IMPACTS:** No specific information, but general impacts of Black Rat, Cat, European Cattle, House Mouse and Sheep could be expected.
OTHER THREATS PRESENT: African Boxthorn (*Lycium ferocissimum*) a Declared Plant in Tasmania and Queensland, is present on the	**OTHER THREAT IMPACTS:** Unknown.

island (DEWR 2007a).	

PAST & CURRENT PEST MANAGEMENT & MONITORING: No statutory management plans are in place for either Mount Chappell Island or Badger Island (Tasmanian Sea Canoeing Club 2005).

FURTHER PEST ERADICATION REQUIREMENTS: Cats and black rats and to a lesser extent sheep and mice will be impacting on values at the islands and should be removed.

POTENTIAL ERADICATION RISKS:	POTENTIAL BIOSECURITY RISKS:
Unknown, but toxins for rat removal would require careful planning to mitigate risks to parrots, geese, eagles, plovers, etc.	Unknown, but likely to be low given apparently low frequency of visitation. Black rats are present on one island only (Mount Chappell) and currently there is likely to be a significant risk of them swimming the 1.5 km gap to Badger Island, or being introduced there.

RECOMMENDED ACTIONS: Discuss options for management of the islands with the owners and if they are amenable, help them to develop an integrated management plan for the islands. This would include feasibility studies for the eradication of the pests and associated tasks – non-target issues, sustainability, monitoring and biosecurity. Cats and rats are the priority species for removal, but ideally the package should be complete pest removal.

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Nooramunga Offshore Islands (VIC)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Dream) & lower 50 (Snake, Little Snake, Franklin, Sunday, St Margaret & East Scrubby)
ISLAND NAME & GROUP: Islands offshore of the Nooramunga Marine and Coastal Park, Victoria, including: Dream Island, Snake Island (VIC)*, Little Snake, Sunday Island (VIC), St Margaret Island, East Scrubby Island and Dog Island. Franklin Island (VIC) of Corner Inlet Marine and Coastal Park. *note that jurisdiction is in parentheses where there is more than one island known to share the same name in the Priority Islands dataset.	**MAP 5**

LATITUDE (Snake Island): 38° 45' S [Decimal Degrees -38.763°]

LONGITUDE (Snake Island): 146° 33' E [Decimal Degrees 146.554°]

ISLAND AREAS Dream Island: 368 ha Snake Island (VIC): 4 461 ha Little Snake Island: 532 ha Franklin Island (VIC): 260 ha St Margaret Island: 1 889 ha Sunday Island (VIC): 1 192 ha East Scrubby Island: 293 ha Dog Island (VIC): 443 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** Dream Island: 5 km to the mainland, 1 km to St Margaret Island St Margaret Island: 0.01 km to mainland, several narrow channels Sunday Island (VIC): 1.4 km to the mainland, 1.9 km to Snake Island Snake Island (VIC): 0.3 km to Little Snake Island Little Snake Island: 1.1 km to the mainland Franklin Island (VIC): 0.02 km to the mainland, 15 km to Snake Island East Scrubby: 0.5 km from the mainland, 0.5 km from St Margaret Island
JURISDICTION: Victoria	**TENURE** (all): Nature Conservation Reserve **STATUS** (all except Franklin Island): Nooramunga Marine and Coastal Park (Reserve NPMR 1/2), Parks Victoria Franklin Island: Corner Inlet Marine and Coastal Park (MNP 3/2)

GENERAL GEOGRAPHY: The Nooramunga Marine and Coastal Park, adjacent to the Corner Inlet Marine and Coastal Park, is situated 200 km south east of Melbourne. Habitats include mudflats, channels and seagrass meadows. The park is influenced by certain activities within the South Gippsland basin, which is managed by the West Gippsland Catchment Management Authority (Parks Vitoria 2008).

Dream Island is a low lying, sandy, barrier island located on the north-east quadrant of Nooramunga Marine and coastal park. It is separated from 90 Mile Beach to the north east by a small navigable inlet. Sunday Island is a low-lying, sandy, barrier island. It is about 8 km long by 3 km wide and rises to a maximum height of no more than 15 m above mean sea level. The largest

sand island in Victoria, Snake Island, forms the western end of the barrier island chain that protects sheltered mangroves, intertidal mudflats and marine communities from the pounding seas of Bass Strait (Parks Victoria 2009).

Franklin Island is a large marsh island drained by three tidal creek systems and with a central salt marsh. There is a small Melaleuca zone in the north and two remnant stands on the eroding western coast. Large shell banks have accumulated in the intertidal zone on the south-western coast. The largest tidal creek system draining to the south is a relatively complex one with three groups of channels and tributaries. There are several large ponds in the salt marsh zone (DPI 2009).

DEMOGRAPHY & HUMAN USE: There are no permanent land uses or permanent structures on Dream Island. The main use for this island and surrounds is recreational fishing and camping by boat access only. It is likely that the island is also used for scientific purposes, mainly threatened bird and wader monitoring.

The area supports an extensive commercial fishing industry (Parks Victoria 2009).

Since the 1880's, farmers in South Gippsland have regularly agisted their cattle on Snake Island, mainly over the winter months. The cattle swim the narrow channel at low tide to reach the island.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES:

- Exposed temperate coastal scrub land
- Coastal grassland
- Coastal heath
- Coastal scrub
- Saltmarsh
- Exposed Sand spit
- Fringing Mangrove
- Fringing Seagrass communities.

THREATENED FAUNA:

1 EPBC listed threatened fauna species is known to occur, 2 additional listed threatened fauna species are likely, and a further 5 listed threatened species may occur in the Nooramunga Marine and Coastal Park area.

CR: Orange-bellied Parrot is likely to occur on all islands in the area.

EN: Southern Brown Bandicoot is likely to occur on Dream Island.

Spotted-tailed Quoll (SE mainland) may occur on Dream Island.

Swift Parrot may occur on Dog, Dream, East Scrubby, Franklin, Snake and Sunday islands.

Regent Honeyeater and Smoky Mouse may occur on all islands in the area.

VU: Southern Bell Frog is known to occur on Snake Island, is likely on Franklin Island and may occur on Little Snake and St Margaret islands.

Grey-headed Flying-fox may occur on Dog,

THREATENED FLORA:

4 EPBC listed threatened flora are likely to occur on islands in the Nooramunga Marine and Coastal Park area.

CR: na

EN: Maroon Leek-orchid is likely to occur on all islands within the area.

Cream Spider-orchid is likely to occur on Snake, Little Snake and Sunday islands.

VU: Spiral Sun Orchid is likely to occur on Dream, East Scrubby and St Margaret islands.

Thick-lipped Spider-orchid is likely to occur on Franklin, Little Snake, Snake and Sunday islands.

Leafy Greenhood is also likely to occur on the Franklin Island.

Dream, East Scrubby, Franklin, Snake and Sunday islands.

1 EPBC listed Marine species is known to occur on Dream Island:

Fairy Tern.

13 additional listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMA) are likely to occur in the Nooramunga Marine and Coastal Park area:

Bar-tailed Godwit, Common Greenshank, Curlew Sandpiper, Double-banded Plover, Eastern Curlew, Grey Plover, Hooded Plover (eastern), Pacific Golden Plover, Red Knot, Red-necked Stint, Ruddy Turnstone, Satin Flycatcher and White-bellied Sea-Eagle.

Given the location of these islands, we believe that other seabirds, such as Caspian Tern, Crested Tern, White-fronted Tern and gull species are likely to occur here.

3 additional listed Marine or Migratory species may occur in the Nooramunga Marine and Coastal Park area:

Latham's Snipe, Little Tern and White-throated Needletail.

Little Tern is also likely to occur on Franklin Island (VIC).

SEABIRD/SHOREBIRD BREEDING SITES:

Fairy Tern breeds on Dream Island (DSE 2008).

Hooded Plover (eastern) also breed on islands within the area.

OTHER NATURAL VALUES:

- The Corner Inlet/Nooramunga marine embayment is the highest ranked site in Victoria for internationally significant habitat listed under the Ramsar convention.
- Both the Marine National Park sites enclose intertidal flats that form part of the internationally significant feeding areas for migratory waders.
- Important seagrass communities and mangroves may occur in the waters and littoral areas surrounding Dream Island.
- Indigenous cultural heritage sites include middens and Snake Island was a nuptial island used by newly wed couples.

PEST VERTEBRATES PRESENT:

18 vertebrate pests are believed to be currently present on some of the islands within the Nooramunga Marine and Coastal Park, including 7 which are a listed EPBC Threatening Process:

Black Rat - Sunday, St Margaret, East Scrubby and Snake islands.

PEST VERTEBRATE IMPACTS:

No specific information, but general impacts of black and brown rats, cats, house mouse, rabbits, and foxes could be expected. Cats and foxes are likely to be placing severe pressure on nesting Fairy Terns, Hooded Plover (eastern) and other shorebirds. Cats are also likely to be killing Orange-bellied Parrots and Swift Parrots. No specific information but general impacts of

Brown Rat - Little Snake and Snake islands. Cat – Dream island, but has been eradicated from Sunday Island. Goat – Sunday Island. House Mouse – Dream, Little Snake, St Margaret, Snake and Sunday islands. Rabbit – Dog, Dream, Sunday, St Margaret islands, but now absent on Snake Island. Red Fox - Dog, Dream, East Scrubby, Franklin, Little Snake, St Margaret and Sunday islands. 5 additional potentially high impact vertebrate pests are known to be present within the area: Domestic Dog – Sunday Island. Horse – Snake Island. European Cattle – Snake Island, but no longer on Sunday Island. Hog Deer – East Scrubby, Little Snake, St Margaret and Snake islands. Sheep – Sunday Island. In the past Chital was present on Snake Island, and Fallow Deer on Sunday Island, but they are now absent. 6 additional vertebrate pests of medium or low impact are known to be present within the area: Common Blackbird - Little Snake, St Margaret and Snake islands. Common Pheasant - Sunday Island. Common Starling - Dream, Little Snake and Snake islands. European Goldfinch - Dream, Little Snake and Snake islands. House Sparrow – Dog Island. Red Junglefowl – Sunday Island. Wild Turkey are now absent from Sunday Island.	
OTHER THREATS PRESENT: · Marine pollution · Marine pests such as Green Crab, Broccoli Weed & Cord Grass.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific or reserve management plan identified.

FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
There are potentially high non-target risks if toxins and traps are used. Bandicoots, quolls, shorebirds, Orange-bellied Parrot and others are susceptible to these methods.	Potentially high invasion risks of swimming rats given proximity of mainland (Dream Island is only 1.0 km from Margaret Island which is virtually connected to the mainland). There are high risks associated with freight and other goods being transported to the islands, although this may be able to be managed for Dream Island at least and warrants investigation.

RECOMMENDED ACTIONS:

On small islands such as these, eradication of most or all of the key threatening pests (rather than ongoing control) is the logical way forward for securing and restoring populations of threatened biota.

Key recommendations are:

- Stakeholders should build on existing initiatives and Recovery Plans (e.g. Fairy Tern Action Statement, Orange-bellied Parrot Recovery Plan, Swift Parrot Recovery Plan) to develop vision and objectives for the islands and prepare a management plan that identifies key tasks for moving forward.
- This planning may initially require updates on the status and distribution of key threatened species on the island, e.g. Orange-bellied Parrot, Spotted-tailed Quoll, Southern Brown Bandicoot, Grey-headed Flying Fox, Regent Honeyeater, orchids, etc.
- Undertake feasibility studies that the management planning process identifies as necessary. For example evaluate viability of an integrated island management package rather than a single island management approach as per Johnston (2008). Thus Dream Island may offer very significant opportunities for biota recovery if foxes, cats, rabbits and mice were eradicated, but the 1.0 km channel to the nearest rat-infested island is barely adequate protection from pest reinvasion.
- Biosecurity is a key research need. This close proximity of islands in the Nooramunga Group means that management planning must address whether achieving the objectives and maintaining them in the long term is actually feasible, and it needs to identify specific actions needed. Much attention should be given to invasion issues and the mitigating biosecurity measures that would be needed to maintain islands in a pest-free state.

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The Sir Edward Pellew Island Group (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (North, Vanderlin) & lower 50 (Centre, South West, West)
ISLAND NAME & GROUP: North Island, Centre, South West, Vanderlin and West islands, Sir Edward Pellew Group With some consideration of Black Islet (which did not individually qualify in the Top 100)	**MAP 2**

LATITUDE (North Island): 15° 35' S [Decimal Degrees -15.587°]

LONGITUDE (North Island): 136° 52' E [Decimal Degrees 136.868°]

ISLAND AREAS North Island: 5 578 ha Black Islet: 465 ha Centre Island: 8 498 ha South West Island: 9 198 ha Vanderlin Island: 26 432 ha West Island: 12 983 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** North Island: 28 km to the mainland, 3 km to Centre Island Black Islet: 4 km to the mainland, 7 km to Centre Island. Centre Island: 7.8 km to the mainland, 0.7 km to South West Island South West Island: 0.02 km to the mainland, 0.7 km to Centre Island Vanderlin Island: 7 km to the mainland, 7 km to North Island West Island: 4 km to the mainland, 6 km to Centre Island
JURISDICTION: Northern Territory	**TENURE:** The Sir Edward Pellew Island Group is predominantly Aboriginal freehold land held by the Wurralibi Aboriginal Land Trust (NRETAS 2008e). South West Island: vacant Crown land Centre Island: vacant Crown land

GENERAL GEOGRAPHY: Islands within the Sir Edward Pellew Island Group have a wide range of habitats including vine thickets, open forests and woodlands, sandstone heaths, mudflats, mangroves and sand dunes. The terrestrial area of the islands within the site is 66 100 ha and this is dominated by rugged sandstone plateau and hills (21 400 ha) and coastal dunes (18 100 ha) (NRETAS 2008e).

The landscape of Barranyi National Park (North Island) is generally of low relief, with gentle erosional slopes and small depositional plains in some areas. The Park's coastline varies from rocky sandstone cliffs, to mangrove fringes, to sweeping sandy beaches to small sandy coves. Soils are poor and comprised of largely siliceous and calcareous sands, lithosols and some marine sediment (Parks and Wildlife Commission of the Northern Territory 2004, cited in NRETAS 2008e).

The dominant vegetation on Centre, South West, Vanderlin and West islands is heathland or woodland.

DEMOGRAPHY & HUMAN USE: The main land use within the Sir Edward Pellew Island Group is Indigenous. Approximately 8% of the terrestrial area of this site is managed as a conservation reserve (Barranyi National Park; i.e. North Island) which is also used for recreation and commercial fishing. All islands except Vanderlin have never been subject to pastoral activities (NRETAS 2008e).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The Barranyi National Park has diverse flora with the vegetation habitats ranging from sandstone woodlands and heathlands, sand dune and mangrove communities, freshwater wetlands, and coastal vine-thicket communities. There are 92 species of flora and only 3 species of weed recorded for the Park (PWCNT 2004).

THREATENED FAUNA:

6 EPBC listed threatened fauna are known to occur on one or more of the islands within the Sir Edward Pellew Island Group.

CR: na

EN: Leatherback Turtle is known to occur on North, Vanderlin and West islands.

Northern Quoll is known to occur on Vanderlin Island.

VU: Carpentarian Antechinus is known to occur on Centre and North islands and is likely to occur on South West Island.

Green Turtle and Flatback Turtle are known to occur on North, Vanderlin and West islands. Flatback Turtle is also likely to occur on Black Islet, Centre and South West islands.

Brush-tailed Rabbit-rat is known to occur on South West Island and may occur on Centre and West Islands.

8 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) may occur on islands in the Sir Edward Pellew Island Group:

Barn Swallow – Centre, North, South West, Vanderlin and West islands.

Fork-tailed Swift – Centre, South West, Vanderlin and West islands.

Little Curlew – Centre, North, South West, Vanderlin and West islands.

Melville Cicadabird – Centre, North, South West, Vanderlin and West islands.

Oriental Plover - Centre, North, South West, Vanderlin and West islands.

Oriental Pratincole - Centre, North, South West, Vanderlin and West islands.

Rainbow Bee-eater - Centre, South West, Vanderlin and West islands.

Rufous Fantail - Centre, North, South West, Vanderlin and West islands.

4 additional fauna species listed under one

THREATENED FLORA:

No EPBC listed threatened flora species are known to occur on islands within the Sir Edward Pellew Group.

CR: na

EN: na

VU: na

No known additional flora species listed under one or more Australian state/territory legislation.

or more Australian state/territory legislation are known to occur on North, South West or West Islands, and may occur elsewhere within the Sir Edward Pellew Island Group: Ghost Bat – North Island Australian Bustard – South West Island Canefield Rat – South West Island Northern Brush-tail Phascogale – West Island.	
SEABIRD/SHOREBIRD BREEDING SITES: The Sir Edward Pellew Group has several Nationally Important seabird breeding sites (NRETAS 2008). Key seabird species are: Crested Tern - counts of 50 000+ Roseate Tern - counts of 7 500+ (Chatto 2001).	**OTHER NATURAL VALUES:** The Sir Edward Pellew Group is considered to be of International Significance under the Northern Territory Government's Site of Conservation Significance (SOCS) assessment (NRETAS 2008e). Lake Eames on Vanderlin Island is listed as a wetland of National Significance (NRETAS 2008e). It is an internationally important nesting site for Leatherback, Flatback and Green Turtles on beaches of North, Vanderlin and West Islands in the Sir Edward Pellew Group. Records of the Carpentarian Antechinus at sites on North Island and Watson Island in the Sir Edward Pellew Group are the only records of this species in the Northern Territory.
PEST VERTEBRATES PRESENT: 8 vertebrate pests are known to occur on some islands within the Sir Edward Pellew Island Group; 4 of these are a listed EPBC Threatening Process: Cane Toad, Cat, Goat and Pig. The Cane Toad arrived on several of the islands in the Sir Edward Pellew Island Group during floods in 2002 (NRETAS 2008e). Islands with Cane Toads include: Centre Island, North Island, South West Island, Vanderlin Island and West Island. Cane Toads are not present on Black Islet. Goat is present on West Island and Vanderlin Island. European Cattle is present on Vanderlin Island, but died out on Black Islet. Cat, Horse, Donkey and Dog are also believed to be present on Vanderlin island (NRETAS 2008e). Cat is also believed to be present on West Island.	**PEST VERTEBRATE IMPACTS:** Feral Cats and Dogs are likely to be having negative impacts on small mammal populations and marine turtle nesting on some islands. Feral Pigs, Horse, Donkey and Goat also occur on some islands and are causing damage to native vegetation. Cane Toads have been on all the major islands since being carried there in floodwaters in 2002 (NRETAS 2008e).
OTHER THREATS PRESENT: · Weeds have the potential to be	**OTHER THREAT IMPACTS:** Unknown.

introduced by visitors;

- Uncontrolled late dry season fires occur;
- Feral Animals can be introduced by visitors;
- Cyclones (Parks and Wildlife Commission of the Northern Territory 2004).

Sir Edward Pellew Group has one Weed of National Significance (*Parkinsonia aculeata)*, three Category B weeds (*Hyptis suaveolens*, *Tribulus cistoides* and *Tribulus terrestris*), and the invasive exotic buffel grass (*Cenchrus ciliaris)* are recorded from this site (NRETAS 2008e).

North Island: Barranyi National Park is presently relatively free of weeds. Minor infestations of *Hyptis suaveolens* do occur however with continued management these weed infestations may be controlled (PWCNT 2004).

PAST & CURRENT PEST MANAGEMENT & MONITORING:

North Island - The Barranyi (North Island) National Park Draft Plan of Management (PWCNT 2004) includes management outcomes for control of feral animals within the parks, but does not specify any plans of management to deal with the intentional or unintentional introduction of feral animals to the island.

Objectives: To provide an overall framework for the protection of plants, animals and the natural environment within Territory parks, and for the management of species of flora and fauna of particular conservation interest.

Tasks:

- Conduct further flora and fauna surveys in the Park.
- Implement management projects for Fire and Weed Management.
- Establish a Feral Animal Monitoring program to ensure Barranyi National Park is maintained as cat-free.
- Implement a Park Feral Animal Monitoring Program particularly for Cane Toads. Ensure that all non-natural water resources are not accessible to Cane Toads.
- Establish a monitoring program integrated with an assessment of fire management preferences.
- Based on monitoring results implement a favourable fire regime.

Stakeholders: Yanyuwa Aboriginal people, Parks and Wildlife Commission of NT.

Costs: not provided.

Sir Edward Pellew Group: National recovery plans for threatened species: Carpentarian Antechinus (Woinarski 2004); marine turtles (Environment Australia 2003).

FURTHER PEST ERADICATION REQUIREMENTS:

Priority pests are Cats, Cane Toads and Pigs, but status of some pests (especially Pigs) needs clarification on some islands.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Risk of failure with Cane Toad eradication	Invasion potential of pests to some of the currently

(including reinvasion).	pest-free islands and reinvasion after eradication. This could include Cane Toads during floods or with freight and other pests (e.g. rodents and invasive invertebrates) with freight.

RECOMMENDED ACTIONS: Support existing state initiatives to manage the Group, including reviewing progress of the North Island National Park Management Plan and depending on this implement other tasks including:

- With stakeholders agree on priority islands for biodiversity protection, e.g. islands currently toad-free and cat-free (e.g. Black Islet), and develop or revise the management plan to manage and monitor these as pest-free island(s)
- The island prioritisation process may require additional information, e.g. surveys may be needed in order to confirm status of pests and threatened fauna on specific islands, and feasibility studies for achieving pest eradication and biosecurity
- Support research initiatives to eradicate, monitor and manage Cane Toad populations on larger islands
- In the meantime attempt to manage toad populations in key biodiversity areas (diverse habitat, antechinus and other threatened species present) as an interim measure.

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North Stradbroke, Macleay, Russell & Woogoompah islands (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (North Stradbroke, Woogoompah) & lower 50 (Russell & Macleay)
ISLAND NAME & GROUP: North Stradbroke Island, Woogoompah Island, Russell Island and Macleay Island, Moreton Bay Area With some consideration of South Stradbroke Island	**MAP 3**

LATITUDE (North Stradbroke Island): 27° 35' S [Decimal Degrees -27.589°]

LONGITUDE (North Stradbroke Island): 153° 27' E [Decimal Degrees 153.454°]

ISLAND AREAS

North Stradbroke Island: 26 949 ha

Woogoompah Island: 620 ha

Russell Island: 1 702 ha

Macleay Island: 740 ha

DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):

North Stradbroke Island: 3.8 km to mainland (single channel), but only distances of up to about 0.5 km between multiple smaller islands to Woogoompah Island; 0.8 km to South Stradbroke Island when sand spits are exposed.

Woogoompah Island: 0.05 km to the mainland (separated by a series of narrow tidal channels);1.6 km to South Stradbroke Island.

Russell Island: 1 km to the mainland across a single channel, distance reduced by other islands in between; 0.6 km to North Stradbroke Island.

Macleay Island: 3 km to the mainland across a single channel, distance reduced by other islands in between; 3 km to North Stradbroke Island.

JURISDICTION: Queensland

TENURE

North Stradbroke Island: State Land/Reserve/Lands Lease/National Park/UK/Freehold/Housing Commission

Woogoompah Island: National Park

Russell Island: Freehold/UK/Reserve/State Land

Macleay Island: Freehold/UK/Reserve

STATUS

North Stradbroke Island: Vacant Crown land/Other Crown land/Crown leasehold land/Nature conservation reserve/Unknown/Mainly freehold land

Woogoompah Island: Nature conservation reserve within the Moreton Bay Area

Russell Island: Mainly freehold

	land/Unknown/Other Crown land/Vacant Crown land Macleay Island: Mainly freehold land/Unknown/Other Crown land

GENERAL GEOGRAPHY: North Stradbroke Island is located off the coast of south-east Queensland. The island is composed almost entirely of sand deposited behind the rocky outcrop of Point Lookout in the north. The surface of the island is composed of a series of massive vegetated sand dunes rising to 239 m. The sand mass sits on a level of bedrock that is generally 30 metres below sea level (CSIRO 2006).

Woogoompah Island sits near the mainland within the islands of Southern Moreton Bay Islands National Park, approximately 40 km south of Brisbane. These islands lie offshore from Redland Bay south to Coomera on the Gold Coast (EPA 2008a).

DEMOGRAPHY & HUMAN USE: Residents and regular recreational visitors. Several camping grounds with facilities on North and South Stradbroke islands.

Woogoompah and Coomera islands were both used for grazing cattle and pigs in the past. The remains of cattle yards, a water well and cattle-loading ramp are still visible on Woogoompah Island (EPA 2008a).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Specht and Walker (2006) identified a number of Regional Ecosystems (RE; EPA 2004) on North Stradbroke Island**:** RE 12.2.13 (SCLER 185, SCLER 369) RE 12.2.10 (T713), RE 12.2.2, RE 12.2.1 (RF41(165), RE 12.2.3, RE 12.2.7 (T354) RE 12.1.2 (CW5c) RE12.2.15 (Juncus) RE12.2.5 (T710f, C alcolu(b)) RE 12.2.6 (T711) RE12.2.8 (Shill, T 707b) RE 12.1.3(CW5) RE 12.2.9 (T706c). marine meadow, mangrove (RE 12.1.3), fringe mangrove, salt marsh (RE 12.1.2), open water, freshwater marshes (RE 12.2.15), paperbark swamps (RE 12.2.7), graminoid heath (RE12.2.9?), Banksia tree-heath (RE 12.2.9), dune scarp forest (RE 12.2.5), closed forest (including littoral rainforest) (RE 12.2.2), coastal dune complex (RE 12.2.1, 12.2.10, 12.2.9, 12.2.2).

Seven species of mangroves are found in the Moreton Bay Area. Major areas of mangroves are located throughout the Bay and in particular along the Pimpama River, Coomera River, North Arm and the wetlands and waterways of McCoys Creek and Woogoompah Creek (EPA 1999).

THREATENED FAUNA:

5 EPBC listed threatened fauna are known to occur, 4 additional threatened species are likely, and 1 additional species may occur on North Stradbroke Island. 4 additional listed threatened species are likely or may occur on Woogoompah Island.

CR: na

EN: Loggerhead Sea Turtle, Swift Parrot, and Gould's Petrel are known to occur on North Stradbroke Island.

Swift Parrot may also occur on Macleay and Russell islands.

Black-throated Finch (southern subspecies) and Coxen's Fig-Parrot are likely to occur on Woogoompah Island.

Regent Honeyeater is likely to occur on North Stradbroke and may occur on Woogoompah, Macleay and Russell islands.

VU: Water Mouse is known to occur on North

THREATENED FLORA:

8 EPBC listed threatened flora species are known to occur on North Stradbroke Island; 2 of these species are also likely to occur on Woogoompah Island. 2 additional threatened species may occur on North Stradbroke Island.

CR: na

EN: Swamp Daisy and a swamp orchid, *Phaius bernaysii*, are known to occur on North Stradbroke Island.

Lesser Swamp-orchid is known to occur on North Stradbroke and is likely to occur on Woogoompah and Russell islands.

VU: Hairy-joint Grass, Macadamia Nut, Knotweed and Austral Toadflax are known to occur on North Stradbroke Island.

Stinking Cryptocarya is known to occur on North Stradbroke, is likely to occur on Woogoompah and Macleay islands and may occur on Russell Island.

Stradbroke and is likely to occur on Woogoompah, Macleay and Russell islands.

Wallum Sedge Frog is known to occur on North Stradbroke Island, likely to occur on Russell Island and may occur on Woogoompah Island.

Australian Painted Snipe is likely to occur on North Stradbroke and may occur on Woogoompah Island.

Black-breasted Button-quail is likely to occur on North Stradbroke Island.

Grey-headed Flying-fox is likely to occur on all four of the lands.

Long-nosed Potoroo (SE mainland) may occur on all four islands.

Red Goshawk is likely to occur on Woogoompah Island.

Large-eared Pied Bat may occur on the island on Woogoompah Island.

6 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on North Stradbroke Island:

Arctic Tern, Beach Stone-curlew, Long-tailed Jaeger and Red-tailed Tropicbird.

Eastern Curlew is known to known to occur on North Stradbroke and is likely to occur on Woogoompah Island.

Little Tern is known to occur on North Stradbroke and may occur on Woogoompah Island.

8 additional EPBC listed Marine or Migratory species are likely to occur on Woogoompah Island and may occur on North Stradbroke Island:

Bar-tailed Godwit, Curlew Sandpiper, Grey-tailed Tattler, Pacific Golden Plover, Lesser Sand Plover, Ruddy Turnstone, Terek Sandpiper and Whimbrel.

1 additional EPBC listed Marine or Migratory species is likely to occur on North Stradbroke and Macleay islands:

Satin Flycatcher.

1 additional EPBC listed Marine or Migratory species may occur on all four islands:

Latham's Snipe and White-throated Needletail.

3 additional EPBC listed Marine or Migratory species may occur on both of these islands:

Black-faced Monarch, Fork-tailed Swift and Marbled Balogia and Minute Orchid may occur on North Stradbroke Island.

Minute Orchid may also occur on Macleay and Russell islands.

6 additional flora species listed under an Australian state's legislation are known to occur on North Stradbroke Island:

Black Wattle, Dark Greenhood, Durringtonia, *Schoenus scabripes*, Swamp Fern and Wide Bay Boronia.

Rainbow Bee-eater. 3 additional EPBC listed Marine or Migratory species may occur on North Stradbroke Island: Cotton Pygmy-goose, Spectacled Monarch and White-bellied Sea-Eagle. 3 additional EPBC listed Marine or Migratory species may occur on Woogoompah Island: Cattle Egret, Great Egret and Rufous Fantail. 19 additional fauna species listed under an Australian state's legislation are known to occur on North Stradbroke Island: Australian Swiflet, Black-chinned Honeyeater, Black-necked Stork, Bush Stone-curlew, Common Death Adder, Cooloolah Tree Frog, Freycinet's Frog, Glossy Black-Cockatoo, Glossy Black-Cockatoo (eastern), Grey Goshawk, Ground Parrot, Koala, Lewin's Rail, Pale Field Rat, Richmond Birdwing, Short-limbed Snake-skink, Sooty Oystercatcher, Stephen's Banded Snake and Wallum Froglet. Bush Stone-curlew is also known to occur on Macleay and Russell islands.	
SEABIRD/SHOREBIRD BREEDING SITES: North Stradbroke, Macleay and Russell islands are each a stronghold for Bush Stone-curlew (Baltias 2006). North Stradbroke Island is probably an important breeding area for other shorebirds.	**OTHER NATURAL VALUES:** Loggerhead Sea Turtle nesting is known on the island. Aboriginal cultural heritage sites (EPA 1999). North Stradbroke Island has a Conservation Park within the Moreton Bay Ramsar site and includes waterbodies Eighteen Mile Swamp and Blue Lake National Park, Myora Conservation Park (BMT WBM 2007). Woogoompah Island is also a conservation park within the Moreton Bay Area/Southern Moreton Bay Islands National Park.
PEST VERTEBRATES PRESENT: 7 vertebrate pests have been recorded and are believed to be present on North Stradbroke Island; 5 of these are a listed EPBC Key Threatening Process: Black Rat, Cane Toad, Cat, House Mouse and Red Fox. Cane Toad and Cat are also present on Macleay and Russell islands. 2 other vertebrate pests are each potentially high impact on North Stradbroke Island: Common Myna and Domestic Dog. 1 vertebrate pest has been recorded and is	**PEST VERTEBRATE IMPACTS:** No specific information, but general predation impacts from Cats, Foxes and Dogs, and impacts associated with rats, mice, Cane Toads and Common Mynas could be expected on North Stradbroke Island. No specific information but general impacts of Pigs could be expected on Woogoompah Island.

believed to be present on Woogoompah Island and is a listed EPBC Key Threatening Process: Pig.	
OTHER THREATS PRESENT: · Weeds; · Groundwater extraction (BMT WBM 2007).	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific pest management plan was identified. A Pest Management Plan exists for Redland Shire Council area but there are no specifics on North Stradbroke Island. Studies relate to impacts of groundwater extraction due to investigations into augmenting South-east Queensland's water supply (CSIRO 2006).

Conservation measures need to deal with both sides of the bay to ensure sufficient habitat for all shorebirds. Shorebird Management Plans such as one for the Bush Stone-curlew (Baltias 2006) have been developed.

FURTHER PEST ERADICATION REQUIREMENTS: Pigs from Woogoorampah Island. Costs and benefits of different approaches at North Stradbroke Island are currently unclear – see Recommended Actions (below).

POTENTIAL ERADICATION RISKS: Given the large size of North Stradbroke Island and diverse use, there are likely to be significant risks associated with eradication feasibility, side-effects and reinvasions that would need to be fully evaluated.	**POTENTIAL BIOSECURITY RISKS:** Pigs could potentially colonise North Stradbroke Island from Woogoorampah Island. Given the minimum distance to the mainland is 3.8 km and likely to prohibit natural invasions, potential invasion risks on North Stradbroke are associated with human-assisted events which need further evaluation (see Recommended Actions below).

RECOMMENDED ACTIONS: Identify all background information on indigenous species, pests and related information including local or generic plans.

With stakeholders develop a management plan for the island beginning with vision and objectives.

Management plan should identify different sub-plans or studies that are needed to address each objective, e.g.

- Species-specific recovery feasibility and options and monitoring programs
- Link with the recommendations of specific recovery plans, e.g. for Wallum Sedge Frog and turtles
- Feasibility studies of managing pests to achieve desired outcomes for key threatened species, e.g. local control around hot-spots (frog habitat, seabird, colonies, turtle beaches, wetlands, etc) versus more widespread control and eradications
- Consider eradicating pigs from Woogoorampah Island
- Community and visitor aspects – impacts of people, their awareness and the role of the community in managing biota, surveillance, etc
- Biosecurity needs – biosecurity risks, existing biosecurity efficacy, biosecurity needs, response plans to invasions, etc.

KEY REFERENCES:

Baltias, S. 2006. A management plan to help protect the Bush curlew (*Burhinus grallarius*) in the

Redland Shire, south-east Queensland. Bayside Branch, Wildlife Queensland, Capalaba, Queensland.

BMT WBM 2007. North Stradbroke Island Proposed Borefield and Pipeline Initial Advice Statement. Report prepared by BMT WBM Pty Ltd for Southern Regional Water Pipeline Company Pty Ltd, June 2007. Available at: www.dip.qld.gov.au.

CSIRO 2006. Rapid Ecological Risk Assessment of North Stradbroke Island Groundwater Dependant Vegetation from Remote Sensing. Report prepared for the Dept of Natural Resources Mines and Water

EPA 1999. Moreton Bay Queensland Information Sheet on Ramsar Wetlands. Prepared by Environmental Protection Agency, State of Queensland Government, July 1999. Available at: www.wetlands.org. Accessed 28 May 2009.

EPA 2004. Regional Ecosystems. Environmental Protection Agency, State of Queensland Government Available at: www.epa.qld.gov.au.

EPA 2008a. Southern Moreton Bay National Park, Prepared by the Environmental Protection Agency, Government of Queensland, 2008. Available at: www.epa.qld.gov.au. Accessed 15 June 2009.

QPWS 2007. South East Queensland Biogeographic Region. Moreton Island National Park, Cape Moreton Conservation Park and Moreton Island Recreation Area Management Plan, April 2007. Environmental Protection Agency, Government of Queensland. Available at: www.epa.qld.gov.au. Accessed 28 May 2009.

Specht, A. and Walker, L. 2006. Groundwater Dependent Ecosystem Asset Inventory for North Stradbroke Island. Centre for Coastal Management, Southern Cross University. Available at: www.dip.qld.gov.au. Accessed 9 June 2009.

Nuyts Archipelago (SA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (St Peter, Franklin Islands) & lower 50 (Goat)
ISLAND NAME & GROUP: St Peter Island, Franklin Islands and Goat Island, Nuyts Archipelago. With some consideration of other islands within the Nuyts Archipelago. St Francis Islands lies within a south-westerly group, Isles of St Francis, within the Nuyts Archipelago, and is considered in a separate island profile.	**MAP 7**
LATITUDE (St Peter Island):	32° 17' S [Decimal Degrees -32.286°]
LONGITUDE (St Peter Island):	133° 34' E [Decimal Degrees 133.578°]
ISLAND AREAS St Peter Island: 3 807 ha Franklin Islands: 233 ha Goat Island: 326 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** St Peter Island: 3.5 km to the mainland is reduced to about 1.3 km when an extensive sand spit is fully exposed at low tide. Franklin Islands: 15.8 km to the mainland. 15.5 km between St Peter and Franklin Islands. Goat Island: 11 km across open water to the mainland. 1.8 km between St Peter and Goat islands.
JURISDICTION: South Australia	**TENURE:** Nature Conservation Reserve - centroid **STATUS:** Nuyts Archipelago Conservation Park

GENERAL GEOGRAPHY: Nuyts Archipelago comprises 19 main islands and their associated rocks and reefs. These islands span from the Purdie Islands in the west to Olive Island just off Cape Bauer in the east. The Nuyts Archipelago Conservation Park is made up of six island groups – Purdie Islands, Lounds Island, Franklin Islands, St Peter Island, Goat Island and Eyre Island.

St Peter Island lies in relatively shallow water. The supporting granite base of the island is visible along the southern face, but is covered on the rest of the island by a thick bed of calcarenite. Additional island habitats include sand dunes created from wind swept sandy beaches and mangrove swamps created from the deposit of fine silts. The island's vegetation is less affected by the sea and resembles the mainland vegetation.

The Franklin Islands are calcarenite-capped plateaus, dropping steeply to granite platforms along the coastlines. These islands are joined by a ribbon of white sand that dries at low tide. The Franklin Islands were at one stage incorporated into the pastoral lease of St Francis Island (see separate island profile), and were used as bonus grazing land for sheep during good seasons.

Goat Island lies to the south-west of St Peter Island and is typically calcarenite on a granite base. A submerged reef between Goat and St Peter islands remains an indication of a prehistoric link between these two islands (DEH 2006).

DEMOGRAPHY & HUMAN USE: Historically, these islands in the Nuyts Archipelago have attracted minimal tourism and few visit the parks at present. Local people from the Ceduna area are known

to visit St Peter and Goat islands, although they tend to cause minimal impact. Some illegal visits are known to be made to the Franklin Islands, which are a Prohibited Area.

Due to its size and accessibility, St Peter Island was used for agriculture from 1859 until its addition to the Nuyts Archipelago Conservation Park in 1988. Native vegetation was cleared by early pastoralists on St Peter Island to allow for livestock grazing. Now that the island is released from grazing pressure, native vegetation is slowly reclaiming the introduced grasslands. The homestead on St Peter Island was originally built in the late 19th century for use by pastoralists and has more recently been upgraded to provide accommodation for DEH staff and tourist groups.

Abalone sites are situated between Goat and St Peter Islands (DEH 2006).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: St Peter island has Grey Mangrove (*Avicennia marina*) woodland (DEH 2006).

THREATENED FAUNA:

4 EPBC listed threatened fauna species are known to occur on one or more of these islands within the Nuyts Archipelago; 1 additional species is likely and another 1 additional species may occur on St Peter Island.

CR: na

EN: na

VU: Australian Sea-lion and Nuyts Island Bandicoot are known to occur on the Franklin Islands.

Painted Button-quail (Houtman Abrolhos) is known to occur on the Franklin Islands and on St Peter Island.

Greater Stick-nest Rat/Wopilkara naturally occurs on the Franklin Islands and has been re-introduced to St Peter Island.

Slender-billed Thornbill (western) is likely to occur on St Peter Island.

Plains-wanderer may occur on St Peter Island.

38 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on one or more of these islands within the Nuyts Archipelago:

Little Penguin, Rock Parrot, Short-tailed Shearwater and White-bellied Sea-Eagle are known to occur on all three islands.

Black-faced Cormorant, Cape Barren Goose, Caspian Tern, Common Greenshank, Crested Tern, Eastern Osprey, Fairy Tern, Hooded Plover (eastern), Pacific Gull, Red-capped Plover, Red-necked Stint, Ruddy Turnstone, Sanderling, Sharp-tailed Sandpiper, Stubble Quail and Swamp Harrier are known to occur on both St Peter Island and the Franklin Islands.

Hooded Plover (eastern) may also occur on

THREATENED FLORA:

No known EPBC listed, or otherwise listed, threatened flora species on these islands within Nuyts Archipelago.

CR: na

EN: na

VU: na

Goat Island. Richard's Pipit is known to occur on St Peter and Goat islands. Bar-tailed Godwit, Curlew Sandpiper, Eastern Curlew, Great Egret, Great Knot, Grey Plover, Horsfield's Bronze-Cuckoo, Little Raven, Pectoral Sandpiper, Red Knot, Spotted Nightjar and Whimbrel are known to occur on St Peter Island. Australasian Gannet, Common Sandpiper, Double-banded Plover, Fork-tailed Swift and White-faced Storm-petrel are known to occur on the Franklin Islands. 2 additional EPBC listed Marine or Migratory species may occur on St Peter Island: Oriental Plover and White-throated Needletail. 6 additional species listed as threatened under South Australian legislation are known to occur are known to occur on one or more of these islands within the Nuyts Archipelago: Long-legged Slider and Sooty Oystercatcher are known to occur on all three islands. Brush-tailed Bettong has been re-introduced, and is known to occur on St Peter Island. Pied Oystercatcher is also known to occur on St Peter island Red-tailed Worm-lizard and Saltbush Morethia Skink are known to occur on the Franklin Islands.	
SEABIRD/SHOREBIRD BREEDING SITES: 4 seabirds are known to breed on one or more of these islands within Nuyts Archipelago: Caspian Tern – breeding is known to occur on St Peter Island. Little Penguin - e.g. 1 000 in 1986 on the Franklin Islands, and breeding is known to occur on St Peter Island. Pacific Gull - e.g. 8 in 1985 on the Franklin Islands. Short-tailed Shearwater – e.g. 102 080 in 1982 on the Franklin Islands, and breeding is known to occur on St Peter Island.	**OTHER NATURAL VALUES:** Nuyts Archipelago Conservation Park was constituted by statute in 1972 to conserve rare and endangered wildlife populations. St Peter Island (sections 931 and 932) was included in the Conservation Park in 1988. Brush-tailed Bettong and Greater Stick-nest Rat have been successfully re-introduced to St Peter Island. Australian Sea-lion breeds on the Franklin islands. There are refugial populations of Greater Stick-nest Rat and Southern Brown Bandicoot on the Franklin Islands. These have been the subject of active management to protect these species' against extinction. The Franklin Islands have been declared a Prohibited Area for the protection of the Greater Stick-nest Rats (DEH 2006).
PEST VERTEBRATES PRESENT: 7 vertebrate pest species have been recorded on St Peter Island; 4 of these	**PEST VERTEBRATE IMPACTS:** No specific information, but past grazing and trampling by sheep would have degraded land on St Peter Island and the

species are believed to be currently present on St Peter Island, 1 of which is a listed EPBC Key Threatening Process: House Mouse. Common Starling is of potentially medium impact, Rock Dove and Skylark of low impact, on St Peter Island. Skeletal remains of Gould's Goanna and Tammar Wallaby, which are believed to have been native translocations, have been recorded on St Peter Island. Sheep are no longer grazed on St Peter Island. Greater Stick-nest Rat is a native translocation/re-introduction to St Peter island. 1 vertebrate pest species is believed to be currently present on the Franklin Islands: Common Starling. Sheep are no longer grazed on the Franklin Islands. No vertebrate pests are believed to be currently present on Goat island: Goats were eradicated/went extinct on this island.	Franklin Islands. Goats would have had a similar detrimental impact on Goat Island. General impacts of House Mouse could be expected.
OTHER THREATS PRESENT: Two invasive weeds are known. African Boxthorn occurs on St Peter Island and Common Ice Plant occurs on the Franklin Islands.	**OTHER THREAT IMPACTS:** Ecosystem degradation.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plans were identified, but these islands are included in the **Island Parks of Western Eyre Peninsula Management Plan 2006 (DEH 2006)**.

On St Peter Island, the Friends of St Peter Island, Greencorps and Australian Conservation Trust volunteers have undertaken extensive control of African Boxthorn using the cut and swab method and by spraying. This is an ongoing program and will take many years and much volunteer and staff effort to bring under control.

No active management of native vegetation reestablishment is considered necessary, but monitoring of native vegetation should be encouraged.

FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).

POTENTIAL ERADICATION RISKS: Standard approaches for the removal of House Mouse would potentially place many groups of indigenous species at risk including small mammals, parrots and plovers, and would need to be evaluated.	**POTENTIAL BIOSECURITY RISKS:** St Peter Island is 1.3 km from the mainland which is within swimming range for some mammalian pests, therefore surveillance is needed in order to detect any invasive species early in their colonization period. There is an increasing threat of the introduction of soil borne pathogens such as *Phytophthora cinnamomi* into parks (DEH 2006).

RECOMMENDED ACTIONS:

Except for House Mouse, mammalian pests have been removed and there is a clear need to ensure that the islands have a tight biosecurity system. This should include:

- Risk assessments for pests that could arrive at the island group either unassisted or by being transported to the islands.
- Implement and maintain strict biosecurity at mainland departure points and island arrival points and test and revise biosecurity plans regularly.
- Implement surveillance for key pests that could invade from the mainland.
- Prepare contingency response plans for the most likely pest invasions that could occur, e.g. rodents.
- Assess potential impacts of Common Starling on indigenous fauna.
- Review status of Greater Stick-nest Rat
- Carry out feasibility study for the removal of House Mouse.

Other forms of pest recommendations in the Management Plan (DEH 2006) should be followed e.g. in the control of African Boxthorn and other pest plants.

KEY REFERENCES

DEH 2006. Island Parks of Western Eyre Peninsula Management Plan 2006. Government of South Australia, Department for Environment and Heritage. Available at: www.environment.sa.gov.au. Accessed 28 May 2009.

Outer Sister Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Outer Sister Island	**MAP 6**

LATITUDE: 39° 39' S [Decimal Degrees -39.654°]

LONGITUDE: 147° 59' E [Decimal Degrees 147.992°]

AREA: 532 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 6 km to Flinders Island in the Bass Strait; distance approximately halved by 'stepping stone' island 55 km to Deal/Erith islands (see separate islands profile) 41 km to Babel/Great Dog islands (see separate islands profile)
JURISDICTION: Tasmania	**TENURE:** Crown Leasehold **STATUS:** Muttonbird Reserve, Crown Lease

GENERAL GEOGRAPHY: Outer Sister Island is a granite and dolerite island in south-eastern Australia. It is part of Tasmania's Sister Islands Conservation Area, lying in eastern Bass Strait off the northern point of Flinders Island in the Furneaux Group (Brothers et al. 2001).

DEMOGRAPHY & HUMAN USE: The island is grazed by sheep and annual muttonbirding takes place (Brothers et al. 2001).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: 1 EPBC listed threatened fauna species is known to occur on Outer Sister Island. **CR:** na **EN:** Wedge-tailed Eagle (Tasmanian) is known to occur on Outer Sister Island. **VU:** na 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Outer Sister Island: Little Penguin, Pacific Gull, Short-tailed Shearwater and Silver Gull. 4 additional EPBC listed Marine or Migratory species are likely to occur on Outer Sister Island: Curlew Sandpiper, Hooded Plover (eastern), Sanderling and White-bellied Sea-Eagle.	**THREATENED FLORA:** No EPBC listed, or otherwise listed, threatened flora species are known to occur on Outer Sister Island. **CR:** na **EN:** na **VU:** na

2 additional EPBC listed Marine or Migratory species may occur on Outer Sister Island: Latham's Snipe and White-throated Needletail. 1 additional species listed under an Australian state/territory legislation is known to occur on Outer Sister Island: Sooty Oystercatcher.	
SEABIRD/SHOREBIRD BREEDING SITES: 5 seabirds are known to breed on Outer Sister Island: Little Penguin – 2 350 in 1986. Pacific Gull – 1 in 1986. Short-tailed Shearwater – breeding recorded in 1986. Silver Gull – 25 in 1986. Sooty Oystercatcher – 6 in 1986.	**OTHER NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT: 3 vertebrate pests have been recorded and are believed to be currently present on Outer Sister Island; 2 of these are a listed EPBC Key Threatening Process: Cat and House Mouse. Sheep are also of potentially high impact on the island.	**PEST VERTEBRATE IMPACTS:** No specific information but general predation impacts of Cat, trampling and grazing impacts of Sheep, and general impacts of House Mouse could be expected.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: Cat, House Mouse and potentially Sheep.	
POTENTIAL ERADICATION RISKS: Some risks to non-targets associated with using standard methods, e.g. poisoning and trapping, but approaches would need to be evaluated and adapted. Some damage to seabird burrows is expected and would need to be mitigated.	**POTENTIAL BIOSECURITY RISKS:** Isolated island. Some risks associated with visitation for muttonbirding would need to be addressed.

RECOMMENDED ACTIONS:

The island has the potential to provide important breeding grounds for seabirds, including species currently present and potential colonizers. However, information needs to be updated in order to develop a management approach. Key needs are:

- Update existing information on fauna and pests on the island, possibly requiring targeted survey to assist with feasibility studies

- Review status of grazing lease from crown
- With stakeholders (farmers, mutton-birders and others) develop objectives and a management plan for the island and assess feasibility of eradications, and
- Review existing biosecurity and adapt procedures accordingly.

KEY REFERENCES

Brothers, N., Pemberton, D., Pryor, H., and Halley, V. 2001, *Tasmania's Offshore Islands: seabirds and other natural features*, Tasmanian Museum and Art Gallery, Hobart, Tasmania.

Peron Islands (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Peron Island North and South, Anson Bay Area	**MAP 2**

LATITUDE:	13° 10' S [Decimal Degrees -13.182°]
LONGITUDE:	130° 02' E [Decimal Degrees 130.045°]

ISLAND AREAS: Peron Island North: 1 917 ha Peron Island South: 538 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** North Peron Island: 4.8 km to the mainland South Peron Island: 3.4 km to the mainland 2.7 km between North and South Peron islands
JURISDICTION: Northern Territory	**TENURE:** State Land/UK/Lands Lease/Reserve **STATUS:** Vacant Crown land/Unknown/Crown leasehold land/Other Crown land

GENERAL GEOGRAPHY: Peron Island North and South lie to the north of the Anson Bay Area, near Channel Point. The Anson Bay Area is characterised by diverse coastal landscapes, encompassing the tidal flats and adjacent coastal floodplains (NRETAS 2008f).

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: 1 EPBC listed threatened fauna species is known to occur and 1 additional threatened species is likely to occur on the Peron Islands. **CR:** na **EN:** na **VU:** Flatback Turtle is known to occur on the Peron Islands. Water Mouse is likely to occur on these islands. 4 EPBC listed Marine or Migratory (Bonn, CAMBA, JAMBA and/or ROKAMBA) species are known to occur on the Peron Islands: Australian Pelican, Black-tailed Godwit, Great Knot and White-winged Tern. 10 additional listed Marine or Migratory species are likely to occur on these islands. Bar-tailed Godwit, Common Sandpiper, Greater Sand Plover, Grey Plover, Lesser	**THREATENED FLORA:** No known EPBC listed, or otherwise listed, threatened flora species are known to occur on the Peron Islands.

Sand Plover, Ruddy Turnstone, Sanderling, Saltwater Crocodile, Whimbrel and White-bellied Sea-Eagle.

1 additional fauna species listed under one or more Australian state/territory legislation is present on North Peron Island:

Yellow-spotted Monitor.

SEABIRD/SHOREBIRD BREEDING SITES:

2 seabirds are known to breed on or in the vicinity of the Person Islands:

Australian Pelican – 2 500 in May 1995 (Chatto 2006).

White-winged Tern – 15 000 roosting on North Peron Island (Chatto 2006) represent the largest record of this species in the Northern Territory.

2 shorebirds are known to breed on or in the vicinity of the Person Islands:

Black-tailed Godwit – 1 600 on or in vicinity of Peron Islands (>1% East Asian-Australasian Flyway population).

Great Knot – 5 000 on or in vicinity of Peron Islands (> 1% world population).

OTHER NATURAL VALUES:

Large numbers of shorebirds are supported by the tidal flats around North Peron Island and Anson Bay. The area is Internationally Significant for Black-tailed Godwit and Great Knot.

The only regular colony of Australian Pelicans in coastal areas of the Northern Territory is on North Peron Island.

There is a Nationally Significant turtle nesting site on North Peron Island; this site is particularly significant for Flatback Turtle.

The Anson Bay Area is considered to be of International Significance by the Northern Territory Government following their Sites of Conservation Significance (SOCS) assessment (NRETAS 2008f).

PEST VERTEBRATES PRESENT:

Pig is present on Peron Island South, but not on Peron Island North.

PEST VERTEBRATE IMPACTS:

No specific information but general impacts of feral pigs could be expected.

OTHER THREATS PRESENT:

Weeds, including ten category A and B weeds; three of National Significance:

- *Hymenachne amplexicaulis*, *Mimosa pigra* and *Salvinia molesta*.
- two additional undeclared but problematic environmental weeds (high priority weeds: Smith 2001, cited in NRETAS 2008f).

Para grass (*Brachiaria mutica)*, planted by pastoralists to support grazing cattle, is extensive. *Mimosa pigra* is also widespread.

OTHER THREAT IMPACTS: Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: Pigs and potentially other pests (see Recommended Actions, below).

POTENTIAL ERADICATION RISKS:

Unknown, probably low risks.

POTENTIAL BIOSECURITY RISKS:

Unassisted invasion is unlikely given the swimming distances are over 3 km, but overall biosecurity risks remain unknown due to lack of data on human

	activities and visitations.

RECOMMENDED ACTIONS:

Confirm status of pests on the two islands, undertaking surveys as required.

Confirm status of indigenous fauna species on the two islands, undertaking surveys as required.

With stakeholders agree on vision and objectives for biodiversity management and assess feasibility of management actions and likely effectiveness of biosecurity.

Assist local stakeholders/community with ongoing biosecurity, surveillance and biota monitoring.

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Phillip Island (VIC)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Phillip Island	**MAP 5**

LATITUDE:	38° 28' S [Decimal Degrees -38.473°]
LONGITUDE:	145° 13' E [Decimal Degrees 145.228°]

AREA: 10 129 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.4 km to the mainland, connected by a road bridge (i.e. essentially 0 km for pest invasion considerations)
JURISDICTION: Victoria	**TENURE:** Freehold/Nature Conservation Reserve **STATUS:** Freehold & Crown land managed by Phillip Island Nature Park

GENERAL GEOGRAPHY: French, Phillip and Churchill Islands are formations of the Western Port region basalt plateau which was laid down during tectonic movement in the Eocene. The region is characterised by broad valleys, cut by the many rivers that cross the region and some cliff formations. Spits and salt marsh with fringing mangroves, extensive mudflats with sparse seagrass cover, sandy and rocky beaches also define the geography of the Western Port region. Vast mudflats interspersed by creeks, which drain into a network of deeper channels, are exposed during low tide (Parks Victoria 2007).

DEMOGRAPHY & HUMAN USE: The resident population of Phillip Island is approximately 8 000. Numbers swell to approximately 50 000 people during holiday periods. An estimated 3.51 million tourists visit Phillip Island annually (Phillip Island Nature Parks 2006).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Approximately 75% of Phillip Island is farmed and 15% is urbanised. This land has been extensively cleared. The remaining 10% of land consists of sensitive ecosystems which provide significant wildlife habitat. These areas include recently revegetated areas, dune systems, mangroves, saltmarsh wetlands and woodlands (Phillip Island Nature Parks 2006).

Fringing mangroves and saltmarsh communities dominate the 11 km coastline of the Churchill Island Marine National Park (Parks Victoria 2007).

THREATENED FAUNA: 5 EPBC listed threatened fauna species are known to occur on Phillip Island. 7 additional threatened species may also occur on the island. **CR:** Orange-bellied Parrot is known to occur on Phillip Island. **EN:** Swift Parrot is known to occur on Phillip Island. Yellow-tufted Honeyeater is known to occur within the Western Port Ramsar site and may occur on Phillip Island.	**THREATENED FLORA:** 1 EPBC listed threatened flora species is likely to occur on Phillip Island. **CR:** na **EN:** na **VU:** Leafy Greenhood is likely to occur on Phillip Island. 9 additional flora species listed under one or more Australian state/territory legislation are known to occur within the Western Port Ramsar Site and may also occur on Phillip Island:

Regent Honeyeater and Smoky Mouse may also occur on the island.

VU: Fairy Prion (southern), Grey-headed Flying-fox and Southern Bell Frog are known to occur on Phillip Island.

Nuyts Island Bandicoot and Southern Elephant Seal are known to occur within the Western Port Ramsar site and may occur on Phillip Island.

Australian Painted Snipe and Long-nosed Potoroo (SE mainland) may also occur on the island.

69 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Phillip Island:

Afro-Australian Fur Seal, Australasian Gannet, Australian Pelican, Australian White Ibis, Bar-tailed Godwit, Black-faced Cuckoo-shrike, Black-faced Cormorant, Black-fronted Dotterel, Black-tailed Godwit, Blue-winged Parrot, Cape Barren Goose, Caspian Tern, Cattle Egret, Common Sandpiper, Crested Tern, Curlew Sandpiper, Double-banded Plover, Eastern Osprey, Eastern Reef Egret, Erect-crested Penguin, Fairy Tern, Fan-tailed Cuckoo, Flame Robin, Fork-tailed Swift, Glossy Ibis, Great Egret, Great Knot, Great Skua, Great-winged Petrel, Grey Plover, Grey-tailed Tattler, Hooded Plover (eastern), Horsfields Bronze-cuckoo, Kelp Gull, Latham's Snipe, Pacific Golden Plover, Little Egret, Little Penguin, Little Raven, Little Tern, Magpie Goose, Nankeen Kestrel, Pacific Gull, Pallid Cuckoo, Pink Robin, Pomarine Jaeger/Skua, Red Knot, Red-capped Plover, Red-necked Stint, Richard's Pipit, Ruddy Turnstone, Rufous Fantail, Sacred Kingfisher, Satin Flycatcher, Sharp-tailed Sandpiper, Shining Bronze-cuckoo, Short-tailed Shearwater, Silver Gull, Silvereye, Southern Boobook, Straw-necked Ibis, Swamp Harrier, Whimbrel, Whistling Kite, White-bellied Cuckoo-shrike, White-bellied Sea-Eagle, White-throated Needletail and Wood Sandpiper.

16 additional EPBC listed Marine or Migratory species are known to occur within the Western Port Ramsar site and may occur on Phillip Island:

Arctic Jaeger, Broad-billed Sandpiper, Common Diving-Petrel, Common Tern, Gull-billed Tern, Musk Duck, Oriental Pratincole, Oriental Plover, Pectoral Sandpiper, Ruff (Reeve), Sanderling, Rufous/Nankeen Night Heron, Whiskered Tern, White-faced Storm-Petrel, White-fronted Tern and White-winged

Coast Wirilda, Creeping Rush, Marsh Saltbush, Marsh Sun-orchid, Salt Lawrencia, Sea-lavender, Spotted Gum, Tiny Arrowgrass and White Mangrove.

Tern.

8 additional EPBC listed Marine or Migratory species may also occur on Phillip Island:

Common Greenshank, Eastern Curlew, Greater Sand Plover, Intermediate Egret, Lesser Sand Plover, Marsh Sandpiper, Rainbow Bee-eater and Terek Sandpiper.

6 additional fauna species listed under one or more Australian state/territory legislation are known to occur on Phillip Island:

Australasian Bittern, Blue-billed Duck, Bush Stone-curlew, Eastern Bent-winged Bat, Koala and Pied Oystercatcher.

22 additional fauna species listed under one or more Australian state/territory legislation may occur on the island:

Australasian Shoveler, Baillon's Crake, Barking Owl, Black-chinned Honeyeater, Brown Quail, Chestnut-rumped Heathwren, Freckled Duck, Grey Goshawk, Grey-crowned Babbler, King Quail, Lace Monitor, Lewin's Rail, New Holland Mouse, Pied Cormorant, Powerful Owl, Royal Spoonbill, Sooty Oystercatcher, Spotted Quail-thrush, Swampland Cool-skink, Swamp Antechinus, Swamp Skink and White-footed Dunnart.

SEABIRD/SHOREBIRD BREEDING:

6 seabirds are known to breed on Phillip Island:

Crested Tern, Silver Gull, Kelp Gull and Pacific Gull.

Significant breeding populations of Short-tailed Shearwater (1 million annually) and Little Penguin (26 000 annually) are found on Phillip Island.

A shorebird, Hooded Plover (eastern), is also known to breed on Phillip island.

OTHER NATURAL VALUES:

- Phillip Island is part of UNESCO's The Mornington Peninsula and Western Port Biosphere (www.biosphere.org.au).
- Although Phillip Island is not part of Western Port Ramsar site, it is within close proximity of this Ramsar site which includes Churchill Island (joined to Phillip Island by a bridge).
- 20 – 25 000 Afro-Australian Fur Seal, the world's second largest population of this species, breed annually on Phillip Island.
- Small protected population of Koala.

PEST VERTEBRATES PRESENT:

30 vertebrate pests, including native translocations, have been recorded and are believed to be currently present on Phillip Island.

7 of these species are a listed EPBC Key Threatening Process:

Black Rat, Brown Rat, Cat, House Mouse, Pig, Rabbit and Red Fox.

Pig is now domestic only, feral pigs were established but eradicated during the 1840-

PEST VERTEBRATE IMPACTS:

Red Fox is a major issue, with predation of Little Penguin and other species. A five-year fox eradication program is underway.

European Cattle, Horse, Pig and Sheep, are currently present only as domestic animals on Phillip Island, and are not permitted within the island's Nature Reserve (Phillip Island Nature Parks 2006). Feral pigs were present in the past but have been eradicated.

Cattle cause damage to saltmarsh and mangrove vegetation, churn-up mud flats and disturb

50's (R. Jessop, Pers. Comm.).

Horse, a species of Major Concern if unmanaged, is also present.

7 additional potentially high impact vertebrate pests include:

Alpaca, Common Myna, Domestic Dog, Domestic Ferret, European Cattle, Llama, and Sheep.

The remaining 14 potentially medium or low impact vertebrate pest species are:

Brown Hare, Common Blackbird, Common Starling, Domestic Goose, Eurasian Tree Sparrow, European Greenfinch, European Goldfinch, House Sparrow, Indian Peafowl, Mallard, Red Junglefowl, Rock Dove, Skylark and Spotted Turtle-Dove.

Red Deer were introduced but did not establish in the 1840-50's (R. Jessop, Pers. Comm.).

Fallow Deer were also introduced but eradicated during the 1930-40's (R. Jessop, Pers. Comm.).

The House Crow did not establish on Phillip Island (R. Jessop, Pers. Comm.).

Common Long-necked Tortoise is a native translocation.

feeding migratory and resident wading birds (Parks Victoria 2007).

Stray Domestic Dogs are a problem.

House Crow was not allowed to establish on the island.

Feral Cat and Rabbit are an issue on Phillip Island but have been eradicated from neighbouring Churchill Island (which is connected by a land bridge).

Domestic Ferrets are present on Churchill island and are therefore assumed to have arrived on Phillip Island as the two islands are connected by a land bridge.

OTHER THREATS PRESENT:

- Honey Bee is present on Phillip Island and its hives take bird nesting habitat.
- Yaringa, French and Churchill Island Marine National Parks are heavily impacted by activities within the Western Port Catchment of the Port Phillip and Western Port Catchment Region which is highly modified. Land use is dominated by agriculture including dairying, grazing and horticulture (343 000 ha).
- Industrial and urban uses are also present and significant impacts are imposed by tourism and recreation. The catchment is drained by 12 major rivers and creeks.
- Invasive weeds, such as kikuyu grass, bridal creeper and *Phalaris* occur throughout the Nature Park.
- Illegal trail bike riding occurs in the Phillip Island Nature Park, east of Swan Corner, and in the intertidal area of the park.
- Stock grazing occurs in freehold areas adjacent to the Phillip Island Nature Park

OTHER THREAT IMPACTS:

- Heavy visitation for tourism and other activities.
- Arboreal bird nesting habitat disturbed by bees.
- Degradation within the Nature Park impacts on Environmental Values of the Park.
- Threatening processes associated with catchment-derived activities.
- In addition to cattle, trail bikes cause damage to saltmarsh and mangrove vegetation, churn-up mud flats and disturb feeding migratory and resident wading birds (Parks Victoria 2007).

(Parks Victoria 2007).

PAST & CURRENT PEST MANAGEMENT & MONITORING

Strategy for the eradication of foxes from Phillip Island 2004 (McPhee and Bloomfield 2004):

The broad plan objective is to implement a program to eradicate foxes from Phillip Island and prevent immigration to reduce the current detrimental levels of predation by foxes. This plan was adopted for the Phillip Island Nature Park, and a five-year fox eradication program currently underway. This supersedes previous fox control methods on the island which, although successful in reducing the fox population and maintaining it at low levels, did not result in a marked decline in penguin deaths in the previous 20 years.

Costs. At the time it was proposed, the fox eradication program was estimated to cost $730 540 over five years with an indefinite ongoing cost of around $20 000 to $30 000 per year.

Key stakeholders. Phillip Island Nature Park has good working relationships with the Phillip Island Landcare group, local farmers and the state conservation agencies.

In the Fox Eradication Plan, McPhee and Bloomfield (2004) recommend:

- appointing dedicated staff for implementing broad-scale baiting
- purchase of scent-tracking dogs
- a public awareness campaign to promote the "Fox Free" Phillip Island concept
- a program to control foxes in urban areas
- an effective monitoring and evaluation program
- a process to maintain and foster partnerships
- a process to seek additional funding to support the eradication program
- an integrated program to manage other pest plants and animals.

Phillip Island Nature Parks Management Plan 2006-2011 (Phillip Island Nature Parks 2006):

The Management Plan identifies specific goals and actions the Nature Park will undertake in the management of the natural and built assets under its care over the five year period 2006-2011. Its purpose is to document the ways in which the Nature Park will enhance and protect the fauna, flora and landscapes within its care, and to optimise the built infrastructure which supports visitors' experiences across the Nature Park.

Key stakeholders. Board members are appointed by the Minister responsible for Crown Land, and include local community members as well as representatives from the environmental, education and business sectors.

Phillip Island Nature Parks (2006) recommendations include:

Weeds

- Create a comprehensive five-year Weed Strategy reflecting national, state and local priorities to protect significant vegetation. Include integrated control techniques and prioritisation of weed species for control, in particular establishing processes for the management of high priority weeds.
- Continue to GIS map priority weed infestations on a regular basis with a view to monitor, control and protect native plants, animals and habitat.
- Ensure control work undertaken on priority weeds is followed up annually.
- Conduct research and risk assessments to ensure weed control measures, such as the use of herbicides or fire, do not negatively impact the Nature Parks' environment through erosion and land slippage etc.
- Liaise with relevant authorities, groups and Phillip Island Landcare to provide public education regarding the impact of weeds and encourage Park neighbours and nurseries to reduce the sale and planting of environmental weeds on Phillip Island.

- Liaise with Parks Victoria and monitor for the emergence of invasive marine species such as *Spartina* adjacent to Phillip Island in Western Port.

Fox

- Complete the fox eradication program within the term of the management plan, in partnership with other agencies.
- Maintain support for the fox eradication program by other agencies and with relevant research.

Rabbits

- Work with the Phillip Island Landcare Group, Bass Coast Shire and community groups on rabbit harbour reduction in the Nature Park and on adjoining private and public land.
- Progressively increase targeted rabbit control in consultation with the fox eradication project.
- Eradicate rabbits from Round Island.
- Ensure ongoing eradication of rabbits from Churchill Island.
- Ensure safety of native animals when utilising poisons and control techniques.

Pest birds

- Identify and implement methods to reduce populations and impacts of non-indigenous birds such as Common Starlings, Common Mynahs and Common Blackbirds, to protect habitat for native birds and animals.
- Continue control programs on feral geese.

Other pest vertebrates

- Identify and undertake targeted introduced rat control where required.

Domestic animals

- Work towards the passage of a proposed amendment to the Bass Coast Shire legislation under S 25 and 42 of the Domestic (Feral and Nuisance) Animals Act 1994, which would regulate cats and dogs in residential areas abutting the core sensitive areas of the Nature Park.
- Together with Bass Coast Shire Council and Urban Landcare, promote responsible pet ownership on Phillip Island.
- Investigate opportunities with Bass Coast Shire Council for Nature Park ranger staff to be authorised under the Domestic Feral (Nuisance) Animals Act 1994.
- Continue controlling roaming and feral cats and stray dogs.

Parks Victoria (2007) recommendations include:

- In partnership with Phillip Island Nature Parks, coordination of the development of signage along the foreshore, adjacent to Churchill Island Marine Park, to prohibit horses and dogs (Parks Victoria 2007).
- Port Phillip and Westernport Conservation Management Plans to reduce the impacts of land use and catchment management on the Parks and develop appropriate actions in the Regional Catchment Strategy.

FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
There are several potential risks that need to be managed, e.g.: Non-target risks from 1080 baiting of foxes. Increased rabbit population due to reduced	Reinvasion of Churchill Island by Feral Cat and Rabbit across the land bridge connecting Phillip Island. Also inter-island movement of Domestic Ferret and other terrestrial vertebrate fauna.

predation from foxes. Increased cat and rat numbers due to reduced fox population with potential impacts on sensitive parrots, seabirds, small mammals.	Human assisted movement of horses and dogs. The narrow channel between island and mainland means that invasion by swimming is also feasible for several pest species. Risk of weeds entering the Nature Park through soil, machinery, stock or clothing.

RECOMMENDED ACTIONS: Review the progress of the Phillip Island National Park Management Plan and related initiatives (e.g. McPhee and Bloomfield 2004) to eradicate and/or control key threatening pests.

Depending on the Plan's progress, additional aspects for consideration by stakeholders include:

- clarify restoration objectives for the island as a whole
- where necessary, update data on status and distribution of threatened species, e.g. survey and map key sites of highly sensitive species such as Orange-bellied Parrot, potoroos, seabird colonies, honeyeaters, bats, etc. if data are inadequate
- update or carry out feasibility studies on the achievability of recovery objectives for each highly sensitive species and develop operational plans for an integrated management package across the island or at local key biodiversity sites
- the feasibility studies should include cost-effectiveness studies, non-target issues, site-specific eradication methods, and other specific issues such as the reinvasion of pests
- integrate existing pest and species plans, e.g. Johnston (2008), and recovery plans for Orange-bellied parrot and other species
- Ferrets should be eradicated from Churchill Island accompanied by surveys for this pest on Phillip Island
- Biosecurity options for the Phillip and Churchill Islands should be evaluated against management plan objectives and strengthened and tested as appropriate.

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Preservation Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Preservation Island	**MAP 6**

LATITUDE: 40° 28' S [Decimal Degrees -40.476°]

LONGITUDE: 148° 03' E [Decimal Degrees 148.058°]

AREA: 204 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.01 km wide channel separates Preservation Island from Rum Island 1.5 km to Cape Barren Island, 5 km to Clarke Island
JURISDICTION: Tasmania	**TENURE:** Mixed Lands **STATUS:** Multiple Land Tenure, Crown Lease, Private

GENERAL GEOGRAPHY: Preservation Island is situated within the dispersed Furneaux Group of islands in the Bass Strait. The island is 3.5 km long and low lying, rising to only 26 m above sea level. The island's land form is undulating on a granitic base, with occurrences of limestone. Several sheltered bays are formed by the island's rocky coastline. It lies at the western entrance of Armstrong Channel, south-west of Cape Barren Island and north-west of Clarke Island (Skira and Brothers 1999).

DEMOGRAPHY & HUMAN USE: Preservation Island has a history almost as long as the European settlement of Australia (Harris et al. 2001). The island is used for pasturing stock. However, the island's resident human population has only ever been intermittent. Approximately 60 head of cattle graze on the island and are able to access the entire coastline. The island is also popular for hunting (Skira and Brothers 1999).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The vegetation was originally scrub and low forest with fringes of grassland and Saltbush (*Atriplex cinerea*). Limited areas of saltbush remain and *Poa poiformis* tussock grassland and *Dactylis glomerata* dominated exotic grassland occur on the northern part of the island. *Olearia axillaris* and *Ozothamnus turbinatus* dominated shrub and heathland occur on the sandy ridge, and *Lycium ferocissimum* shrubland is a common formation throughout the island. More specialized habitats with distinctive vegetation, such as *Acacia sophorae* scrub also exist (Harris et al. 2001).

Saltbush and *Senecio capillifolius* dominate around the burrow-nesting bird colonies. Succulent herbs such as Ice Plant (*Tetragonia implexicoma*) and *Rhagodia candolleana* can also be found. She-oak exists at the western end of the island (Skira and Brothers 1999).

THREATENED FAUNA: No EPBC listed threatened fauna species are known to occur on Preservation Island. **CR:** na **EN:** na **VU:** na 8 EPBC listed Marine or Migratory species	**THREATENED FLORA:** 1 EPBC listed threatened flora species is known to occur on Preservation Island and 1 additional threatened species may occur on the island. **CR:** na **EN:** Basalt Pepper-cress is known to occur on Preservation Island.

(Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Preservation Island: Australian Pelican, Cape Barren Goose, Caspian Tern, Fairy Tern, Little Penguin, Pacific Gull, Short-tailed Shearwater and Silver Gull. Common Diving-Petrel has also been recorded as a single dead specimen on the island, and may be an infrequent visitor. 4 additional listed Marine or Migratory species are likely or may occur on the island: Curlew Sandpiper, Hooded Plover (eastern), Sanderling and White-bellied Sea-Eagle. 2 additional fauna species listed under one or more Australian state/territory legislation are likely to occur on the island: Pied Oystercatcher and Sooty Oystercatcher.	**VU:** Grassland Greenhood may occur on the island. 1 additional flora species listed under one or more Australian state/territory legislation are known to occur on the island: Coast Twin-leaf.
SEABIRD/SHOREBIRD BREEDING SITES: 4 seabirds are known to breed on Preservation Island: Little Penguin, Pacific Gull, Short-tailed Shearwater and Sooty Oystercatcher. 450 burrows of nesting Short-tailed Shearwater were estimated in 1982 (Skira and Brothers 1999).	**OTHER NATURAL VALUES:** *Cymbonotus preissianus* and *Swainsona lessertiifolia* are additional flora species of biogeographic interest (Harris et al. 2001).
PEST VERTEBRATES PRESENT: European Cattle are believed to be the only vertebrate pest species present on Preservation Island.	**PEST VERTEBRATE IMPACTS:** Cattle roam over much of the island and are causing vegetation loss and soil erosion (Skira and Brothers 1999). It is likely that seabird nests, eggs and chicks are also trampled.
OTHER THREATS PRESENT: African Boxthorn (*Lycium ferocissimum*) a Declared Plant in Tasmania, is present on the island. About a third of the island's flora is introduced species (Harris et al. 2001).	**OTHER THREAT IMPACTS:** Unknown
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: Need to ensure cattle are excluded from state lands at least. Management plan should consider the possibility of removing cattle from the entire island.	
POTENTIAL ERADICATION RISKS: Potential for weed species to proliferate following cattle removal.	**POTENTIAL BIOSECURITY RISKS:** High invasion risk from neighbouring Rum Island (need to assess threats on that island). Risk of boating visitors introducing other pests e.g. rodents which would have a huge impact on nesting seabirds.

RECOMMENDED ACTIONS: Develop management objectives with all stakeholders and prepare management plan accordingly. The plan could effectively cover other members of the archipelago.

Plan would need to address information needs (e.g. whether further surveys of indigenous and pest biota including weeds are needed, which seems very likely) and specific needs for eradication feasibility studies and biosecurity.

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Prince of Wales (Muralug), Horn (Ngurupai) & Hammond islands (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Prince of Wales) & lower 50 (Hammond)
ISLAND NAME & GROUP: Prince of Wales (Muralug), Horn (Ngurupai) and Hammond islands, Torres Strait Islands	**MAP 3**

LATITUDE (Prince of Wales):	10° 41' S [Decimal Degrees -10.684°]
LONGITUDE (Prince of Wales):	142° 11' E [Decimal Degrees 142.185°]

ISLAND AREAS: Prince of Wales: 19 541 ha Horn Island: 5 319 ha Hammond Island: 1 570 ha	**DISTANCE (km) TO NEAREST OTHER LAND & TYPE (mainland/island):** Prince of Wales Island: 16 km to mainland Horn Island: 16.7 km to mainland 1.8 km between Prince of Wales' and Horn islands Hammond: 2 km to Prince of Wales' and 4 km to Horn islands
JURISDICTION: Queensland	**TENURE:** Freehold **STATUS:** Mainly freehold land

GENERAL GEOGRAPHY: The Prince of Wales islands fall within the geographic area of the Cape York Peninsula Natural Resource Management region. This region ranges from the Mitchell and Bloomfield Rivers in the south to the tip of Cape York Peninsula to the north (Howley et al. 2006).

DEMOGRAPHY & HUMAN USE: Unknown

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown

THREATENED FAUNA: 4 EPBC listed threatened fauna species are likely to occur on the islands and an additional 2 listed threatened species may occur on the islands. **CR:** na **EN:** Olive Ridley Turtle is likely to occur on the Prince of Wales Island. **VU:** Flatback Turtle and Hawksbill Turtle are likely to occur on Prince of Wales', Horn Island and Hammond islands. Green Turtle is also likely to occur on Prince of Wales Island. Brush-tailed Rabbit-rat and Spectacled Flying-fox may occur on all three islands. 6 EPBC listed Marine or Migratory species	**THREATENED FLORA:** 3 EPBC listed threatened flora species are likely to occur and 1 additional listed threatened species may occur on the Islands. **CR:** na **EN:** na **VU:** Chocolate Tea Tree Orchid and Curly Pinks are likely to occur on Prince of Wales', Horn Island and Hammond islands. Australian Arenga Palm is likely to occur on Horn Island. Mauve Butterfly Orchid may occur on Prince of Wales', Horn Island and Hammond islands. There are no known additional flora species listed under one or more Australian state/territory legislation.

(Bonn, CAMBA, JAMBA or ROKAMA) likely to occur on the islands: Black-winged Monarch – all three islands Pacific Golden Plover – Horn Island Lesser Sand Plover – Horn Island Satin Flycatcher – Hammond Island Spectacled Monarch – all three islands White-bellied Sea-Eagle – Hammond Island 8 additional EPBC listed Marine or Migratory species may occur on the Islands: Barn Swallow – all three islands Fork-tailed Swift – Prince of Wales Island Latham's Snipe – all three islands Little Curlew – all three islands Melville Cicadabird – all three islands Rainbow Bee-eater – Prince of Wales Island Rufous Fantail – all three islands White-throated Needletail – all three islands There are no known additional fauna species listed under one or more Australian state/territory legislation.	
SEABIRD/SHOREBIRD BREEDING SITES: Unknown	**OTHER NATURAL VALUES:** Prince of Wales Island is an important nesting area for Hawksbill Turtles (Howley et al. 2006).
PEST VERTEBRATES PRESENT: 7 vertebrate pests are believed to be currently present on Prince of Wales, Horn and Hammond islands. 3 of these are a listed EPBC Key Threatening Process: Cat – on all three islands Pig – on all three islands Goat – on Prince of Wales Island The remaining 4 vertebrate pest are all potentially high impact species: Horse – Major concern on Prince of Wales Island Domestic Dog – Potentially high impact on all three islands European Cattle – Potentially high impact on Prince of Wales Island Deer – Potentially high impact on Prince of	**PEST VERTEBRATE IMPACTS:** Turtle nesting populations are threatened by feral pigs. Feral pigs have been identified as a significant issue by the Injinoo Land Trust, Kaiwalagal Aboriginal Corporation and the Cooktown, Aurukun, and Mapoon coastal communities. Specifically, pigs have been identified as "the biggest source of coastal destruction" in the Kowanyama region (Monahan 2006, cited in Howley et al. 2006) and the Kaiwalagal Aboriginal Corporation is concerned about the extent of feral pig predation of turtle eggs on Horn Island.

Wales and Hammond islands

OTHER THREATS PRESENT:

- Marine debris - clockwise currents in the protected waters of the Gulf of Carpentaria draw in flotsam and jetsam from the Arafura and Timor Seas. The Kaiwalagal Aboriginal Corporation lacks adequate resources to manage the volume of rubbish on the beaches of the Prince of Wales Islands.
- Kaurareg Traditional Owners have reported the culling of large numbers of turtles and dugongs for spo rt in the Prince of Wales islands, and are seeking protection of these species.
- Overharvesting.
- The Weipa, Napranum, Injinoo, Kowanyama, Cooktown, Horn Island and Aurukun communities have expressed concern over the impacts on marine and coastal resources from mining activities.
- The Kaurareg community has highlighted concerns that a decommissioned gold mine on eastern Horn Island has resulted in the contamination of traditional subsistence resources.
- Cape York Peninsula community groups have identified weed invasion as a significant threat to the natural resources of coastal Cape York Peninsula and Horn Island.
- Beach and foreshore erosion, for example, at the Horn island wharf, is an issue of concern for a number of communities.
- Three major mining ports are operated by the Ports Corporation of Queensland. These are located in Weipa, Cape Flattery, and the Skardon River, as well as the Lockhart River community service port and wharf facilities on Horn Island.
- Pearl farms - Albany Passage and Escape River and in the channel between Thursday and Horn Islands (Howley et al. 2006).
- Salvinia, Cabomba infestations at Horn Island (Bell 2007).

OTHER THREAT IMPACTS:

- Ghost nets are a significant source of mortality for marine turtles. Estimates indicate that potentially tens of thousands of nets may be adrift in the Gulf and beached on its coast.
- Traditional owners from Napranum and Aurukun are seeking the development of a management system for turtle & dugong hunting. The Coen Natural & Heritage Resource Management Plan (2000, cited in Howley et al. 2006) has identified the need for turtles and dugongs to be protected and hunted sustainably.
- Additional concerns in Kaurareg and Injinoo country have arisen from the condition/amount of baitfish stocks around the wharves at Horn Island and Seisia.
- Other issues include: development of new roads and associated uncontrolled access to Indigenous lands, extraction of large volumes of groundwater from local aquifers, clearing of native vegetation topsoil erosion and potential impacts on water quality from land erosion and hydrocarbon contamination.
- According to a report on Kaiwalagal & Waubinin Malu Marine Resources, mining activity has significantly altered the landscape and pollution issues have not been addressed.
- QPWS/Marine Parks has identified weeds as a threat to the environmental values of the islands of the Great Barrier Reef (Howley et al. 2006).
- Loss of native vegetation associated habitat loss due to the incursion of weeds and other pest species (BCS 2005).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No specific island pest management plans

were identified.

A management strategy for the control of feral animals, including pigs has been developed for the region, however further support is required to implement the Plan (Howley et al. 2006).

Torres Shire Pest Management Plan was scheduled to be completed in 2008 but does not appear to be available through Torres Shire Council website.

A management strategy for the control of pigs and other feral animals on Prince of Wales Island has been developed; further support is necessary to implement the Plan (Howley et al. 2006).

A *Land and Sea Management Strategy for Torres Strait* (BCS 2005) is also available. This strategy addresses management issues for the Torres Strait Islands including Horn and Prince of Wales Islands. Management objectives are broad approaches that are consistent with Australian and State government requirements under relevant legislation and policies. Objectives include:

- Land managers are assisted to develop and implement pest and weed management plans
- Prevention of further incursions of pests and weeds into the region.

Cape York Peninsula Marine and Coastal Natural Resource Management Action Plan (Howley et al. 2006) recommends:

- One-time Co-operative Clean Up for all Cape York Coastline, Prince of Wales and Horn Islands to remove Long-term Build-up of Rubbish & Ghost Nets.
- Declare the Prince of Wales Channel as a Marine Environment High Risk Areas as per GBRMPA recommendations (GBRMPA 2001, cited in Howley et al. 2006).
- Long-term support for monitoring of key coastal and island turtle nesting areas (Howley et.al. 2006).
- Long-term support for feral pig control programs on significant turtle nesting beaches on the west coast and Prince of Wales Island.

FURTHER PEST ERADICATION REQUIREMENTS:

Further resources are required to implement the Feral Animals Plan for Prince of Wales Island (Howley et al. 2006) including:

- support for weed and feral animal surveys and the development of regional and local-level pest management plans addressing weeds and feral animals, with assistance from NR&M
- support for implementation of pest management plans and weed control measures on all outer islands, with assistance from NR&M
- annual visits to the outer island by a private vet to conduct desexing of unwanted dogs/cats and euthanasia of unwanted animals
- implementation of a baiting/culling program for feral animals and fines for dumping animals and removing local flora and fauna
- fencing of sensitive areas to allow natural regeneration of vegetation communities and to protect against the impacts of feral animals
- weed removal activities and ongoing actions to prevent weed seed dispersal, including the establishment of a wash down facility on Horn Island
- increasing community understanding of the impact of weeds and pests and ensuring commitment of key stakeholders to implementing effective weed and pest management
- establishing systems to map, report and monitor pests that are compatible with traditional views and values
- preventing the introduction of new pests and weeds from the Australian mainland, across international borders and between islands by maintaining close links with Torres Strait-based AQIS staff and scientists from the Northern Australia Quarantine Strategy

- providing resources, equipment and training for controlling critical pests and weeds
- encouraging responsible pet ownership (BCS 2005).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Unknown. Need to be identified in eradication planning process.	The northern location of these islands make them vulnerable to potential biosecurity risks. Partnerships between Torres Strait-based AQIS staff and scientists from the Northern Australia Quarantine Strategy are required to prevent the introduction of new pests and weeds from the Australian mainland, across international borders and between islands (BCS 2005).

RECOMMENDED ACTIONS: Overall the removal of pigs in particular and eradication or control of other key pest species (dogs, cattle), will increase productivity of turtles. The removal of cats, dogs and goats would also benefit many other biota including potentially seabirds, some of which could breed locally.

KEY REFERENCES

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BCS 2005. Land and Sea Management Strategy for Torres Strait, report for the Torres Strait Natural Resource Management Reference Group, Bessen Consulting Services, November 2005.

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Quail Island (VIC)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Quail Island	**MAP 5**

LATITUDE:	38° 13' S [Decimal Degrees -38.231°]
LONGITUDE:	145° 17' E [Decimal Degrees 145.290°]

AREA: 533 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0 km to the mainland (intertidal area connected to mainland at low tide)
JURISDICTION: Victoria	**TENURE:** Nature Conservation Reserve **STATUS:** North Western Port Nature Conservation Reserve, Parks Victoria

GENERAL GEOGRAPHY: Unknown.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:

2 EPBC listed threatened fauna species are likely and a further 4 may occur on Quail Island.

CR: Orange-bellied Parrot is likely to occur on Quail Island.

EN: Swift Parrot, Smoky Mouse and Regent Honeyeater may occur on Quail Island.

VU: Southern Bell Frog is likely to occur on Quail Island.

Grey-headed Flying-fox may occur on the island.

7 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur within Yaringa Marine National Park:

Australasian Gannet, Caspian Tern, Great Egret, Musk Duck, Pacific Gull, Rufous/Nankeen Night Heron, White-bellied Sea-Eagle.

A further 6 EPBC listed Marine or Migratory species are likely to occur on the island:

Common Greenshank, Curlew Sandpiper, Double-banded Plover, Eastern Curlew, Pacific Golden Plover and Red-necked Stint.

THREATENED FLORA:

2 EPBC listed threatened flora species are likely to occur on Quail Island.

CR: na

EN: Maroon Leek-orchid and Metallic Sun-orchid are likely to occur on Quail Island.

VU: na

3 additional EPBC listed Marine or Migratory species may occur on the island: Latham's Snipe, Little Tern and White-throated Needletail. 5 additional fauna species listed under one or more Australian state/territory legislation occur within Yaringa Marine National Park, and are likely to occur on Quail Island: Australasian Bittern, Baillon's Crake, Pied Cormorant, Royal Spoonbill and Turquoise Parrot.	
SEABIRD/SHOREBIRD BREEDING SITES: Unknown	**OTHER NATURAL VALUES:** Quail Island lies within Yaringa Marine National Park
PEST VERTEBRATES PRESENT: 6 vertebrate pests have been recorded and are believed to be present on Quail Island, including 4 that are a listed EPBC Threatening Process: Cat, House Mouse, Rabbit and Red Fox. 2 potentially low impact species are also present: European Goldfinch and Skylark. In addition, the Common Blackbird is possibly present, and potentially of medium impact.	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of Cat, House Mouse, Rabbit and Red Fox could be expected. Threatened species such as Orange-bellied Parrot, Swift Parrot and Smokey Mouse are likely to be impacted on by Red Fox and Cat.
OTHER THREATS PRESENT: Unknown	**OTHER THREAT IMPACTS:** Unknown
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).	
POTENTIAL ERADICATION RISKS: Reinvasion by vertebrate pest species.	**POTENTIAL BIOSECURITY RISKS:** Given that Quail Island is in an intertidal part of Westernport Bay, many pest species would be able to (re)invade at low tide.
RECOMMENDED ACTIONS: Update survey information on threatened fauna and other significant fauna values, e.g. Orange-bellied Parrot and EN and VU fauna. Complete feasibility study for protecting those sensitive biota from pest impacts – need to consider eradication/control options and sustainability questions.	

KEY REFERENCES

Johnston, M. 2008. Introduced animals on Victorian islands: improving Australia's ability to protect its island habitats from feral animals. Arthur Rylah Institute for Environmental Research Client Report. Department of Sustainability and Environment, Heidelberg, Victoria.

Plummer, A., Morris, L., Blake, S. and Ball, D. 2003. Marine Natural Values Study, Victorian Marine National Parks and Sanctuaries. Parks Victoria Technical Series No. 1, Parks Victoria, Melbourne.

Raragala Island & Marchinbar Island (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Raragala) & lower 50 (Marchinbar)
ISLAND NAME & GROUP: Raragala and Marchinbar islands, Wessel Islands group (near English Company Islands group) With consideration of Rimbija Island and other islands in the Wessel Islands group.	**MAP 2**

LATITUDE (Raragala Island):	11° 36' S [Decimal Degrees -11.614°]
LONGITUDE (Raragala Island):	136° 15' E [Decimal Degrees 136.265°]

ISLAND AREAS Raragala Island: 9 364 ha Marchinbar Island: 20 860 ha Rimbija Island: 244 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** Raragala Island: 36 km to the mainland, 26 km to Wigram island in the English Company Islands group 2 km between Raragala and Marchinbar islands
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Aboriginal Freehold and Leasehold, Arnhem Land Aboriginal Land Trust

GENERAL GEOGRAPHY: The Wessel Islands group comprises 35 islands; the south-western most islands of this group are also known as the Cunningham Islands. Marchinbar Island is the largest island within the group and accounts for more than half of the total land area (37 100 ha) of the islands.

At 98 km from the Australian mainland, Rimbija Island in the Wessel group is the most distant island from the mainland, while the islands in the English Company group are relatively closer. Both island groups are dissected by rocky rises, plateaus and low hills and are generally well-defined from the adjacent mainland and the Elcho–Drysdale Island group to the north-west by their rugged nature. Each of the islands in the Wessel Islands group has a predominantly sandstone geology (NRETAS 2008d).

Raragala Island receives 1372 mm annual rainfall, and rises to 58 m maximum elevation; Marchinbar Island receives 1428 mm annual rainfall, rising to 73 m maximum elevation; and Rimbija Island receives 1449 mm annual rainfall and is lower lying, rising to 22 m maximum elevation (Woinarski et al. 2007).

DEMOGRAPHY & HUMAN USE: Limited visitor access.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Woodland and heathland.

THREATENED FAUNA: 6 EPBC listed threatened fauna are known and an additional 2 listed threatened species are likely or may occur on Raragala, Marchinbar and/or Rimbija islands in the Wessel Islands group.	**THREATENED FLORA:** No EPBC listed, or otherwise listed, threatened flora are known to occur on Raragala, Marchinbar and/or Rimbija islands in the Wessel Islands group. **CR:** na

CR: na **EN:** Leatherback Turtle is known to occur on both Raragala and Marchinbar islands. Olive Ridley Turtle is known to occur on Raragala Island and is likely to occur on Marchinbar and may occur on Rimbija islands. Northern Quoll is known to occur on Marchinbar Island. **VU:** Flatback Turtle and Green Turtle are known to occur on Raragala and Marchinbar islands and likely or may occur on Rimbija Island. Golden Bandicoot (mainland) is known to occur on Marchinbar Island. Water Mouse is likely to occur on both Raragala and Marchinbar islands. Brush-tailed Rabbit rat may occur on Marchinbar Island. 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Raragala Island: Black-naped Tern, Bridled Tern, Roseate Tern and Silver Gull. 2 additional EPBC listed Marine or Migratory species are likely to occur on Raragala, Marchinbar and/or Rimbija islands in the Wessel Islands group. Saltwater Crocodile and White-bellied Sea-Eagle. 8 additional EPBC listed Marine or Migratory species may occur on these islands: Barn Swallow, Fork-tailed Swift, Little Curlew, Melville Cicadabird, Oriental Plover, Oriental Pratincole, Rainbow Bee-eater and Rufous Fantail. 1 additional fauna species listed under one or more Australian state/territory legislation is known to occur on Marchinbar Island: Merten's Water Monitor.	**EN:** na **VU:** na
SEABIRD/SHOREBIRD BREEDING SITES: 4 seabirds are known to breed on islands in the Wessel Islands group (Chatto 2001): Black-naped Tern - 150/1993 (colony S017) on small island just off Raragala Island, Wessel Islands Chain; Bridled Tern – 200 in 1993 (colony S016) on island just off NE tip of Bumaga Island, SW of Raragala in Wessel Islands Chain;	**OTHER NATURAL VALUES:** Along with the English Company Islands Group, the Wessel Islands are considered to be of International Significance under the Sites of Conservation Significance (SOCS) assessment by the Northern Territory Government (NRETAS 2008d). The Wessel and English Company Island groups are significant due to their isolation and the protection they offer from threatening processes affecting mainland biota. The environments of these island

Roseate Tern - 50+ in 1997 (colony S065) rock island NW of Yargara Island, Wessel Island Group; Silver Gull - 40+ in 1996 (colony S121) on island situated between Bumaga & Jirrgari Islands, Wessel Chain.	groups are in good to near-pristine condition. Marchinbar Island has the Northern Territory's only known Golden Bandicoot population, and therefore provides an important refuge for this species. Nationally Important turtle nesting sites are known on northern beaches of Raragala and Marchinbar islands, including Flatback, Green, Leatherback and Olive Ridley turtles (Chatto 2001; NRETAS 2008d). Turtle nesting has also been recorded on Rimbija Island. There is no extensive wetland habitat on Marchinbar Island, but a lagoon at Jensen Bay may be of regional significance for freshwater birds as a significant proportion (50%) of the species known from the Wessel Islands have been recorded at this site (Woinarski and Fisher 1996, cited in NRETAS 2008d).
PEST VERTEBRATES PRESENT: European Cattle numbers have been heavily reduced or eradicated from impact on Marchinbar Island. Dogs have a potentially high impact on Marchinbar Island, and are also the subject of an eradication program. 1 potentially low impact vertebrate pest is known to occur on Rimbija Island: Mourning Gecko.	**PEST VERTEBRATE IMPACTS:** Predation by dogs on Marchinbar Island, past trampling and land degradation caused by cattle. These impacts could have been significant for a number of threatened species, e.g. Golden Bandicoot and Northern Quoll.
OTHER THREATS PRESENT: · Brownish- red Flower Ant · Visitor access (NRETA 2005) · Weeds, although less than 3% of the known flora on the islands is of introduced species, which is relatively low in both a regional and national context (NRETAS 2008d).	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

A draft sea and land management plan was developed in 2003 for the island groups (Mahney 2003), the neighbouring Elcho-Drysdale Island group, and the adjoining mainland areas of north east Arnhem Land, to identify important natural resource management issues and future priorities. The island groups also form part of the proposed Marthakal Indigenous Protected Area and Commonwealth funding has been granted to progress this proposal. Indigenous rangers based at Galiwin'ku, on Elcho Island, are working collaboratively with NT Parks and Wildlife staff on Golden Bandicoot and Northern Quoll translocation and population monitoring programs on the islands, and have had recent involvement in a baiting program for wild dogs on Wigram (English Company Islands Group) and Marchinbar Islands (NRETAS 2008d).

The population of Golden Bandicoots on Marchinbar Island is being monitored over the period 2006-2010 (C. Palmer, cited in NRETAS 2008).

Olive Ridley Turtles nesting in the Wessel Islands has been monitored using satellite-relayed data loggers to help address knowledge gaps about turtle behaviour (McMahon et al. 2007, cited in

NRETAS 2008d).

Irregular surveys and collection of fishing nets on island beaches are undertaken by Indigenous rangers under the Carpentaria Ghost Net Program (www.ghostnets.com.au).

Fire in the tropical savannas is mapped continuously under the North Australia Fire Information Project (www.firenorth.org.au/nafi).

Following NRETA (2005), NRETAS (2008d) identified required management actions as:

- Continue to support and build capacity of Gumurr Marthakal Rangers to manage threatening processes, monitor threatened species, and document natural resource values (NRETA 2005).
- Continue to implement the Golden Bandicoot management program for the islands (NRETA 2005).
- Continue to monitor the Northern Quoll translocated populations and implement the management program under the Island Ark project (NRETA 2005).
- In conjunction with Northern Land Council, NT Department of Primary Industry, Fisheries and Mines, traditional owners and other stakeholders, explore the options for conservation of biodiversity around these Island groups including options for joint management (NRETA 2005).
- Continue to build awareness in local communities about cane toad, cat and other feral plants and animals through the Island Ark project (NRETA 2005).

FURTHER PEST ERADICATION REQUIREMENTS: Complete the current eradications of dogs and cattle.

POTENTIAL ERADICATION RISKS: Low risks.	**POTENTIAL BIOSECURITY RISKS:** Potential introduction of cats and/or cane toads (NRETA 2005).

RECOMMENDED ACTIONS: These islands are vitally important for maintaining viable populations of several threatened species including Northern Quoll and Golden Bandicoot. Management direction is based on good scientific data on mammals and birds, and the direction ahead is clearly provided in NRETA (2005) and NRETAS (2008d).

Once eradications are complete, the local community and potentially other stakeholders hold the key to managing these islands. This could include making more islands pest-free and to ensure that no further pests invade and establish. Key actions include:

- maintaining the ranger system that is already in place
- implementing recommendations of the Golden Bandicoot and Northern Quoll management documents, and associated advice from technical specialists involved with these species and other species or groups, e.g. terns and turtles
- seek the support of communities and other stakeholders in developing management agreements for other islands in the group
- seek the support of the communities and other stakeholders in improving biosecurity across the entire group. This should include surveillance, quarantine and developing response approaches to likely pest arrivals, e.g. Cane Toad and Cat.

KEY REFERENCES

Chatto, R. 2001. The distribution and status of colonial breeding seabirds in the Northern Territory. Technical Report 70, 2001. Parks and Wildlife Commission of the Northern Territory, Palmerston, NT.

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Rottnest Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Rottnest Island	**MAP 8**

LATITUDE:	32° 00' S [Decimal Degrees -32.005°]
LONGITUDE:	115° 36' E [Decimal Degrees 115.614°]

AREA: 1 884 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 18 km to the mainland
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve **STATUS:** Reserve A16714, Rottnest Island Authority

GENERAL GEOGRAPHY: Rottnest Island is the largest and northernmost of a chain of limestone islands and reefs on the continental shelf near Perth. The island was connected to the mainland during the last glacial period when sea level was approximately 130 metres lower than at present (Rottnest Island Authority 2003).

The Rottnest Island Reserve includes the island (terrestrial component) and the surrounding sea area of 3,810 ha (marine component). The terrestrial area contains approximately 200 ha of land classified as 'Settlement' and 200 ha of salt lakes and swamps. The marine component of the Reserve includes several smaller Islands and exposed rocks adjacent to its coast (Rottnest Island Authority 2003).

Aeolian limestone is the dominant structural substance and is covered by sand to varying depths. Rocky headlands and sandy beaches backed by sand dunes alternate around the coastline. The wet season falls between late April and October with annual rainfall of approximately 750 mm (Storr 1976).

DEMOGRAPHY & HUMAN USE: Rottnest Island receives an estimated 0.5 million visitors annually (Rottnest Island Authority 2009). Holiday and recreational aspects are significant in island management with a function of the *Rottnest Island Authority Act 1987* being to 'provide and operate recreational and holiday facilities on the Island' (Rottnest Island Authority 2003).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Rottnest Island was formed an estimated 140 000 years ago and is composed of marine and dune limestone and sand (Rottnest Island Authority 2003).

Terrestrial areas of Rottnest Island have been classified into six distinct habitat types including: coastal; woodland; grass and heathland; salt lake; swamps and freshwater pool; freshwater lens and seep (Rottnest Island Authority 2003).

Vegetation communities include: Coastal Dense Heath, *Acanthocarpus preissii, Acacia littorea, Acacia rostellifera, Melaleuca lanceolata/Callitris preissii* (Low Forest), *Templetonia retusa* (Dense Heath), *Pittosporum phylliraeoides* (Low Forest), Saline and Brackish Water Marsh Community, Mixed Succulent Mat Community, *Nitraria billardieri* Community (Rottnest Island Authority 2003).

THREATENED FAUNA:

1 EPBC listed threatened fauna species is known to occur on Rottnest Island.

CR: na

EN: na

VU: Quokka is known to occur on Rottnest Island.

14 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMBA) are known to occur on Rottnest Island:

Australasian Gannet, Bridled Tern, Caspian Tern, Crested Tern, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Little Shearwater, Red-tailed Tropicbird, Rock Parrot, Roseate Tern, Silver Gull, Sooty Tern, and Wedge-tailed Shearwater.

Rockhopper Penguin and Southern/Antarctic Fulmar are also known to occur on the island as vagrants.

3 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMBA) likely to occur on the island: Ruddy Turnstone, Sanderling and White-bellied Sea-Eagle.

2 additional fauna species listed under one or more Australian state/territory legislation are known to occur on Rottnest Island: Pied Oystercatcher and Sooty Oystercatcher.

2 additional species are not listed as threatened, but are endemic to Rottnest Island: Rottnest Island Bobtail and Rottnest Island Dugite.

THREATENED FLORA:

There are no known EPBC listed, or otherwise listed, threatened flora species on Rottnest Island.

CR: na

EN: na

VU: na

SEABIRD/SHOREBIRD BREEDING SITES:

13 seabirds are known to breed on Rottnest Island:

Bridled Tern, Caspian Tern, Crested Tern, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Little Shearwater, Pied Oystercatcher, Red-tailed Tropicbird, Roseate Tern, Silver Gull, Sooty Tern, Wedge-tailed Shearwater.

Derelict burrows have also been recorded for:

Australasian Gannet and Southern/Antarctic Fulmar.

Internationally protected breeding sites for migratory bird species occur around the island including in coastal and wetland areas that are possibly worthy of international Ramsar Wetland status. Migratory bird species are protected under

OTHER NATURAL VALUES:

- Rottnest Island has sites of geological significance listed on the Register of the National Estate and additional sites that have been proposed for inclusion. Geological formations on the Island also support a diverse range of terrestrial habitats.
- Quokkas and White Striped Mastiff Bats are highly valued as the two remaining terrestrial mammals of Rottnest Island.
- Rottnest Island contains many examples of diverged fauna subspecies as a result of the island's isolation.
- Remnant woodland habitats represent the original dominant vegetation type at the period of European settlement.
- Swamps and freshwater seeps provide the only remaining habitats on the island for three

international agreements applicable to Rottnest Island (Rottnest Island Authority 2003).	frog species and some lizard species. · *Melaleuca* sp. woodlands on the island are important habitat for several isolated populations of Red-Capped Robins and Golden Whistlers, which are now absent from the Swan Coastal Plain and Garden Island. · Stromatolites represent the earliest record of life on earth, dating from some 3,500 million years ago (Rottnest Island Authority 2003).
PEST VERTEBRATES PRESENT: 7 vertebrate pest species have been recorded and are believed to be currently present on Rottnest Island. Two of these are listed as an EPBC Key Threatening Process: Black Rat and House Mouse. Cats were present on the island but have possibly been eradicated since 1992. Common Pheasant, Indian Peafowl and two species of exotic doves have also been introduced to the island.	**PEST VERTEBRATE IMPACTS:** Cats and rodents can severely impact on native fauna by preying on them or competing for food or territory. Cats on Rottnest Island have been greatly reduced, and possibly completely eradicated, as a result of the eradication program (Rottnest Island Authority 2003) Indian Peafowl and Common Pheasant are considered relatively benign in terms of their impact on the natural environment, and are also valued cultural heritage elements of the Island (Rottnest Island Authority 2003).
OTHER THREATS PRESENT: · Weeds · Plant diseases · Fire · The frequency and volume of visitors and associated activities (Rottnest Island Authority 2003).	**OTHER THREAT IMPACTS:** • Weeds may out-compete native species • Plant diseases have not been well researched on Rottnest Island, but Canker fungus, which kills the aerial parts of plants is evident on some of the Island's tuart trees • *Armillaria sp*, an indigenous species of mushroom producing pathogen that causes infection, is present on Garden Island but has not been detected on Rottnest Island.

PAST & CURRENT PEST MANAGEMENT & MONITORING: The Rottnest Island Management Plan 2003 – 2008 (Rottnest I sland Auth ority 2003) covers pl anning an d man agement i ssues regardi ng th e Reserve Zoning P lan and Set tlement P lanning Sc heme, t errestrial env ironment, m arine environment, cul tural h eritage, holiday an d recre ation s ervices and faci lities, marine r ecreation and facilities, community involvement and relations, visitor support services and infrastructure and utilities. It lists issues regarding pest species and makes broad statements about management.

The Rottnest Island Authority has three goals:

- to provide a unique and accessible holiday experience for all visitors to the island
- conserve and enhance the island environment and heritage as a model of sustainability
- conducts business responsibly and in a way that is sustainable and beneficial to the Island.

The Rottnest Island Authority tasks are:

- to assess and manage all developments on the Island to minimise possible threats to the habitats, flora and fauna of Rottnest Island.
- to implement an effective weed management program for the island, based on existing procedures.
- to implement an effective feral animal eradication program, based on existing procedures.

- to encourage research on the island's flora and fauna, particularly that which contributes to the management of plant diseases on Rottnest Island.

Key Stakeholders: Rottnest Island Authority and various Western Australian government departments (Department of Planning and Infrastructure, Department of Health, Department of Environment, Water and Catchment Protection, Department of Conservation and Land Management (CALM), Department of Fisheries, Department of Indigenous Affairs, Department of Industry and Resources, Disability Services Commission, Dept of Fire and Emergency Services, Western Australian Museum (WAM), Heritage Council of Western Australia, Western Australian Tourism Commission Community).

Costs: The Plan provides for significant capital improvements by way of restoration of heritage cottages, refurbishment of accommodation units, construction of additional cabins and ongoing asbestos treatment works. The increased revenue generated by various initiatives provided for in the Plan meets the cost of these works. In short, this Plan pays for itself.

Issues associated with the management of Rottnest Island's terrestrial habitats, flora and fauna include:

- Threatened and endangered species inhabit Rottnest Island and habitat management is critical to the preservation of the Island's unique and rare fauna and flora species; any future development that does not pay due regard to the terrestrial floral and faunal values of Rottnest Island could threaten important species by either modifying or removing their habitats.
- In Rottnest Island's dry environment, fire is a threat to all habitats. Fire is particularly a threat to woodland communities as these have lengthy regeneration periods; currently the firebreak system is based on historic tracks and breaks in vegetation. The absence of a more strategic system considering prevailing winds, potential for erosion and sensitive areas is a threat to the Island's habitat and property values.
- Heavy human use in concentrated areas or a particular habitat type may make those areas vulnerable to impact; rehabilitation of the Island's swamps and the restoration of woodlands are critical elements in the reversal of human impacts on the Island.
- A woodland restoration program intended to restore the relative distribution of vegetation on the island prior to human habitation will reduce the present coverage of other vegetation types; management of quokkas with respect to the woodland restoration program is critical.
- Erosion processes threaten the coastal habitat value of Rottnest Island as many important flora and fauna occur in this area; weed species have the potential to out-compete native species within all habitat types.

FURTHER PEST ERADICATION REQUIREMENTS: Black Rat and House Mouse.

POTENTIAL ERADICATION RISKS: Non-target impacts on e.g. Quokka and shorebirds. Potential weed issues.	**POTENTIAL BIOSECURITY RISKS:** High public visitation means that there are risks of (re)invasion of rodents and other species.

RECOMMENDED ACTIONS:

- Rodent eradication should be preceded by a comprehensive feasibility study that addresses in particular pest eradication feasibility, non-target issues (e.g. quokka and shorebirds) and biosecurity planning.
- Assess and manage all developments on the Island to minimise possible threats to the habitats, flora and fauna of Rottnest Island.
- Implement an effective weed management program for Rottnest Island, based on existing procedures.

KEY REFERENCES

Rottnest Island Authority 2003. Rottnest Island Management Plan 2003-2008. Published in March 2003 by the Rottnest Island Authority, The Government of Western Australia, Fremantle, Western Australia. Available at: www.rottnestisland.com. Accessed 12 June 2009.

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Saibai Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Saibai Island, Northern Mud Island Group, Torres Strait	**MAP 3**

LATITUDE: 9° 24' S [Decimal Degrees -9.407°]

LONGITUDE: 142° 41' E [Decimal Degrees 142.689°]

AREA: 10 381 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 3.5 km to mainland Papua New Guinea 35 km to Boigu Island (Torres Strait)
JURISDICTION: Queensland	**TENURE:** Freehold/Reserve/UK **STATUS:** Mainly freehold land/Other Crown land/Unknown

GENERAL GEOGRAPHY: The Northern Mud Islands are one of the main groups of the Torres Strait Islands of which Saibai and Boigu islands are the largest. Like Boigu Island, Saibai Island an extremely low lying island formed from sedimentary deposits from the large southern rivers of Papua New Guinea, such as the Fly River (BCS 2005).

DEMOGRAPHY & HUMAN USE: All Sabai Islander communities comprise residential areas with supporting facilities including churches, council offices and infrastructure, some government agency outlets and council or private operated enterprises. Some individual homes have water tanks and the island also has sewerage systems (BCS 2005).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Key vegetation types are open woodlands and grasslands, and wetlands including mangroves and saltpan communities (BCS 2005).

THREATENED FAUNA: 3 EPBC listed threatened fauna species are likely or may occur on Saibai Island. **CR:** na **EN:** na **VU:** Flatback Turtle is likely to occur on Saibai Island. Hawksbill Turtle and Spectacled Flying-fox may occur on the island. 4 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMA) are likely to occur on Saibai Island: Black-winged Monarch, Satin Flycatcher, Spectacled Monarch, White-bellied Sea-Eagle. 8 additional EPBC listed Marine or Migratory	**THREATENED FLORA:** 3 EPBC listed threatened flora species are likely to occur on Saibai Island. **CR:** na **EN:** na **VU:** Australian Arenga Palm, Curly Pinks and *Solanum dunalianum* are likely to occur on Saibai Island.

species may occur on Saibai Island: Barn Swallow, Fork-tailed Swift, Latham's Snipe, Little Curlew, Melville Cicadabird, Rainbow Bee-eater, Rufous Fantail and White-throated Needletail.	
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Seabed mapping of Torres Strait under the CRC Torres Strait program has shown areas of high habitat biodiversity especially in the area near Saibai where significant areas of sponges occur (BCS 2005).
PEST VERTEBRATES PRESENT: 3 vertebrate pests have been recorded and are believed to be currently present on Saibai Island. One of these is a listed EPBC Threatening Process: Cat. Two potentially high impact vertebrate pest species are: Domestic Dog and Deer.	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of cats, dogs and deer could be expected.
OTHER THREATS PRESENT: · Erosion · Burning regimes · Access	**OTHER THREAT IMPACTS:** · Loss of and damage to native vegetation and animals · Damage and destruction of sensitive habitats and place
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: See Recommended Actions (below).	
POTENTIAL ERADICATION RISKS: Potential social issues.	**POTENTIAL BIOSECURITY RISKS:** Potential assisted invasion via freight and other goods.
RECOMMENDED ACTIONS: Review status and impacts of pests on turtles and other biota on the island and plan management objectives with community accordingly. A field orientated survey and planning approach could provide the initial catalyst in bringing about more effective dog and cat control or eradication, potentially following ranger models elsewhere.	

KEY REFERENCES

BCS 2005. Land and Sea Management Strategy for Torres Strait, report for the Torres Strait Natural Resource Management Reference Group, Bessen Consulting Services, November 2005.

Serrurier Island (WA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Serrurier Island	**MAP 8**

LATITUDE: 21° 36' S [Decimal Degrees -21.606°]

LONGITUDE: 114° 40' E [Decimal Degrees 114.681°]

AREA: 300 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 20 km to the mainland
JURISDICTION: Western Australia	**TENURE:** Nature Conservation Reserve **STATUS:** Nature Reserve 33834, Conservation Commission of WA, Pilbara

GENERAL GEOGRAPHY: Unknown.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: 2 EPBC listed threatened fauna are known to occur on Serrurier Island. **CR:** na **EN:** Lakeland Downs Mouse is known to occur on Serrurier Island. **VU:** Green Turtle is known to occur on the island. 9 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Serrurier Island: Caspian Tern, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Nankeen Kestrel, Richard's Pipit, Silver Gull, Sooty Tern and Wedge-tailed Shearwater. 1 additional fauna species listed under one or more Australian state/territory legislation is known to occur on Serrurier Island: Pied Oystercatcher.	**THREATENED FLORA:** No EPBC listed, or otherwise listed, threatened flora species are known to occur on Serrurier Island. **CR:** na **EN:** na **VU:** na
SEABIRD/SHOREBIRD BREEDING SITES: 9 seabirds are known to breed on Serrurier Island: Caspian Tern, Eastern Osprey, Eastern Reef Egret, Fairy Tern, Nankeen Kestrel, Pied	**OTHER NATURAL VALUES:** · Lakeland Downs Mouse is a conservation (re)introduction to the island. · Major nesting site for Green Turtle.

Oystercatcher, Silver Gull, Sooty Tern and Wedge-tailed Shearwater.	
PEST VERTEBRATES PRESENT: 1 vertebrate pest has been recorded, but is believed to be no longer present on Serrurier Island: Cat - single animal present for at least 6 years, killed April 1996.	**PEST VERTEBRATE IMPACTS:** None at present.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: None needed.	
POTENTIAL ERADICATION RISKS: Nil.	**POTENTIAL BIOSECURITY RISKS:** Unknown, but likely to be low given long distance offshore.
RECOMMENDED ACTIONS: Implement effective biosecurity to ensure no pests arrive on the island. A plan should be developed for this pest-free island and it should include sections that address visitations and specific biosecurity.	

KEY REFERENCES

Burbidge, A.A. 2004. Introduced mammals on Western Australian islands: improving Australia's ability to protect its island habitats from feral animals. Department of Conservation and Land Management, Western Australia.

DEWHA 2008i. The North-west Marine Bioregional Plan Bioregional Profile. A Description of the Ecosystems, Conservation Values and Uses of the North-west Marine Region. Department of the Environment, Water, Heritage & the Arts, Canberra, ACT. Available at: www.environment.gov.au. Accessed on 28 May 2009.

St Francis Island (SA)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: St Francis Island, Isles of St Francis, south-westerly extent of Nuyts Archipelago	**MAP 7**

LATITUDE: 32° 30' S [Decimal Degrees -32.511°]

LONGITUDE: 133° 17' E [Decimal Degrees 133.293°]

AREA: 671 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 31 km to the mainland 27 km to St Peter Island (see Nuyts Archipelago islands profile)
JURISDICTION: South Australia	**TENURE:** Nature Conservation Reserve - centroid **STATUS:** Isles of St Francis Conservation Park

GENERAL GEOGRAPHY: The Isles of St Francis Conservation Park forms the south-westerly extent of the Nuyts Archipelago and is made up of ten islands. The islands are characterised by beaches, sheltered bays, limestone outcrops and rocky cliffs. This island has a granite base which is usually covered by a deep bed of calcarenite. The island's summit of 81m is located on the south-eastern coast and features an automatic lighthouse and radio beacon.

DEMOGRAPHY & HUMAN USE: Native vegetation was cleared on islands that were used for grazing by early pastoralists. These include Eba, St Peter, Pigface, St Francis, Jones, Baird Bay and Waldegrave Islands. St Francis Island was used from 1859 and through the 19th Century for agriculture and guano mining (DEH 2006), but is no longer inhabited. None of the reserves covered in Island Parks of Western Eyre Peninsula Management Plan 2006 (DEH 2006) provide for access under state mining legislation.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Coast Daisy-bush (*Olearia axillaris*) tall open shrubland occurs throughout the park in sand dune areas. Low shrublands of Nitre Bush (*Nitraria billardierei*), Umbrella Bush (*Acacia ligulata*) or Shore Westringia (*Westringia dampieri*) are common on deep sandy soils on many of the islands in the St Francis Group. Exposed sections of the islands are covered with low open shrubland of Grey Saltbush (*Atriplex cinerea*) and/or Marsh Saltbush (*A. paludosa*), which have salt resistant foliage (DEH 2006).

THREATENED FAUNA:	**THREATENED FLORA:**
2 EPBC listed threatened fauna species are known to occur and a second is likely to occur on St Francis Island.	No EPBC listed, or otherwise listed, threatened flora species are known to occur on St Francis Island.
CR: na	**CR:** na
EN: na	**EN:** na
VU: Australian Sea-lion and Greater Stick-nest Rat/Wopilkara are known to occur on St Francis Island. Nuyts Island Bandicoot is likely to occur on the island.	**VU:** na

9 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMBA) are known to occur on St Francis Island: Cape Barren Goose, Eastern Osprey, Hooded Plover (eastern), Little Penguin, Pacific Gull, Richard's Pipit, Rock Parrot, Short-tailed Shearwater and White-bellied Sea-Eagle. 3 additional EPBC listed Marine or Migratory species may occur on the island: New Zealand Fur Seal, Oriental Plover and White-throated Needletail. 2 additional fauna species listed under one or more Australian state/territory legislation are known to occur on the island: Brush-tailed Bettong and Southern Brown Bandicoot.	
SEABIRD/SHOREBIRD BREEDING SITES: 2 seabirds are known to breed on St Francis Island: Little Penguin and Short-tailed Shearwater. 3 additional seabirds are likely to breed on the island: White-bellied Sea-eagle, Eastern Osprey and Hooded Plover.	**OTHER NATURAL VALUES:** St Francis Island was declared as a Prohibited Area (Gazette 26.4.1974) to protect the Greater Stick-nest Rat populations (DEH 2006).
PEST VERTEBRATES PRESENT: 2 vertebrate pest species have been recorded and are believed to be currently present on St Francis Island; only one is a listed EPBC Key Threatening Process: Black Rat – whether a population has established is uncertain (DEH 2006). Common Starling is present on St Francis Island. 5 additional vertebrate pests have been recorded in the past, but have now been eradicated, or have died out on the island (DEH 2006): Cat, Mallard, Red Junglefowl (aka Chicken), Sheep and Wild Turkey.	**PEST VERTEBRATE IMPACTS:** Predation of seabirds and other birds, small mammals and reptiles by Cats. Competition for food from Black Rats, Common Starling and Sheep Unknown but probably minor impacts from other vertebrate pests
OTHER THREATS PRESENT: Flora are also threatened by: · The introduction of soil borne pathogens into parks, such as *Phytophthora cinnamomi*, is an increasing threat · Weeds	**OTHER THREAT IMPACTS:** · Seals are often caught in fishing nets. This includes nets from aquaculture tuna farms and trawling nets. Juvenile seals have been known to enter rock lobster pots and drown. Seals have also become entangled in trawl netting, bait box straps, fishing line and hooks, monofilament netting and lobster-pot float

- Fire.

Australian Sea-lion and New Zealand Fur Seal are additionally threatened by:

- Fishing Industry
- Human disturbance
- Oil spills - potential threat
- Disease - potential threat among the gregarious sea-lion (Shaughnessy 1999).

Brush-tailed Bettong is additionally threatened by:

- habitat destruction and modification, changes in fire regimes
- persecution by humans (DEH 2006).

rope (DEH 2006).

- Short-term impacts on seal behaviour have been caused by direct disturbance by humans. This includes temporary displacement from breeding and haul-out sites and increased vigilance and aggressive behaviours toward humans. Reduced lactation times and potentially even the abandonment of pups, resulting in the pup's death, can result from disturbance at breeding times (DEH 2006).
- A loss of insulation is caused by oiling of the fur. This can lead to the ingestion of toxic hydrocarbons and death by hypothermia. The New Zealand Fur-seal faces a greater danger from oiling of the fur compared to the Australian Sea-lion, as sea-lions are less dependant on their fur for thermoregulation.
- In other regions of the world, other pinniped species have been known to be destroyed by disease, as transmission is so easy within colonies (DEH 2006).

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified, but St Francis island is covered within the Island Parks of Western Eyre Peninsula Management Plan 2006 (DEH 2006). Strategies within this plan are:

Flora:

Objective

Protect vegetation associations and undertake actions necessary for the conservation of significant species where necessary.

Strategies

- Encourage research into impacts of herbivory by native and introduced species on vegetation, and implement remedial management programs where necessary.
- Ensure that raw materials brought onto the islands are free of *Phytophthora* and that vehicles, equipment and footwear are clean.
- Opportunistically re-photograph from established photopoints to assist ongoing management of vegetation.

Introduced flora:

Objective

Control exotic plants within the parks, especially those known to invade native vegetation.

Strategies

- Map the locations of invasive pest plants as an integral part of vegetation mapping in the reserves, undertaking control if required.
- Fulfil the obligations of the *Natural Resources Management Act 2004* and investigate funding opportunities to support pest plant control.
- Ensure that visitors to the islands are aware of protocols to avoid weed dispersal.

Introduced fauna:

Objective

Control and manage introduced fauna within the Island Parks of Western Eyre Peninsula.

Strategies

- Monitor introduced animal populations within the parks and devise control programs in accordance with priorities, taking into account the benefits to biodiversity versus the costs of possible adverse impacts on native wildlife and other off-target impacts of such programs.
- Monitor the impacts of introduced fauna on the islands, including herbivory, seed dispersal and competition for resources with native wildlife.
- Provide information on the adverse impacts of introduced animals to increase community awareness.

Stakeholders:

- DEH
- Friends of St Peter and St Francis Island Parks
- Department of Water, Land and Biodiversity Conservation
- Department of Primary Industries and Resources SA
- Transport SA
- AMSA
- Eyre Peninsula Community Alliance and Tourism Eyre Peninsula

Costs: not available

FURTHER PEST ERADICATION REQUIREMENTS:

Black Rat is the top priority species to eradicate – see Recommended Actions (below).

POTENTIAL ERADICATION RISKS: There are potential risks to non-target fauna (e.g. Brush-tailed Bettong, Greater Stick-nest Rat, bandicoot species, parrots, plovers, geese) and these should be addressed in planning phases.	**POTENTIAL BIOSECURITY RISKS:** Given the high distance offshore and apparently low visitation rates, the risks of (re)invasion are likely to be low but need to be addressed.

RECOMMENDED ACTIONS: Given the high diversity of biota present, the small size of the islands and apparently low risk of reinvasion, eradications here are likely to offer very cost-effective restoration opportunities.

Update status of key threatened species on the island, e.g. Nuyts Island Bandicoot, Southern Brown Bandicoot, Greater Stick-nest Rat, Brush-tailed Bettong, parrots, seabirds.

Also update the status of pests, including rodents and determine whether Cats have been eradicated.

Develop an integrated management plan for the islands that includes the feasibility of eradicating Black Rats. This needs to include addressing the non-target issues associated with eradicating rats in the presence of a diverse assemblage of small indigenous mammals, seabirds/shorebirds, parrots and others, and ongoing management of indigenous fauna.

A biosecurity plan needs to be prepared. It should include risk assessments for invading species, appropriate procedures and surveillance at the source and arrival points at the island, surveillance on the island, and contingency plans for dealing with the invasion of likely ferals, e.g. rodents and invertebrate pests.

KEY REFERENCES

DEH 2006. Island Parks of Western Eyre Peninsula Management Plan 2006. Government of South Australia, Department for Environment and Heritage. Available at: www.environment.sa.gov.au. Accessed 28 May 2009.

Shaughnessy, P.D. 1999. The Action Plan for Australian Fur Seals. Environment Australia, Canberra, ACT. Available at: www.environment.gov.au. Accessed 23 June 2009.

Swan Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Swan Island (TAS), Waterhouse Island Group. With consideration of Little Swan Island, Waterhouse Island Group.	**MAP 6**

LATITUDE: 40° 44' S [Decimal Degrees -40.738°]

LONGITUDE: 148° 06' E [Decimal Degrees 148.109°]

AREA: 241 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 3 km to mainland; 38 km to Waterhouse Island (across tip of mainland)
JURISDICTION: Tasmania	**TENURE:** Freehold **STATUS:** Private Property, Non-allocated Crown Land

GENERAL GEOGRAPHY: Swan Island is a granite island in south-eastern Australia. It is part of the Waterhouse Island Group, lying close to the north-eastern coast of Tasmania (Brothers et al. 2001).

DEMOGRAPHY & HUMAN USE: Part of the island is privately owned. Swan Island (TAS) has several houses and residents, an automated lighthouse, a resort and a runway are present on Swan Island (www.swanislandholidays.com.au). It has previously been subject to grazing by livestock. Sea kayaking, recreational diving and commercial and recreational fishing occur around Little Swan Island (Parks and Wildlife Service 2002).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The vegetation on Little Swan Island is dominated by native tussock grassland including *Poa poiformis*, *Stipa stipoides* and *Tetragonia implexicoma*. The vegetation is undisturbed by human activities and consists of mostly or wholly native vegetation. There are few or no exotic species apart from some species associated with the seabird rookeries (Parks and Wildlife Service 2002).

THREATENED FAUNA: 1 EPBC listed threatened fauna species may occur in the area. **CR:** na **EN:** Swift Parrot may occur in the area. **VU:** na 11 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on the island: Australian Pelican, Caspian Tern, Common Diving-Petrel, Crested Tern, Hooded Plover (eastern), Little Penguin, Pacific Gull, Short-tailed Shearwater, Silver Gull, White-faced Storm-petrel and White-fronted Tern. 2 additional EPBC listed Marine or Migratory	**THREATENED FLORA:** 3 EPBC listed threatened flora species are likely, and a fourth species may occur on Swan Island. **CR:** na **EN:** Northern Leek-orchid is likely to occur on the island. **VU:** Clover Glycine and Tailed Spider-orchid are likely to occur on the island. Grassland Greenhood may occur on the island.

species are likely to occur in the area: Satin Flycatcher and White-bellied Sea-Eagle. 2 additional fauna species listed under one or more Australian state/territory legislation are known to breed on Swan Island: Pied Oystercatcher and Sooty Oystercatcher.	
SEABIRD/SHOREBIRD BREEDING SITES: 13 seabirds are known to breed on Swan Island and/or Little Swan Island: Caspian Tern, Common Diving-Petrel, Crested Tern, Little Penguin, Pacific Gull, Short-tailed Shearwater, White-faced Storm-petrel, Silver Gull, White-fronted Tern, Pied Oystercatcher and Sooty Oystercatcher. Particularly large numbers of breeding Short-tailed Shearwater (8580 in 1980) and White-faced Storm-petrel (2340 in 1980) have been recorded. In addition, a shorebird, Hooded Plover (eastern), also breeds on this island (Marchant and Higgins 1993).	**OTHER NATURAL VALUES:** The islands are highly significant in respect of geological and geomorphological processes, which include aeolian, marine and soil processes, because they continue to evolve naturally without any major human influences. Soil formation in association with seabird activity, including chemical and physical soil development, is complex in nature and is quite different compared to these processes in other areas. These interrelationships remain poorly understood (Parks and Wildlife Service 2002). The southernmost colony of Australian Pelican in Australia occurs on the island (Brothers et al. 2001).
PEST VERTEBRATES PRESENT: 5 vertebrate pests are present on Swan Island; four of these are a listed EPBC Key Threatening Process: Cat, Goat, House Mouse and Rabbit. Sheep are of potentially high impact on the island.	**PEST VERTEBRATE IMPACTS:** No specific information but cats are likely to be impacting heavily on nesting seabirds. General impacts can be expected from the other pests including significant habitat damage from sheep, rabbits and goats.
OTHER THREATS PRESENT: Unknown	**OTHER THREAT IMPACTS:** Unknown
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: Confirm pest status. Cats are top priority to eradicate, but an integrated package of pest removal is ideal.	
POTENTIAL ERADICATION RISKS: Low risks - some habitat damage and damage to nesting burrows.	**POTENTIAL BIOSECURITY RISKS:** Given distance offshore (3 km) unassisted invasion is unlikely. Biosecurity needs to be assessed.
RECOMMENDED ACTIONS: Develop a management plan for the island. Address information gaps, e.g. pest status, feasibility of eradications, non-target issues, biosecurity needs and monitoring needs. Proceed with pest eradications if feasibility and sustainability indicate likely success. These small islands can offer a highly cost-effective restoration package.	

KEY REFERENCES

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Bryant, S. L. and Jackson, J. 1999. Tasmania's Threatened Fauna Handbook: what, where and how to protect Tasmania's threatened animals. Threatened Species Unit, Parks and Wildlife Service, Hobart. Available at: www.dpiw.tas.gov.au. Accessed 28 May 2009.

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Marchant, S. and Higgins P.J. (eds) 1993. *Handbook of Australian, New Zealand and Antarctic Birds* (HANZAB). Volume 2: Raptors to Lapwings. Oxford University Press, Melbourne.

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Swan Island (VIC)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Swan Island	**MAP 5**

LATITUDE: 38° 15' S [Decimal Degrees -38.252°]

LONGITUDE: 144° 41' E [Decimal Degrees 144.692°]

AREA: 289 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0 km to the mainland (road connection)
JURISDICTION: Victoria	**TENURE:** Defence Land **STATUS:** Commonwealth Department of Defence

GENERAL GEOGRAPHY: Unknown.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:

1 EPBC listed threatened fauna species is known to occur, 1 is likely and 3 additional listed threatened species may occur on Swan Island (VIC).

CR: Orange-bellied Parrot is known to occur on the island.

EN: Smoky Mouse and Swift Parrot may occur on the island.

VU: Southern Bell Frog is likely to occur on the island.

Grey-headed Flying-fox may occur on the island.

25 additional EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur within the area and are likely to occur on Swan Island:

Australasian Gannet, Bar-tailed Godwit, Black-tailed Godwit, Broad-billed Sandpiper, Caspian Tern, Common Greenshank, Common Tern, Crested Tern, Eastern Curlew, Fairy Tern, Great Egret, Grey Plover, Grey-tailed Tattler, Kelp Gull, Latham's Snipe, Pacific Golden Plover, Little Egret, Little Penguin, Little Tern, Marsh Sandpiper, Pacific Gull, Red-necked Stint, Terek Sandpiper, Whimbrel and White-bellied Sea-Eagle.

THREATENED FLORA:

2 EPBC listed threatened flora species are likely to occur on Swan Island (VIC).

CR: na

EN: Maroon Leek-orchid is likely to occur on the island.

VU: Clover Glycine is likely to occur on the island.

3 additional EPBC listed Marine or Migratory species are likely to occur within the area and may occur on Swan Island: Double-banded Plover, Hooded Plover (eastern) and Satin Flycatcher. 4 additional species listed as threatened under one or more Australian state/territory legislation are known to occur within the area and are likely to occur on Swan Island: Brolga, Lewin's Rail, Pied Cormorant and Royal Spoonbill.	
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Unknown.
PEST VERTEBRATES PRESENT: 15 vertebrate pests have been recorded on Swan Island and are believed to be currently present; 6 of these are a listed EPBC Key Threatening Process: Black Rat, Brown Rat, Cat, House Mouse, Rabbit and Red Fox. 1 of the other vertebrate pests is potentially high impact on the island: Common Myna. 8 remaining vertebrate pests are of potentially medium or low impact on the island: Common Blackbird, Common Starling, Eurasian Tree Sparrow, European Goldfinch, European Greenfinch, House Sparrow, Rock Dove and Spotted Turtle-Dove.	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of rats, mice, cats, rabbits, Red Fox and Common Mynas could be expected.
OTHER THREATS PRESENT: Unknown, but unexploded ordinance may be a possibility.	**OTHER THREAT IMPACTS:** Unknown.
PAST & CURRENT PEST MANAGEMENT & MONITORING: None of the management plans obtained refer to Swan Island. A Department of Defence management plan (Biodiversity assessments and strategies for Swan Island 2007) is referred to in Johnston (2008) but was unavailable at the time of review.	
FURTHER PEST ERADICATION REQUIREMENTS: Brown Rat, Black Rat, Cat, Red Fox, Rabbit, House Mouse are all potential eradication or control targets (but see Potential Eradication Risks, Potential Biosecurity Risks and Recommended Actions)	
POTENTIAL ERADICATION RISKS: If poisoning is undertaken for rodents and/or rabbits there may be non-target poisoning risks to Smokey Mouse, Orange-bellied Parrot, Swift Parrot, White-bellied Sea-eagle, Double-banded Plover, Hooded Plover and others. If traps are used for Rabbits and/or Cats	**POTENTIAL BIOSECURITY RISKS:** Given the island is connected to the mainland, reinvasion could occur from all species targeted for eradication and additional pest species.

there could be significant risks for parrots, Little Penguins and many wading birds (waders, spoonbills, etc).	

RECOMMENDED ACTIONS:

Given the connection with the mainland, reinvasion risks would seem to preclude considering eradications.

However, the island has very high values with a number of highly threatened fauna and flora species present, all of which are likely to be suffering high impacts due to mammalian predators and/or browsers.

Clearly there is a need for stakeholders to prepare a management plan for the island for which the main requirement is a series of feasibility studies to address issues such as:

- Is the island habitat suitable for sustaining populations of Orange-bellied Parrots, Swift Parrots, Smokey Mouse, Maroon Leek-orchid and other threatened species under any management regime?
- Can eradication of the six target species be sustained, i.e. can reinvasion be prevented by a barrier or other methods?
- Can eradication of the six target species be achieved without placing individuals of the threatened species at risk?
- Alternatively, can pest-control to low levels be achieved that firstly takes significant pressure off the threatened species, secondly does not pose a significant physical threat for those same threatened species, and thirdly is sustainable and cost-effective?

KEY REFERENCES

Johnston, M. 2008. Introduced animals on Victorian islands: improving Australia's ability to protect its island habitats from feral animals. Arthur Rylah Institute for Environmental Research Client Report. Department of Sustainability and Environment, Heidelberg, Victoria.

Three Hummock Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Three Hummock Island	**MAP 6**
LATITUDE: 40° 26' S [Decimal Degrees -40.441°]	
LONGITUDE: 144° 54' E [Decimal Degrees 144.914°]	
AREA: 6 981 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 26 km to the mainland, 10.5 km to Robbins Prime Seal Island 3.9 km between Three Hummock and Hunter islands (see lower 50 Priority Island profiles).
JURISDICTION: Tasmania	**TENURE:** Mixed Lands **STATUS:** Nature Reserve, Crown Lease

GENERAL GEOGRAPHY: Three Hummock Island has a high point 237 m above sea-level, in Bass Strait, south-eastern Australia. It is part of Tasmania's Hunter Island Group which lies between north-west Tasmania and King Island. The island is named after its three most prominent hills, North, Middle and South Hummock; the latter being the highest. It is located near Hunter Island near the north-west coast of Tasmania (Brothers et al. 2001).

DEMOGRAPHY & HUMAN USE: Part of the island is a nature reserve, with the rest a pastoral lease where farming took place from the mid 1800s to at least the mid 1970s. The focus of human settlement on the island is the homestead at Chimney Corner at the westernmost point. There is an automated lighthouse at Cape Rochon in the north-east, as well as roads, three airstrips, fencing and a wharf. Seasonal muttonbirding occurs in March and April (Brothers et al. 2001).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA:

1 EPBC listed threatened fauna species is known to occur, 1 additional threatened species is likely and a third species may occur on Three Hummock Island.

CR: Orange-bellied Parrot is known to occur on Three Hummock Island.

EN: Wedge-tailed Eagle (Tasmanian) is likely to occur on the island.

Swift Parrot may occur on the island.

VU: na

3 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMA) are known to occur on the island:

Fairy Tern, Hooded Plover (eastern), Short-tailed Shearwater.

THREATENED FLORA:

3 EPBC listed threatened flora species are likely to occur and an additional one may occur on Three Hummock Island.

CR: na

EN: Northern Leek-orchid is likely to occur on Three Hummock Island.

VU: Leafy Greenhood and Tailed Spider-orchid are likely to occur.

Grassland Greenhood may occur on the island.

No known additional flora species listed under one or more Australian state/territory legislation.

2 additional listed Marine or Migratory species are likely to occur on the island: Satin Flycatcher and White-bellied Sea-Eagle. 3 additional listed Marine or Migratory species may occur on the island: Fork-tailed Swift, Latham's Snipe and White-throated Needletail.	
SEABIRD/SHOREBIRD BREEDING SITES: Unknown but several of the species listed above are likely to breed here.	**OTHER NATURAL VALUES:** Unknown
PEST VERTEBRATES PRESENT: 5 vertebrate pests have been recorded and are believed to be currently present on Three Hummock Island; 3 of these are a listed EPBC Key Threatening Process: Cat, House Mouse and Rabbit. 2 additional high impact vertebrate pests are: European Cattle and Sheep.	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of European Cattle, Cat, House Mouse, Rabbit and Sheep could be expected. Cats are likely to be severely impacting seabird and/or shorebird productivity and survival.
OTHER THREATS PRESENT: · Loss and fragmentation of native forest habitat due to clearing. · Conversion of native forest to plantation (eucalypt tree farm and pine). · Hot and frequent fires which destroy the litter layer and ground elements needed for shelter (Bryant and Jackson 1999).	**OTHER THREAT IMPACTS:** Unknown
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: Consider removal of Cats and Rabbits and potentially other pests in island management planning.	
POTENTIAL ERADICATION RISKS: Some risks are likely e.g. this is a large island and logistically challenging for House Mouse eradication. Impacts of all pest management on non-targets, e.g. parrots and eagles would need to be managed. Needs feasibility studies.	**POTENTIAL BIOSECURITY RISKS:** Potentially able to be managed at a low level of risk given long distance offshore and isolation, plus low frequency of visitation.
RECOMMENDED ACTIONS: Authorities, owners and other stakeholders should consider scoping a vision and restoration objectives for the island and subsequently preparing a management plan. The management plan is likely to address key areas where more information is needed, e.g. status and distribution of indigenous fauna, feasibility of eradications, non-target issues and managing visitor impacts and related biosecurity measures.	

KEY REFERENCES

Brothers, N., Pemberton, D., Pryor, H., and Halley, V. 2001, *Tasmania's Offshore Islands: seabirds and other natural features*, Tasmanian Museum and art Gallery, Hobart, Tasmania.

Bryant, S. L. and Jackson, J. 1999. Tasmania's Threatened Fauna Handbook: what, where and how to protect Tasmania's threatened animals. Threatened Species Unit, Parks and Wildlife Service, Hobart. Available at: www.dpiw.tas.gov.au. Accessed 28 May 2009.

DEWHA 2008b. Draft Threat Abatement Plan to reduce the impacts of exotic rodents on biodiversity on Australian offshore islands of less then 100 000 hectares. Department of the Environment, Water, Heritage & the Arts, Canberra, ACT. Available from: www.environment.gov.au. Accessed on 11 February 2009.

Terauds, A. 2005. Introduced animals on Tasmanian Islands. Biodiversity Conservation Branch, Department of Primary Industries, Water and Environment (DPIWE), Hobart, Tasmania.

Tiwi Islands, Melville & Bathurst (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50
ISLAND NAME & GROUP: Melville Island and Bathurst Island, Tiwi Islands.	**MAP 2**

LATITUDE:	11° 35' S [Decimal Degrees -11.597°]
LONGITUDE:	130° 18' E [Decimal Degrees 130.311°]

ISLAND AREAS	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island)**
Bathurst Island: 169 318 ha Melville Island: 578 577 ha	Melville Island: 24 km to the mainland and 12.5 km to un-named 'stepping-stone' island Bathurst Island: 61 km to the mainland 1 km between Bathurst and Melville islands
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Tiwi Land Trust

GENERAL GEOGRAPHY: Bathurst and Melville Islands, separated by Aspley Strait, are the main islands in the Tiwi Island group and the fifth and second largest in Australia respectively. They have the highest rainfall in the Northern Territory and their size enables them to develop their own weather patterns (Tiwi Land Council 2003).

DEMOGRAPHY & HUMAN USE: The Tiwi Islands had a population of 2 228 people in 2001. The communities are predominantly Aboriginal and all main communities are located on the coast with large areas unpopulated and remote with difficult access (Tiwi Land Council 2003). Plantation forestry exists on Melville Island (NRETAS 2008g).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: The Tiwi Islands are dominated by tall eucalypt forest on sandy and lateritic plains and rises. Rainforest patches occur in association with perennial freshwater springs and coastal areas are typically lined with long beaches and rocky headlands. Mangrove-lined creeks and rivers and treeless plains also feature on these islands (NRETAS 2008g).

THREATENED FAUNA:	**THREATENED FLORA:**
11 EPBC listed threatened fauna are known to occur on the Tiwi Islands. **CR**: na **EN:** Hooded Robin (Tiwi Islands), Masked Owl (Tiwi Islands) and Olive Ridley Turtle are known to occur on both Bathurst and Melville islands. **VU**: Brush-tailed Rabbit-rat, Butler's Dunnart, Water Mouse, Flatback Turtle, Green Turtle, Hawksbill Turtle, Red Goshawk and Partridge Pigeon (eastern) are each known to occur	6 EPBC listed threatened flora species occur on the Tiwi Islands. **CR**: na **EN:** Two herbs (*Typhonium jonesii* and *T. mirabile*) and one tree (*Xylopia monosperma*) occur on both Bathurst and Melville islands. An additional herb (*Burmannia* sp. (D61177) Bathurst Island) occurs on Bathurst Island. **VU:** 2 vines (*Hoya australis oramicola* and *Mitrella tiwiensis*) occur on both Bathurst and Melville

on both Bathurst and Melville islands.

12 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur on Bathurst and/or Melville islands:

Bar-tailed Godwit – Melville Island

Black-naped Tern – Melville Island

Bridled Tern – Melville Island

Crested Tern– Melville Island

Eastern Osprey – Melville Island

Great Knot– Melville Island

Greater Sand Plover– Melville Island

Lesser Sand Plover – Melville Island

Little Tern – both islands

Red-necked Stint – Melville Island

Roseate Tern – Melville Island

Silver Gull – both islands

12 additional EPBC listed Marine or Migratory species are likely or may occur on Bathurst and/or Melville islands:

Barn Swallow – both islands

Cattle Egret – both islands

Fork-tailed Swift – both islands

Great Egret – both islands

Little Curlew – both islands

Melville Cicadabird – both islands

Oriental Plover – both islands

Oriental Pratincole – both islands

Rainbow Bee-eater – both islands

Rufous Fantail – Melville Island

Saltwater Crocodile – Melville Island

White-bellied Sea-Eagle – Melville Island

8 additional fauna species listed under one or more Australian state/territory legislation are known to occur on Bathurst and/or Melville islands:

Atlas Moth – Melville Island

Australian Bustard – Bathurst Island

Cognate Land Snail – Melville Island

Dodd's Azure Butterfly – Melville Island

islands.

13 additional flora species that are not listed under the EPBC Act, but are listed under NT legislation, are found on Bathurst and/or Melville island:

Calochilus caeruleus – Bathurst Island

Cephalomanes obscurum – Melville Island

Cycas armstrongii – Melville Island

Dendromyza reinwardtiana – Melville Island

Elaeocarpus miegei – Bathurst Island

Endiandra limnophila – both islands

Freycinetia excelsa – both islands

Freycinetia percostata – Bathurst Island

Garcinia warrenii – Melville Island

Luisia teretifolia – Melville Island

Mapania macrocephala – Bathurst Island

Tarennoidea wallichii – Melville Island

Thrixspermum congestum – both islands

Note: only scientific names are used for these flora species as none of these species have common names (see Appendix 2 – Biodiversity Value Listed Flora).

Land Snail – Melville Island

Merten's Water Monitor – both islands

Northern Brush-tailed Phascogale – Melville Island

Yellow-spotted Monitor – Bathurst Island

SEABIRD/SHOREBIRD BREEDING SITES:

- Three Nationally Significant seabird breeding sites and one Internationally Significant seabird breeding site on Seagull Island (S009, Chatto 2001), just off the north-west coast of Melville Island (NRETAS 2008g).
- Internationally significant for Crested Tern, with counts of around 60 000 (>1% global population; NRETAS 2008g) in colony S009 (Chatto 2001) on Seagull Island off the north-west coast Melville Island. This is believed to be the world's largest breeding colony of this species (G. Dutson in prep., cited in NRETAS 2008g).
- Internationally significant for Great Knot with counts of 12 000 (>1% world population) on Melville Island.
- Three colonies (S018, S138, S146) are considered to be of National Significance for breeding records of Little Tern (Chatto 2001).

OTHER NATURAL VALUES:

- The Tiwi Islands are considered to be of International Significance under the Site of Conservation Significance (SOCS) assessment by the Northern Territory Government (NRETAS 2008g).
- Both Bathurst and Melville islands support nationally and internationally significant turtle nesting sites for Flatback, Green, Hawksbill and Olive Ridley turtles (NRETAS 2008g). The north coast of Melville Island has some of the highest numbers of Olive Ridley Turtle nesting in Australia (Tiwi Land Council 2003).
- Internationally significant seabird rookeries, and some major aggregations of migratory shorebirds.
- Some protection for their plants and animals from some processes affecting many habitats on the Northern Territory mainland (such as Cane Toads and some invasive exotic plants).
- The Tiwi Islands are proposed to be nominated by Birds Australia as an internationally-recognised Important Bird Area (G. Dutson in prep.) due to the occurrence of numerous endemic, restricted range and threatened bird species.
- Ten vine thickets on the Tiwi Islands are listed on the Register of the National Estate (Australian Heritage Council) for their natural values including: Big Pig Jungle, Ilinga Jungle, Hanguana Jungle, Gully Gully Jungle, Tarracumbie Creek Jungle, Jump Up Jungles, Imanawudi Jungle, Third Spring Jungle, East Tjipripu Spring Jungle and Mangkipp Jungle (NRETAS 2008g).

PEST VERTEBRATES PRESENT:

5 vertebrate pests are present on both Bathurst and Melville islands; 2 of these are a listed EPBC Key Threatening Process:

Cat and Pig.

3 vertebrate pests are potentially high impact on both islands:

Domestic Dog, European Cattle and Horse.

Cattle populations are well-established on both islands.

PEST VERTEBRATE IMPACTS:

- Feral pigs are affecting the small herb *Burmannia D61177 Bathurst Island*, which is restricted to two rainforest patches on Bathurst Island (NRETA 2005).
- Buffalo on south and east Melville Island may impact wetlands (Tiwi Land Council 2003).
- Feral cats impact on a wide range of small mammals, birds and reptiles.

2 additional high impact vertebrate pests are present on Melville Island: Water Buffalo – Major Concern Dingo	
OTHER THREATS PRESENT: · Weeds - Two Weeds of National Significance (*Lantana camara* and *Mimosa pigra*), 17 declared Category A and B weeds, and seven undeclared but problematic environmental weeds (high priority weeds: Smith 2001, cited in NRETAS 2008) are recorded from the Tiwi Islands. The grasses *Pennisetum polystachion* and *Megathyrsus maximus* and the escape of major plantation species such as *Acacia mangium* is of concern. · Two species of exotic ants (African Big-headed Ants and Tropical Fire Ants). · Infrastructure. · Erosion. · Plantation forestry and other Economic development. · Sand mining (NRETAS 2008g). · Turtle and tern eggs are sought after food for Tiwi residents (Tiwi Land Council 2003).	**OTHER THREAT IMPACTS:** · No specific information but general impacts associated with weeds could be expected. In the case of the grasses, *Pennisetum polystachion* and *Megathyrsus maximus*, they have a capacity for rapid spread and high biomass resulting in increased fire intensity. Similarly, *Andropogon gayanus* is a serious threat that could escalate if current work towards eradication on the islands is relaxed. · Forestry operations result in a loss of native vegetation and could affect groundwater supplies to wet rainforest. · Sand mining occurs on both islands and causes localised intensive disturbance. · Eggs are harvested and the sustainability of this is questionable although Parks and Wildlife considered in 2001 that the harvest of tern eggs was sustainable. It is believed the greater threat to Olive Ridley Turtle nesting was predation by wild dogs. · Inadequate drainage systems may lead to stormwater pollution and erosion. · The area is susceptible to erosion including sheet, rill and gully erosion. · African big-headed ant, found on both Bathurst and Melville Islands, is one of the world's most invasive ant species and has had a major ecological impact in at least one rainforest patch near Darwin (Tiwi Land Council 2003).

PAST & CURRENT PEST MANAGEMENT & MONITORING: Although no specific pest management plans exist for these islands, various actions are being implemented in the area. These include:

Eradication of feral pigs on Melville Island (Rankmore 2005).

Weeds, feral animals and fire management including a joint pest ant eradication project with CSIRO, which aims to control African Big-headed Ants and Tropical Fire Ants (NRETAS 2008g). Tiwi Land Council, in partnership with CSIRO has commenced an exotic ant survey and eradication program on the islands, and current advice is that the likelihood of eradication is high (Tiwi Land Council 2003).

Surveys by indigenous rangers of marine debris as part of the NT Marine Debris Monitoring program (NRETA 2007). They also carry out weed monitoring and control, and monitor a network of Cane Toad traps under the Tiwi Land Council's Cane Toad Action Plan (NRETAS 2008g).

Irregular aerial surveys of feral animals (Woinarski and Baker 2002).

Permission must be sought to bring cats into the region and if allowed they must be de-sexed, in accordance with a policy of the Tiwi Island Land Council (Tiwi Land Council 2003).

African Big-headed Ant surveys on the islands in 2000 and 2001 indicated it had not spread out of

the main communities (Tiwi Land Council 2003).

Tiwi Land Council (2003) recommendations include:

- Develop and implement feral pig eradication program for Melville Island.
- Assess and record extent of degradation from feral pigs and buffalo.
- Investigate options for pig and cat control in priority areas under Commonwealth Government species recovery plans and Threat Abatement Plans.
- Investigate and encourage economic opportunities for the utilisation of buffalo and pigs.
- Carry out a prioritized feral ant eradication program.
- Develop and enforce policies and by-laws specific for regional feral animal issues, including complimentary education and awareness programs.

FURTHER PEST ERADICATION REQUIREMENTS: Pigs and cats are a priority to eradicate or control. Pigs occur on Bathurst Is. and only a small section of Melville Is., but recent reports suggest that they are increasing in range on Melville Island (NRETAS 2008g).

There is little information on Cat status and distribution in the region although sightings are often reported (Tiwi Land Council 2003).

The level of impact from feral livestock activity on erosion and soil structure within the region has not been quantitatively assessed, although there is evidence of gully erosion in areas in southern Melville Island frequented by buffalo and of soil compaction in pig infested areas on Bathurst Island (Tiwi Land Council 2003).

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Risk of eradication failure due to large scale and logistic issues. Eradication decisions need to be backed by careful planning, including feasibility studies.	· Some direct interstate travel to and from islands (Tiwi Land Council 2003) could result in pest species being transported to the islands. · Entry of overseas ships for forestry export (Tiwi Land Council 2003) is also a risk. · The expansion in range of Cane Toads in the Northern territory is a key risk.

RECOMMENDED ACTIONS: These islands are critically important to a wide variety of indigenous biota. We support the Tiwi Land Council (2003) recommendations for pest management and the development and implementation of effective biosecurity to minimise the chances of other pest invasion.

A recommended way forward is to:

- Stakeholders agree on vision and objectives for management plan and revise management or restoration plan accordingly if significantly different
- Review progress on eradication of Pigs and support with feasibility studies, operational planning as needed
- Complete feasibility study for the management of Cats including sustained control and/or exclusion in key biodiversity areas
- Key documents on indigenous species will assist the above processes (recovery plans for Butler's dunnart, turtles etc), but the status and distribution of some species may need to be updated through targeted survey
- Rankmore (2005) and other advisory documents on feral animals will provide significant guidance on local pest management
- Undertake risk assessment for other invading species, e.g. Cane Toad, exotic rodents, and develop effective biosecurity surveillance and contingency plans.

KEY REFERENCES

Chatto, R. 2001. The distribution and status of colonial breeding seabirds in the Northern Territory. Technical Report 70, 2001. Parks and Wildlife Commission of the Northern Territory, Palmerston, NT.

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Woinarski, J., Rankmore, B., Fisher, A., Brennan, K. and Milne, D. 2007. The natural occurrence of northern quolls Dasyurus hallucatus on islands of the Northern Territory: assessment of refuges from the threat posed by Cane Toads *Bufo marinus*. Report to The Australian Government's Natural Heritage Trust, Northern Australian Government.

Turtle Head Island (QLD)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Turtle Head Island	**MAP 3**

LATITUDE: 10° 55' S [Decimal Degrees -10.930°]

LONGITUDE: 142° 40' E [Decimal Degrees 142.680°]

AREA: 1 253 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** 0.8 km to the mainland
JURISDICTION: Queensland	**TENURE:** State Land/UK/Lands Lease/Reserve **STATUS:** Vacant Crown land/Unknown/Crown leasehold land/Other Crown land

GENERAL GEOGRAPHY: Turtle Head Island is located within the Torres Strait and also within the Great Barrier Reef Marine Park. It is situated in Newcastle Bay at the mouth of Escape River.

DEMOGRAPHY & HUMAN USE: Unknown.

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Unknown.

THREATENED FAUNA: 1 EPBC listed threatened fauna species may occur on Turtle Head Island. **CR:** na **EN:** na **VU:** Spectacled Flying Fox may occur on the island. 7 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMA) are likely to occur on Turtle Head Island: Black-winged Monarch, Pacific Golden Plover, Lesser Sand Plover, Grey-tailed Tattler, Ruddy Turnstone, Spectacled Monarch and Whimbrel. 6 additional EPBC listed Marine or Migratory species may occur on the island: Barn Swallow, Latham's Snipe, Little Curlew, Melville Cicadabird, Rufous Fantail and White-throated Needletail.	**THREATENED FLORA:** 5 EPBC listed threatened flora species are likely to occur and 1 additional threatened species may occur on Turtle Head Island. **CR:** na **EN:** Blue Tassel-fern is likely to occur on Turtle Head Island. **VU:** Australian Arenga Palm, *Calophyllum bicolor*, Chocolate Tea Tree Orchid and Curly Pinks are likely to occur on Turtle Head Island. Mauve Butterfly Orchid may occur on the island.
SEABIRD/SHOREBIRD BREEDING SITES: Unknown.	**OTHER NATURAL VALUES:** Unknown, but given the island's location off the east coast of Cape York, turtles might be expect to visit and potentially nest on the island.

PEST VERTEBRATES PRESENT: One vertebrate pest has been recorded and is believed to be currently present on Turtle Head Island: Pig, a listed EPBC Key Threatening Process.	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of feral pigs could be expected.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: See Recommendations Actions (below).

POTENTIAL ERADICATION RISKS: Unknown	**POTENTIAL BIOSECURITY RISKS:** Unknown, but potentially moderately high given close proximity of mainland (0.8 km).

RECOMMENDED ACTIONS:

Update information on this island and if necessary carry out a survey of indigenous biota and pests.

Once more complete information is available, work with stakeholders to develop plans for furthering management – agree on objectives and develop plans for completing management tasks, feasibility studies and operational plans as required.

KEY REFERENCES

DEWHA 2009b. Australian Islands Biodiversity Database. Shapefiles supplied under licence. Environment Information Resources Network, Australian Government Department of the Environment, Water, Heritage and the Arts on 12 March 2009.

DEWHA 2009f. Australian Seabird Breeding Islands Database. Shapefiles supplied under licence. Environment Information Resources Network, Australian Government Department of the Environment, Water, Heritage and the Arts on 12 March 2009.

DEWHA 2009e. Species of National Environmental Significance Database. Shapefiles supplied under licence. Environment Information Resources Network, Australian Government Department of the Environment, Water, Heritage and the Arts on 12 March 2009.

Waterhouse Island (TAS)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 100 (lower 50)
ISLAND NAME & GROUP: Waterhouse Island, Waterhouse Island Group	**MAP 6**
LATITUDE: 40° 48' S [Decimal Degrees -40.801°]	
LONGITUDE: 147° 37' E [Decimal Degrees 147.630°]	
AREA: 314 ha	**DISTANCE (km) TO NEAREST OTHER LAND & TYPE (mainland/island):** 3.2 km to mainland Tasmania; 38 km to Swan Island (across tip of mainland Tasmania)
JURISDICTION: Tasmania	**TENURE:** Crown Leasehold **STATUS:** Crown Lease, Non-allocated Crown Land
GENERAL GEOGRAPHY: Unknown	
DEMOGRAPHY & HUMAN USE: Unknown	
ECOSYSTEM TYPES/ ECOLOGICAL COMMUNITIES: Unknown	
THREATENED FAUNA: 1 EPBC listed threatened fauna species which is known to occur on Waterhouse Island. **CR:** na **EN:** na **VU:** Southern Bell Frog – known to occur 7 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA or ROKAMA) which are known to occur on Waterhouse Island: Black-faced Cormorant, Caspian Tern, Fairy Tern, Hooded Plover (eastern), Little Tern, Pacific Gull and Short-tailed Shearwater. 4 EPBC listed Marine or Migratory species are likely to occur on the island: Little Penguin, Satin Flycatcher, White-bellied Sea-Eagle and White-faced Storm-petrel. 1 additional fauna species listed under one or more Australian state/territory legislation is known to occur on Waterhouse Island: Sooty Oystercatcher.	**THREATENED FLORA:** 1 EPBC listed threatened flora species is likely to occur on Waterhouse Island. **CR:** **EN:** **VU:** Clover Glycine is likely to occur on Waterhouse Island. No known additional flora species listed under one or more Australian state/territory legislation occur on this island.
SEABIRD/SHOREBIRD BREEDING SITES: 5 seabirds are known to breed on	**OTHER NATURAL VALUES:** Unknown.

Waterhouse Island: Fairy Tern (Higgins and Davies 1996). Little Penguin; <200 in 1986 (DEWHA 2009). Little Tern (Higgins and Davies 1996). Short-tailed Shearwater – e.g. breeding recorded in 1986 and in 1999. White-faced Storm-petrel – e.g. <10 in 1986. 1 shorebird, Hooded Plover (eastern) is known to breed on Waterhouse Island.	
PEST VERTEBRATES PRESENT: 4 vertebrate pests have been recorded and are believed to be currently present on Waterhouse Island. Two of these are a listed EPBC Key Threatening Process: Cat and House Mouse. The other two vertebrate pests are potentially high impact: Deer and Sheep.	**PEST VERTEBRATE IMPACTS:** No specific information but general impacts of Deer, Cat, House Mouse and Sheep could be expected. Cats are likely to be impacting significantly on nesting seabirds via predation. Sheep and Deer are likely to be trampling nests and burrows.
OTHER THREATS PRESENT: Unknown.	**OTHER THREAT IMPACTS:** Unknown.

PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.

FURTHER PEST ERADICATION REQUIREMENTS: Cats are the top priority to eradicate; the sheep, deer and mice are also important species for eradication.

POTENTIAL ERADICATION RISKS:	**POTENTIAL BIOSECURITY RISKS:**
Unknown, but could include poisoning and trapping risks to seabirds and shorebirds.	Given distance offshore (3.2 km), the risks of unassisted reinvasion are low. The risk of human assisted invasion needs assessing.

RECOMMENDED ACTIONS:

With stakeholders, develop vision and objectives for the island and prepare a management plan that involves removing pests from the island.

Subsets of the plan will include feasibility studies of eradications, order of completing eradications, and means of sustaining pest-free status.

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Yabooma Island & Milingimbi Island (NT)

HIGH CONSERVATION STATUS AUSTRALIAN OFFSHORE ISLAND	**PRIORITY:** Top 50 (Yabooma) & lower 50 (Milingimbi)
ISLAND NAME & GROUP: Yabooma Island, Crocodile Island Group, and Milingimbi Island, which is near the Crocodile Island Group	**MAP 2**

LATITUDE (Yabooma Island):	12° 02' S [Decimal Degrees -12.037°]
LONGITUDE (Yabooma Island):	134° 56' E [Decimal Degrees 134.948°]

ISLAND AREAS Yabooma Island**:** 2 498 ha Milingimbi Island: 4 949 ha	**DISTANCE TO NEAREST OTHER LAND & TYPE (mainland/island):** Yabooma Island**:** 8 km to the mainland, 2.7 km to Milingimbi Island Milingimbi Island: 0.1 km (probably reduced to 0 km for purposes of vertebrate pest invasion) to the mainland. 'stepping stone' islands reduce the distances between Yabooma and Milingimbi islands to 1.4 km and 0.9 km.
JURISDICTION: Northern Territory	**TENURE:** Aboriginal Freehold and Leasehold **STATUS:** Aboriginal Freehold and Leasehold, Arnhem Land Aboriginal Land Trust

GENERAL GEOGRAPHY: Unknown

DEMOGRAPHY & HUMAN USE: Castlereagh Bay and associated islands mainly support Indigenous use, but commercial fisheries also work in the Bay (NRETAS 2008h).

ECOSYSTEM TYPES/ECOLOGICAL COMMUNITIES: Castlereagh Bay and associated islands are comprised of diverse habitats including rock and sand islands, the coastline, and adjoining coastal floodplains. There are extensive areas of intertidal mudflats around the bay and islands, which regularly support large aggregations of migratory shorebirds in internationally significant numbers. The off-shore islands support high numbers of colonial breeding seabirds, and significant numbers of three species of marine turtles use the sandy beaches for nesting (NRETAS 2008h).

THREATENED FAUNA: 6 EPBC listed threatened fauna are known, 2 species are likely to occur and 2 additional threatened species may occur within the Crocodile Island Group and/or on Milingimbi Island. **CR:** na **EN:** Olive Ridley Turtle is known to occur on Yabooma Island and elsewhere within the	**THREATENED FLORA:** 1 EPBC listed threatened flora species is likely to occur within the Crocodile Island Group and/or on Milingimbi Island. **CR:** na **EN:** na **VU:** Australian Arenga Palm is likely to occur within the Crocodile Island Group and/or on Milingimbi

Crocodile Island Group. Northern Quoll is known to occur on Milingimbi Island. **VU:** Flatback Turtle, Water Mouse, Partridge Pigeon (eastern) and Green Turtle are known to occur on Yabooma Island and elsewhere within the Crocodile Island Group. Water Mouse and Flatback Turtle are also likely to occur on Milingimbi Island. Brush-tailed Rabbit-rat may also occur within the Crocodile Island Group and/or on Milingimbi Island. Masked Owl (Kimberleys) may occur on Milingimbi Island. 9 EPBC listed Marine or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA) are known to occur within the Crocodile Island Group: Bar-tailed Godwit, Bridled Tern, Crested Tern, Eastern Curlew, Great Knot, Grey-tailed Tattler, Little Tern, Ruddy Turnstone and Terek Sandpiper. Bridled Tern and Crested Tern are also known to occur, Great Knot is likely to occur, and Little Tern may occur, on Milingimbi Island. 4 additional listed Marine or Migratory species are likely to occur within the Crocodile Island Group and/or on Milingimbi Island: Black-tailed Godwit, Grey Plover, Saltwater Crocodile and White-bellied Sea-Eagle. 6 additional listed Marine or Migratory species are likely to occur within the Crocodile Island Group and/or on Milingimbi Island: Barn Swallow, Little Curlew, Melville Cicadabird, Oriental Plover, Oriental Pratincole and Rufous Fantail. 3 additional fauna species listed under one or more Australian state/territory legislation are known to occur on the Crocodile Islands: Emu, Pied Oystercatcher and Yellow-spotted Monitor.	Island.
SEABIRD/SHOREBIRD BREEDING SITES: Yabooma Island and the Crocodile Island Group is a Site of International Significance (>1% world population) for the Pied Oystercatcher (NRETAS 2008h). Yabooma Island and the Crocodile Island	**OTHER NATURAL VALUES:** The Crocodile Island Group is a nationally significant nesting site for Olive Ridley Turtle and Flatback Turtle. The Castlereagh Bay area, encompassing the Crocodile Island Group, supports some of the

Group is also a Nationally important breeding site for Bridled Tern and Crested Tern, and Little Tern also breed on Yabooma Island. Small offshore islands northeast of Milingimbi are also significant nesting sites for colonial breeding seabirds including Bridled Tern and Crested Tern.	largest shorebird flocks in the Top End (>1% East Asian-Australasian Flyway population), including: · Great Knot · Bar-tailed Godwit · Eastern Curlew · Terek Sandpiper · Ruddy Turnstone · Grey-tailed Tattler.
PEST VERTEBRATES PRESENT: Dingo was eradicated from Yabooma island in the 1990s. No vertebrate pests are currently present on islands within the Crocodile Island Group. European Cattle died out on Milingimbi Island. Cane Toad has been recorded, and is believed to be currently present on Milingimbi Island; this species is a listed EPBC Key Threatening Process.	**PEST VERTEBRATE IMPACTS:** Cane Toad is believed to have established on Milingimbi Island (Rankmore 2005) and could have a devastating impact on the Northern Quoll population on this island.
OTHER THREATS PRESENT: Unknown	**OTHER THREAT IMPACTS:** Unknown
PAST & CURRENT PEST MANAGEMENT & MONITORING: No island specific management plan was identified.	
FURTHER PEST ERADICATION REQUIREMENTS: See Recommendation Actions (below)	
POTENTIAL ERADICATION RISKS: Unknown	**POTENTIAL BIOSECURITY RISKS:** Cane Toad could potentially invade Yabooma Island from the mainland via flooded channels.
RECOMMENDED ACTIONS: On current information, the islands offer significant opportunities for the management of a diverse range of threatened indigenous fauna, including Northern Quoll and other small mammals, Partridge Pigeon, Masked Owl, turtles and seabirds. A key need, however, is to prevent Cane Toads and other vertebrate pests from establishing. Review information on indigenous fauna and pests pecies for the island and with owners/stakeholders carry out targeted surveys as needed, e.g. for small indigenous mammals, Partridge Pigeon, Masked Owls, and for pest species, e.g. Cane Toads, rodents and Cats. Integrate recommendations of multi-species recovery plan and further technical advice as required. With owners and others takeholders develop management plans for the island including objectives, feasibility of faunar ecovery and pest management, biosecurity needs and sustainability.	
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5 Summary List of Islands Closely Considered

The following 68 islands (>200 ha) were included in the full biodiversity value and feral impacts assessment, but did not qualify in the Top 100 priority islands list.

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	COMMENT
AUGUSTUS ISLAND		WA	-15.36	124.55	19 179	
BAYLEY ISLAND	FORSYTH ISLANDS	QLD	-16.90	139.07	254	
BIGGE ISLAND		WA	-14.56	125.16	17 499	
BLACK ISLET	SIR EDWARD PELLEW GROUP	NT	-15.60	136.67	465	Island is considered within the profile for the Sir Edward Pellew Group (NT)
BOSTON ISLAND		SA	-34.70	135.93	949	
COCKATOO ISLAND	BUCCANEER ARCHIPELAGO	WA	-16.10	123.61	519	
CRAB (MOENT) ISLAND		QLD	-10.97	142.11	244	
CURACOA ISLAND (NOOGOO)	PALM ISLANDS	QLD	-18.67	146.55	471	
DAUAN ISLAND	TORRES STRAIT ISLANDS	QLD	-9.42	142.54	355	
DENT ISLAND	WHITSUNDAY GROUP	QLD	-20.36	148.93	396	
DEPUCH ISLAND	FORESTIER ISLANDS	WA	-20.63	117.73	1 137	
DIXON ISLAND		WA	-20.63	117.06	511	
DOG ISLAND (VIC)	NOORAMUNGA	VIC	-38.68	146.71	443	Island is considered within profile for Noomarunga Offshore Islands (VIC)
DOOLE ISLAND		WA	-22.47	114.16	261	
DOWNES ISLAND		WA	-20.32	118.51	307	
EAST ISLAND (SA)	WALDEGRAVE ISLANDS	SA	-33.60	134.80	335	
FACING ISLAND	GLADSTONE HARBOUR ISLANDS	QLD	-23.82	151.36	2 996	
FANTOME ISLAND (EUMILI)	PALM ISLANDS	QLD	-18.69	146.52	726	
FLINDERS ISLAND (SA)	INVESTIGATOR GROUP	SA	-33.72	134.49	3 937	

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	COMMENT
GABBA ISLAND	TORRES STRAIT ISLANDS	QLD	-9.77	142.64	417	
GARDEN ISLAND (WA)		WA	-32.20	115.68	1 209	
GOAT ISLAND (SA)	NUYTS ARCHIPELAGO	SA	-32.31	133.51	326	Island considered in profile for Nuyts Archipelago
GREAT KEPPEL ISLAND	KEPPEL ISLES	QLD	-23.18	150.96	1 339	
GREAT PALM ISLAND	PALM ISLANDS	QLD	-18.74	146.62	5 552	
HAMILTON ISLAND	WHITSUNDAY GROUP	QLD	-20.35	148.96	680	
HASLEWOOD ISLAND	WHITSUNDAY GROUP	QLD	-20.28	149.09	771	
HOGAN ISLAND	HOGAN GROUP	TAS	-39.22	146.99	255	
HOOK ISLAND	WHITSUNDAY GROUP	QLD	-20.12	148.92	5 417	
HOPE ISLAND (WA)		WA	-22.17	114.47	691	
IRVINE ISLAND	BUCCANEER ARCHIPELAGO	WA	-16.08	123.54	938	
KOOLAN ISLAND		WA	-16.13	123.75	2 572	
LONG ISLAND (WA)	Recherche Archipelago	WA	-16.57	123.37	1 340	
MABUAIG ISLAND	BELLEVUE ISLANDS (TORRES STRAIT)	QLD	-9.95	142.18	636	
MAER (MEER) ISLAND	MURRAY ISLANDS	QLD	-9.92	144.05	411	
MARBLE ISLAND	NORTHUMBERLAND ISLANDS/DUKE ISLANDS	QLD	-21.98	150.17	564	
MIDDLE ISLAND (WA)		WA	-20.91	115.33	351	
MIDDLE OSBORNE ISLAND	OSBORNE ISLANDS	WA	-14.32	126.01	2 373	
NORTH EAST ISLES	GROOTE EYLANDT GROUP	NT	-13.64	136.94	424	
NORTH GOULBURN ISLAND	GOULBURN ISLAND	NT	-11.50	133.44	3 976	
NORTH WEST VERNON ISLAND	VERNON ISLAND	NT	-12.05	131.04	1 381	
ORPHEUS ISLAND (GOOLBODDI)	PALM ISLANDS (NP in GBR)	QLD	-18.62	146.49	1 342	
PASSAGE ISLAND (TAS)		TAS	-40.51	148.34	253	
PELORUS ISLAND (NORTH PALM ISLAND)(YANOOA)	PALM ISLANDS	QLD	-18.55	146.50	384	

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	COMMENT
POBASSOO ISLAND	THE ENGLISH COMPANY ISLAND GROUP	NT	-11.91	136.45	391	Island is included within profile for the English Company Island Group
PORT LIHOU ISLAND		QLD	-10.73	142.24	384	
PRIME SEAL ISLAND		TAS	-40.07	147.76	1 214	
REEVESBY ISLAND	SIR JOSEPH BANKS GROUP	SA	-34.53	136.28	409	
RIMBIJA ISLAND	WESSEL ISLANDS	NT	-11.01	136.75	244	Island is considered in profile for Wessell Islands (NT)
SIR GRAHAM MOORE ISLAND	SIR GRAHAM MOORE ISLANDS	WA	-13.89	126.55	2 844	
SOUTH GOULBURN ISLAND	GOULBURN ISLAND	NT	-11.62	133.41	6206	
SPILSBY ISLAND	SIR JOSEPH BANKS GROUP	SA	-34.66	136.34	428	
ST BEES ISLAND	CUMBERLAND ISLANDS	QLD	-20.92	149.44	1 044	
SUNDAY ISLAND (WA)	BUCCANEER ARCHIPELAGO	WA	-16.41	123.19	1 450	
SYDNEY ISLAND	WELLESLEY ISLANDS	QLD	-16.69	139.46	1 028	
TAYLOR ISLAND		SA	-34.88	136.01	259	
TENT ISLAND		WA	-22.02	114.52	1 912	
THEVENARD ISLAND		WA	-21.46	115.00	619	
THISTLE ISLAND		SA	-35.00	136.15	4 104	
THURSDAY ISLAND		QLD	-10.58	142.22	341	
TOWNSHEND ISLAND	CANNIBAL GROUP	QLD	-22.28	150.51	7 762	
TRUANT ISLAND	THE ENGLISH COMPANY ISLAND GROUP	NT	-11.67	136.83	305	Island is included within profile for the English Company Island Group
UWINS ISLAND		WA	-15.27	124.82	3 319	
WARDANG ISLAND		SA	-34.50	137.36	1 810	
WEDGE ISLAND (SA)	GAMBIER ISLANDS	SA	-35.16	136.47	943	
WIGRAM ISLAND	THE ENGLISH COMPANY ISLAND GROUP	NT	-11.78	136.57	2 278	Island is considered within profile for the English Company Island Group
WILD DUCK ISLAND		QLD	-22.00	149.86	386	
WOLLASTON ISLAND		WA	-14.50	125.47	869	

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)	COMMENT
ZUNA ISLAND (ENTRANCE ISLAND)		QLD	-10.72	142.30	567	

6 Summary List of Small Islands (<200 ha) Worth Considering for Priority Listing

These 58 small islands (< 200 ha) ranked highest in our preliminary assessment (see Chapter 2) of biodiversity value and feral presence. We consider these to be priority small islands worth further investigation for feral vertebrate pest management/eradication and a full conservation values assessment. They are listed alphabetically. Longitude is absent for two islands which do not appear to be listed in the Australian Gazetteer (Geoscience Australia 2009), and for which longitudes were incorrect in the available data.

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)
ALTHORPE ISLANDS	ALTHORPE ISLANDS	SA	-35.37	136.86	64
ANDERSON ISLAND	ANDERSON ISLANDS	TAS	-40.30	148.11	162
BAUDIN ROCKS (SOUTH)	GODFREY ISLANDS	SA	-37.09	139.72	2
BENNISON ISLAND		VIC	-38.84	146.37	6
BIG DOG ISLAND	NOORAMUNGA	VIC	-38.70	146.55	135
BOATSWAIN ISLAND	MUD ISLANDS	VIC	-38.27	-	26
BOULLANGER ISLAND		WA	-30.32	115.00	35
BREAKSEA ISLAND		WA	-35.06	118.05	110
BROUGHTON ISLAND		NSW	-32.62	152.32	153
BULLOCK ISLAND	NOORAMUNGA	VIC	-38.69	146.59	104
CARNAC ISLAND		WA	-32.12	115.66	21
CHINAMAN ISLAND		VIC	-38.24	145.31	48
CHURCHILL ISLAND		VIC	-38.50	145.34	59
CITADEL ISLAND	GLENNIE GROUP	VIC	-39.11	146.24	20
CLIFFY ISLAND	SEAL ISLANDS	VIC	-38.95	146.71	7
CLONMEL ISLAND	NOORAMUNGA	VIC	-38.72	146.71	140
COOCHIEMUDLO ISLAND	N/A	QLD	-27.57	153.33	170
CULL ISLAND	RECHERCHE ARCHIPELAGO	WA	-33.92	121.90	53
DANNEVIG ISLAND	GLENNIE GROUP	VIC	-39.11	146.24	22

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)
DRUM ISLAND	NOORAMUNGA	VIC	-38.72	146.66	108
DUCK ISLAND		VIC	-38.23	144.69	14
EASTERN ISLAND	MUD ISLANDS	VIC	-38.27	-	22
FORSYTH ISLAND		TAS	-40.51	148.31	167
GABO ISLAND		VIC	-37.56	149.91	157
GEORGE ROCKS		TAS	-40.92	148.33	3
GOOSE ISLAND	GOOSE ISLAND GROUP	SA	-34.46	137.36	8
GRANITE ISLAND		SA	-35.56	138.63	28
GREAT GLENNIE ISLAND	GLENNIE GROUP	VIC	-39.08	146.23	148
GREEN ISLAND (SA)		SA	-34.46	137.40	1
GRIFFITHS ISLAND		VIC	-38.39	142.25	62
HUNTER ISLAND	NOORAMUNGA	VIC	-38.66	146.77	197
ISLAND A (SA)		SA	-33.17	134.60	17
LADY JULIA PERCY ISLAND		VIC	-38.42	142.00	142
LITTLE DOG ISLAND	NOORAMUNGA	VIC	-38.69	146.56	76
LITTLE GREEN ISLAND		TAS	-40.23	148.25	87
LOW ISLETS MAIN	LOW ISLETS	TAS	-40.13	147.72	11
MERRI ISLAND		VIC	-38.40	142.47	0
MIDDLE ISLAND (VIC)		VIC	-38.40	142.47	1
MISTAKEN ISLAND		WA	-35.06	117.94	13
MUTTONBIRD ISLET/LITTLE MUTTONBIRD ISLAND		NSW	-30.30	153.14	1
NORTH ISLAND (SA)	GAMBIER ISLANDS	SA	-35.12	136.47	70
PEARSON ISLES	INVESTIGATOR GROUP	SA	-33.96	134.27	53
RABBIT ISLAND (VIC)		VIC	-38.91	146.51	26
RAM ISLAND	FRENCH ISLAND	VIC	-38.42	145.33	4
REEF ISLAND		VIC	-38.47	145.41	10
ROBERTS ISLAND	NOORAMUNGA	VIC	-38.70	146 38	51
ROXBY ISLAND	SIR JOSEPH BANKS GROUP	SA	-34.59	136.32	99
SEAL ROCKS (VIC)		VIC	-38.53	146.67	1

ISLAND NAME	ARCHIPELAGO	JURISDICTION	LATITUDE	LONGITUDE	AREA (ha)
SOUTH NEPTUNES	NEPTUNE ISLANDS	SA	-35.32	136.11	60
SPLIT SOLITARY ISLAND		NSW	-30.24	153.18	5
STICKNEY ISLAND	SIR JOSEPH BANKS GROUP	SA	-34.68	136.27	64
TIN KETTLE ISLAND	ANDERSON ISLANDS	TAS	-40.29	148.15	176
TREFOIL ISLAND		TAS	-40.63	144.69	120
TROUBRIDGE ISLAND		SA	-35.12	137.83	11
WEST ISLAND (SA)		SA	-35.61	138.59	15
WEST ISLAND (WA)	LACEPEDE ISLANDS	WA	-16.85	122.11	91
WINCEBY ISLAND	SIR JOSEPH BANKS GROUP	SA	-34.49	136.28	28
WOODY ISLAND (WA)	RECHERCHE ARCHIPELAGO	WA	-33.96	122.01	199

7 Planning Pest Management on Australia's Offshore Islands – A Best Practice Perspective

7.1 Introduction

The offshore islands of Australia range from tropical and subtropical atolls through warm temperate, cool temperate and subantarctic islands. Geology and soil type are highly variable and their interactions have a large bearing on the native biota and the ability of specific exotic biota to colonise. There are additional factors that influence the composition of native and exotic biota on islands, including the distance of an island from the mainland and/or large islands, typically the main source of native and pest biota. Increasingly, there are also many anthropogenic effects that influence the biota of all islands to widely varying degrees. Because of these wide-ranging abiotic and biotic influences, the diversity of ecosystems and species on islands is very wide-ranging, with each island or archipelago having a unique biota. Consequently, every island or archipelago will have its own particular pest management issues that require site-specific solutions.

Offshore islands are vitally important to the survival of Australia's threatened species and pest management on islands is crucial (Burbidge 1999). Pest managers normally aim for either eradication of a pest species or reduction in its numbers to prescribed levels that then enable restoration targets to be achieved. Either approach also needs to be accompanied by enhanced biosecurity. The Threat Abatement Plans (TAPs) for invasive species on Australia's offshore islands generally reflect these three approaches: eradication, reduction in pest population and enhanced biosecurity. The TAP for rodents, for example, identifies three objectives on high priority islands – eradicate exotic rodents, mitigate impacts where rodents cannot be eradicated, and prevent further invasion of islands currently free of exotic rodents.

In the medium and long-term, eradication of a pest species can achieve more for biodiversity restoration and at a lower cost than that achieved by sustained control of the same pest species. Frequently, however, eradication may require a significant level of funding during the initial pest hits. On some islands with multiple pest species, combinations of the two approaches might be considered along with doing nothing for other invasives, e.g. eradication of pest species *x*, control of pest species *y* and ignoring of species *z*, but this complex approach should be considered only after careful feasibility studies. Each of the approaches - eradication, mitigation and biosecurity - requires careful planning and needs to incorporate local social and economic considerations including into the future.

The key ingredient for successfully managing island pests anywhere is to develop a suite of clear plans for that particular situation. Key planning components are:

1. strategic objectives for an island and its biota clearly defined

2. feasibility studies completed, and

3. operational plan developed and tested.

Throughout this process, support from stakeholders needs to be continually developed.

7.2 Strategic Objectives

The restoration goals or objectives for an island or archipelago can be contained in an existing management plan or identified as a series of long-term goals in national or regional strategies. These objectives need to be clearly defined before feasibility studies and operational planning are completed. There are many examples of good strategic planning documents for pest management in Australia and overseas that have enabled a clear way forward for planning. Examples include the development of island management plans for Phillip Island (VIC), Rottnest Island (WA), and Lord Howe Island (NSW). In many cases these are backed by regionalised state/territory conservation management strategies. In New Zealand, regional conservation strategies are regularly updated with public involvement and have enabled orderly planning for the removal of rodents, browsers and predators from subantarctic Campbell Island to subtropical Raoul Island (Veitch and Clout 2002). Elsewhere, the 'Project Isabela' initiative allowed careful planning for the eradication of goats and other herbivores from the 48 000 ha tropical Santiago Island in the Galapagos Islands (Cruz et al. 2009), while on a smaller scale, many publicly-driven initiatives, e.g. Friends of Tiritiri Matangi Island in New Zealand, have also followed similar strategic planning for mats and subsequently completed pest eradications and maintained effective biosecurity. The objectives of these projects may range from the security and recovery of a species population to the restoration of a particular ecological community or entire island ecosystem or ecosystems.

Broadly, the strategic objectives and priorities for Australia's offshore islands are described at three levels – national, state/territory and local.

7.2.1 National strategies

National strategies include DEWHA's TAPs (DEH 2005; DEWHA 2008b, c,d,e,f) along with other Commonwealth Government documents such as the *Australian Pest Animal Strategy* (DEWR 2007b). In addition, national strategies are provided within national species recovery plans (e.g. Woinarski 2004a,b), World Heritage plans (e.g. Shark Bay World Heritage Area, McCluskey 2008), nature reserve plans (e.g. Dampier Archipelago Nature Reserves, Morris 1990) and many other documents, such as this report which assists with the prioritisation of pest removal from Australia's larger (> 200 ha) offshore islands. Many of these documents can be accessed from the DEWHA website (www.environment.gov.au).

7.2.2 State/territory strategies

State/territory strategies include strategic plans specifically written for managing island groups (e.g. Lord Howe Island Group, Manidis Roberts 2000) or specific biota across a state/territory (e.g. Northern Quoll in the Northern Territory, Woinarski et al. 2007). State/territory strategies also include recovery plans for threatened species that are confined wholly or mainly to one state (e.g. South Australian subspecies of the Glossy Black-Cockatoo, Mooney and Pedler 2005; Lord Howe

Phasmid and Lord Howe Woodhen, draft plans in preparation, see www.lordhoweisland.info).

7.2.3 Local strategies

Local strategies include individual island strategies, or parts of islands. These local strategies are important because they engage the community in helping to develop island plans spanning the setting of visions and objectives to the implementation of tasks and ongoing monitoring and surveillance. These plans are often integrated plans that cover ecological, social and economic aspects and require input from all relevant stakeholders off and on the islands. The absence of a strategic management plan can lead to difficulties with stake holder support, capacity development, and sometimes poor decision making at the operational planning stage for pest management.

The Lord Howe Island Management Plan (Manidis Roberts 2000) is a good example of a plan that has combined national, state/territory and local expertise in developing a locally-focused plan, and others e.g. the draft Rottnest Island Management Plan (Rottnest Island Authority 2009), are following suit. The former identified 19 objectives for the entire Lord Howe Island Group, many of these involving the management of pest species. Typically, plans at this level do not identify specific management actions, as many of these may firstly require further research (feasibility study, see below). However, they do identify desired outcomes that have been discussed and agreed upon via widespread consultation through a strategic planning committee. Agreement of the vision and objectives of these documents are vitally important for the ongoing securing of support, capacity and funding.

Another good example is the Phillip Island Management Plan (Phillip Island Nature Parks 2006) which has a clear vision and strategic goals spanning environmental sustainability, community and tourism and which was developed with the community and other stakeholders. It has enabled parallel operational planning to proceed for the eradication of foxes and management of other pests (McPhee and Bloomfield 2004).

7.3 Feasibility Study

A peer-reviewed feasibility study is essential prior to developing an operational plan. Depending on how well a particular island and its biota and issues are known, a feasibility study may be quite narrowly-focused, e.g. fine-tuning aspects of the operational approach or integrating social components. However, many islands or ecological communities are less well-known and feasibility studies need to be broader and include fairly fundamental needs. For example, these may include the need to:

- Evaluate whether it is worth managing the island or some or all of the pests at all, i.e. assess the cost and benefits of eradication and ongoing pest control compared with managing other islands or doing nothing.
- Assess the level of public support and likely funding for the project both now and also in the future.
- Determine the achievability of eradication or control, i.e. is it technically feasible to eradicate or manage a pest to desired levels, and if not, what aspects need to be refined

or further researched?

- Determine the feasibility of maintaining biosecurity after eradications, i.e. can the risk of reinvasion or invasion of other pests be satisfactorily mitigated?
- Estimate the cost of ongoing management and biosecurity work.
- Assess the level of likely non-target effects during the operation, and if unacceptably high, can this be mitigated satisfactorily?
- Assess the potential for 'ripple effects' e.g. the increases in numbers of a browser following predator-removal, or one native species gaining a detrimental competitive advantage over another native species after pest eradication.

Failure to address any one of the above needs could place an operation at significant risk.

Most feasibility studies are in support of eradication projects given that it is becoming technically feasible to remove pests from increasingly large islands. Moreover, there are many examples of how sustained pest control has failed to achieve recovery objectives for threatened species and/or faced significant ongoing costs, e.g. Red Fox control on Phillip Island (McPhee and Bloomfield 2004).

Eradication projects generally use five principles that must be met before a project is undertaken (Parkes 1990, Bomford and O'Brien 1995, DOC 2006):

1 All individuals can be put at risk by the eradication technique(s).

2 They can be killed at a rate exceeding their rate of increase at all densities.

3 The probability of the pest re-establishing is manageable to near zero.

4 The project is socially acceptable to the community involved.

5 Benefits of the project outweigh the costs.

In planning pest eradications on Australia's offshore islands, principles 1 and 2 often involve well-established eradication methods, many of them having been refined and extensively used overseas, e.g. for rodents (DOC 2006, currently under revision), rabbits (Merton et al. 2002, Torr 2002) and feral cats (Copson 2002). However, it is principles 3 - 5 that can cause considerable barriers to specific island plans and these are discussed below. Responses to principles 3 - 5 can also influence a decision to revisit the eradication approaches of principles 1 and 2.

7.3.1 Principles 1 & 2 – Involve well-established pest eradication methods

No two islands would see identical pest eradication approaches, but broad approaches have been successfully developed for eradicating several species (Table 7.1).

Table 7.1 Examples of standard approaches for pest eradication on islands

Target	Principal eradication methods	International examples

Rodents	a. Anticoagulant poison bait – hand-spread or aerial application depending on island size and terrain/foot access; two applications approximately 1-2 weeks apart. Rodent species composition and some local non-target circumstances dictate baiting density. For example, higher density on islands with terrestrial crabs, such as Vahanga atoll, as crabs may also eat the baits (usually with little or no side-effects). b. Use alternative bait stations (e.g. raised level baits) in areas with sensitive native mammalian fauna e.g. Barrow Island.	Many islands (DOC 2006, Howald et al. 2007, Veitch and Clout 2002); Barrow Island (Morris 2002); Vahanga atoll (Griffiths et al. 2008)
Rabbits	Aerial or hand-spread of bait as for rats above, followed by supplementary methods, particularly day and night hunting, trained dogs and sometimes trapping to eliminate survivors.	Mauritius (Merton 1987); Saint Paul Island (Micol and Juventin 2002); Enderby and Rose islands (Torr 2002)
Feral cats	Shooting, cage-trapping and padded jaw traps are the recommended code of practice. 1080 baits have also been successfully used followed by trapping survivors (e.g. Hermite Island). Current research is underway on new baits and toxins and integrated pest control. On islands where rats are also being targeted with brodifacoum, many cats have died of secondary poisoning following the initial rodent poisoning. Follow-up has been via the methods described above.	General review (Nogales et al. 2004); DEWHA workshop on new bait (DEWHA 2008n); Macquarie Island (Copson 2002); Little Barrier Island (Veitch and Bell 1990); Hermite Island (Algar et al. 2002); islands of The Galapagos (Phillips et al. 2005)
Goats and livestock	Hunting and supplementary techniques, e.g. dogging, 'Judas goats' (radio-tagged released animals), all methods considered humanely acceptable or conditionally acceptable (Sharp and Saunders 2007).	Ethics (Sharp and Saunders 2007); Lord Howe Island (Parkes et al. 2002); Santiago, Galapagos (Cruz et al. 2009); subantarctic islands of New Zealand (Veitch and Clout 2002)
Feral pigs	Aerial shooting, poisoning and trapping, all methods of which are considered humanely available (Sharp and Saunders undated).	Ethics (Sharp and Saunders, undated); guidelines (QPWS 2004)
Red Fox	Considerable research and adaptive management is addressing control strategies. Combinations of 1080 baiting, spotlight hunting, trapping, and using trained dogs to find dens, are identified in the Phillip Island Strategic Plan approach.	Phillip Isl and (McPhee and Bloomfield 2004); Red Fox TAP (Saunders and McLeod 2007)

7.3.2 Principle 3 – Reinvasion risks & biosecurity needs

Reinvasion risks are unique to the circumstances of each site and risks are often underestimated. A feral species could effectively recolonise depending on physical ability (access distances and swimming capabilities) and human-related issues, e.g. effectiveness of quarantine measures for the islands. Significant regard needs to be given to the future here, given expanding ranges of

many pests, e.g. Cane Toads and invertebrate pests, and adapt objectives and management approach accordingly. In addition the removal of a pest from an island can subsequently increase the chances of a competitor species to establish, e.g. smaller rodents may have a greater chance of surviving and establishing when large rodents or predators are removed. Risk assessments in for potential newly arriving pests have been evaluated for Australasia by Bomford (2008).

All of these issues need to be carefully considered on an island by island basis and address questions such as:

- what pests pose a risk to the island or islands and what are their likely levels of impact should they establish?

- is it feasible to maintain a pest-free island?

- can more effective biosecurity reduce the risks, are the risks acceptable to an eradication programme being considered in the first place?

- what contingency plans and responses can be put in place in the event of reinvading pests?

AusBIOSEC has developed strategies that will provide general advice on the prevention of invasions of plant and animal species and operational frameworks for dealing with invasions if they occur. These are built from specific industry- and pest-based strategies, legislation and operational procedures already in place for primary industries, and draws on these to establish arrangements for the environment sector (DAFF 2009). Once implemented, these will be applicable to islands as well as mainland Australia. Research on pest reinvasion issues including detecting and eliminating first arrivals, is ongoing e.g. Russell et al. (2005). In many cases, adaptive management will answer some of the questions of detection and elimination. For example, the ranger systems being developed for surveillance of Cane Toads and other pests arriving on some Northern Territory islands, will help refine species-specific methodology for detection and elimination.

7.3.3 Principles 4 & 5 – Is the proposal socially acceptable? Do benefits outweigh costs?

These two principles are related. Often the project will be acceptable to the community if the outcomes are achieved cost-effectively with minimal environmental damage and social disruption. This means that the feasibility studies need to address appropriate and cost-effective methods and also ways of mitigating for any potential impacts to the environment, people and their domestic animals.

Some key social and environmental aspects that need to be addressed in the feasibility study are:

- Relative benefits and costs of removing/controlling different pests for target ecosystems and species.

- Integrated pest management can include e.g. dual control of a predator and its staple

prey – classic examples include the targeting of rodents and a predator (e.g. Cat) on islands, with the method to target the rodent also proving to be effective at removing most cats. Failure to implement integrated pest management can lead to undesirable 'ripple effects' following the removal or control of a top predator, e.g. removal of feral cats can lead to higher densities of rodents and/or rabbits with subsequent impacts on the environment and non-targets, e.g. Macquarie Island and probably other less well-studied islands. The same type of ripple effect could be expected as an outcome if foxes were removed in isolation to rabbit management. In addition to this, occasionally some native species can gain a competitive advantage over other native species when a pest is removed.

- Assessment of environmental effects.

This should include assessments of effects of toxin persistence in soil, groundwater and freshwater and non-target effects. Non-targets should include threatened fauna species and other fauna that are considered potentially susceptible to the same management methods against pests. Some common examples of impacts, mitigation and needs are summarised in Table 7.2 below.

Table 7.2 Some mitigation issues and approaches for non-target species

Non-target	Method of potential management impact	Potential mitigation and needs
Waders, e.g. *Charadrius*, *Numenius*, *Pluvialis*, *Arenaria*	Primary poisoning (eating bait) or secondarily poisoning (eating invertebrates that have consumed bait)	Avoid baiting the feeding areas (Dowding et al. 2007). For northern hemisphere migrant waders, time operation to breeding period (adults in Holarctic); research the effectiveness of scaring remaining birds from target islands (Merton et al. 2002, Pierce et al. 2008)
Native rodents and marsupials	Primary poisoning from rodenticide baits	Research target-specific baits/toxins; research inhibitors/deterrents, e.g. netting covers prevent macropod access, and timing for minimal impact
Mammal and bird breeding sites	Dog-predation, disturbance, burrow collapse, desertion of nests and colonies	Time field operation to avoid sensitive parts of breeding season; identify low impact pathways for operators; train dogs to avoid non-targets; hand-spreading of baits - throw or catapult baits into colonies from a distance
Other mammals, reptiles, birds with incomplete risk assessments	Potential for primary or secondary poisoning	Review eradications literature, carry out feasibility studies which may include experiments with captive animals, e.g. observe palatability of non-toxic bait food; if high risk keep in captivity until declared safe for return, or explore other management approaches

If principles 1 - 5 can be met for eradicating/controlling pests on islands, the project needs to consider some more general planning requirements in relation to developing support and capacity. This includes, for example:

- that there are adequate resources and timeframes to solve issues

- that stakeholders' involvement in terms of cost and time is appropriate
- effective management of the operational planning task itself
- the early identification of pre-requisites in the planning, e.g. trials preceding key decisions on eradication design
- collectively the above considerations will determine whether the project is feasible under current resources and timeframe constraints.

If the support and capacity to complete the project is available, the operational planning is the next phase.

7.4 Operational Planning

There is no single prescription to an operational plan, but the general approach developed by New Zealand Department of Conservation (NZDOC) for rodent, principally invasive rat species, eradications has been refined over the years (Cromarty et al. 2002, DOC 2006) and has been adapted for some larger pest programmes in Australia. For example, the Tasmania Parks and Wildlife Service produced a 10 part eradication plan (Parks and Wildlife 2007, 2008) for pests on Macquarie Island which covered the following components:

Part A - The Eradication Plan. This provides an overview of the project spanning background to the overall plan and process including establishment of an eradication committee, justification for the eradication approach, methods considered and justification for the decision on specific methods, identification of operational time frames for the operation, monitoring, operational summary, and consultation and communications.

Part B - Operational Plan. This provides the operational detail of the plan which has been revised during the planning process.

Part C - Environmental Impact Assessment. This assesses the species that could be put at risk during the operation and identifies mitigating approaches, e.g. timing the operation for minimum disturbance.

Part D - Occupational Health and Safety Plan. This addresses potential hazards of which there are many when working on an isolated island with difficult terrain and weather, together with means of mitigating those hazards.

Part E – Project Biosecurity Plan. This addresses biosecurity risks (reinvasion and newly invading species) and statutory and operational means of mitigating risks.

Part F – Monitoring Plan. This addresses biota monitoring (vegetation and fauna) before, during and after the operation.

Part G - Communications Plan. This addresses communications of staff on the island and between island and mainland, and amongst the stakeholders including the public.

Part H - Project Plan. This addresses the project strategy (components and phases), together with

project management (reporting, decisions, resources, budget, work plan, risks, issues, communication management strategy, project planning quality, integration and evaluation).

Part I - Procurement Plan. This addresses the obtaining of equipment and material, including bait, and the most cost-effective means of doing that.

Part J – Staff Recruitment and Training Plan.

Smaller operations may consider merging some of the plan parts above. However, it is best if major plan components are kept separate from the actual operational approach. Thus, environmental impact, health and safety, biosecurity, monitoring, communications and others are best treated separately.

Throughout the planning phases for any pest eradication operation, the summary advice of the NZDOC best practice document for rodent eradications should be kept in mind (DOC 2006). Basically this document provides a template that can be used for all eradications and emphasizes using established (well-tested) methods, avoiding complicated approaches, conduct trials to test assumptions and new ideas, use peer review and checks, and expect the unexpected, e.g. consent requirements being more stringent than anticipated. It also contains an operational checklist which is very useful for rodent operations and is generally applicable to others.

8 General Comments & Recommendations

8.1 Biodiversity & feral species data management

The analysis presented in this report resulted in islands such as Fraser, French, Lord Howe, Phillip, Dorre, Bribie, Bernier, North Stradbroke, Macquarie and Melville being the most highly ranked for conservation status. This reflects their large size and high diversity of habitats, with corresponding numbers of threatened and other listed species. These islands generally also had moderate to high numbers of pest species impacting or potentially impacting on fauna and flora values.

The ranking system used to determine a priority list of islands will inevitably underrate some islands due to lack of information as opposed to some others which have high levels of information and more sightings of less common species, e.g. migrants and seabirds. For example some of the isolated northern islands near Cape York and across the Northern Territory have little survey data. Data for all islands can be updated in the future as they get surveyed, and also, as feral species continue to be eradicated.

8.1.1 Recommendations

We recommend that:

- The working dataset generated during this project is maintained and updated as additional information on threatened species and feral species presence on islands becomes available.
- DEWHA aligns its Seabird Breeding and Australian Islands Biodiversity databases to minimise ongoing duplication of data. This would facilitate updating these data and maximise benefits from national biodiversity assessment exercises such as the one reported here.
- State/territory threatened fauna and flora legislation is standardised and aligned with the EPBC Act.
- A Sites of Conservation Significance (SOCS) assessment is undertaken by the remaining Australian states and territory following the Northern Territory Government's methods and presentation of outcomes (NRETAS 2008j). The SOCs assessment clearly presents information for the site under consideration, such as:
    - geographical context, including a map, and general ecology
    - threatened fauna and flora, as well as restricted distribution/endemic species
    - seabird and shorebird breeding colonies

- turtle nesting sites
- other significant values; e.g. specific sites of national or international significance; Ramsar wetland status, etc
- management issues, including pest species (vertebrate, invertebrate and weeds)
- monitoring and management initiatives, and
- the site's overall significance as National Significance or International Significance.

8.2 Directing funds for feral species management

Removing pests from small islands (<200 ha) can sometimes provide greater advantages for biota than on larger islands. Fauna species capable of reaching high density populations (e.g. seabirds) may be more effectively managed on small islands (e.g. some islands in the Furneaux Group) where re invasion issues and overall biosecurity may be better managed. Managing several small islands can sometimes offer better insurance against vertebrate pest reinvasion than, for instance, managing one or two larger islands where there may be greater risks of reinvasion.

Large islands (>200 ha) do however offer the best opportunities for managing viable populations of fauna groups requiring more diverse ecosystems than the simpler and often more modified habitats on smaller islands. More diverse gene pools are potentially able to be maintained on the larger islands (e.g. Groote Eylandt) than on smaller islands. Examples of this include single large islands which accommodate several threatened mammal species, such as the Northern Quoll.

Many small islands and some of the larger oceanic islands have a small suite of vertebrate pests which can be eradicated with minimal side effects or ripple effects. If they lack indigenous mammals, the removal of pests such as rodents, cats and livestock can be relatively straight forward (but see Chapter 7 – best practice). It is on larger islands near the mainland where native fauna can be very diverse, that significant logistic issues arise for eradications. Removing invasive rodents from islands which also contain small native mammals is an ongoing problem.

8.2.1 Recommendations

Managers of some of the high priority islands are faced with significant eradication issues (see recommendations provided within each island/island group profile, Chapter 4) and some of these are listed below:

- the use of anticoagulant poisons to remove exotic rodents and rabbits from islands on which native mammals occur (many islands)
- the use of poison baits for feral Cat and Red Fox removal when there are

native predators (many islands)

- removing the last Red Fox and Red Fox reinvasion (Phillip Island), and
- Cane Toad eradication and biosecurity (many northern islands).

We recommend that:

- Current research and adaptive management programs on the eradication issues highlighted above are supported.
- Islands where (re)introduction (i.e. conservation introduction) of particularly at risk species may be a viable option are identified; e.g. small mammals introduced to islands within the Shark Bay World Heritage Area, Western Australia.

8.3 Biosecurity

Ongoing biosecurity is critically important. Many islands currently have very few pests while others have had pesters adicated or have management plans in place that propose pest eradications in the future. Managers of these islands need to carry out risk assessments of potential invasions and implement effective quarantine and surveillance to minimise the chances of reinvasion or invasion; if invasion occurs there needs to be a contingency plan ready for removing invaders. Effective biosecurity needs to be in place before eradication programs commence, or be set up concurrently.

Many of the high priority islands are under multiple-ownership and are heavily utilised by the public, both as residents and as tourists (e.g. Fraser, Hinchinbrook, Lord Howe, North Stradbroke and Phillip Islands). There are correspondingly high reinvasion risks associated with high visitation rates. In some cases this can be used as incentive and leverage for more effective biosecurity. The tourism at these islands is often heavily dependent on the ongoing health of natural ecosystems and particularly threatened and sensitive species including colonies of Little Penguin and other seabirds.

There are a growing number of examples of Indigenous communities working towards protecting island biodiversity, e.g. rangers appointed for surveillance of Cane Toads and other potential invasive species. This approach has the potential to be very effective given the daily observations that locals can provide. It is likely to be most effective in partnership with state/territory authorities if the latter can provide ongoing practical advice and other support.

There are however many biosecurity challenges and others will undoubtedly emerge in the future. Current biosecurity issues include finding ways to detect and eliminate Cane Toads, rodents and invasive ants that arrive on islands. Cane Toads can colonise islands during flood events and they are also prone to be transported in freight. There is a need to develop generic surveillance and eradication techniques that can be effectively used against the Cane Toad on priority islands. Detailed contingency plans are needed in response to invasion by toads and some other feral species, e.g. rodents, feral cats and invertebrate groups, such as exotic ants.

8.3.1 Recommendations

We recommend that:

- Risk assessments for potential invasion/reinvasion rates are incorporated into island management plans and contingency plans are developed for implementation in the event that there is a need to remove invaders. Ideally, this would be done before commencement of eradication actions, or at least concurrently.
- Adjust relevant legislation/permit systems for accessing and utilising islands and their near coastal areas; e.g. restricting vehicle use on beaches where this currently occurs.
- Support programs which bring together the local community and state/territory agencies to monitor and manage biosecurity, such as education programs about how to appropriately sterilise equipment and/or how to identify pest species and who to contact if they are sighted.
- Develop and implement standardised surveillance and eradication techniques for Cane Toads on priority islands.

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Appendix A –Vertebrate Pests (Feral Species)

This is a full list of the feral vertebrates (sorted alphabetically by Common Name) that are potential pests on the offshore islands that were considered for the Top 100 high conservation status islands priority list.

* Denotes native species that were translocated or are considered self-introduced; some of these, such as Shark Bay Mouse, are conservation introductions, and where relevant, these species have been included as 'biodiversity value' in the conservation value assessment.

Scientific Name	Common Name	Potential feral impact	Feral 'value'
Macropus agilis	Agile Wallaby*	high	3
Lama pacos	Alpaca	high	3
Hemidactylus frenatus	Asian House Gecko	low	1
Alectura lathami	Australian Brush-turkey*	low	1
Geopelia humeralis	Bar-shouldered Dove*	low	1
Rattus rattus	Black Rat	EPBC Key Threatening Process	4
Petrogale lateralis	Black-footed Rock-wallaby*	high	3
Lepus capensis	Brown Hare	medium	2
Rattus norvegicus	Brown Rat	EPBC Key Threatening Process	4
Bettongia penicillata	Brush-tailed Bettong*	low	1
Bettongia lesueur	Burrowing Bettong*	low	1
Camelus dromedarius	Camel	high	3
Chaunus marinus	Cane Toad	EPBC Key Threatening Process	4
Cereopsis novaehollandiae	Cape Barren Goose*	medium	2
Felis catus	Cat	EPBC Key Threatening Process	4
Axis axis	Chital	high	3
Turdus merula	Common Blackbird	medium	2
Acridotheres tristis	Common Myna	high	3

Scientific Name	Common Name	Potential feral impact	Feral 'value'
Phasianus colchicus	Common Pheasant	medium	2
Pseudocheirus peregrinus	Common Ringtail Possum*	high	3
Sturnus vulgaris	Common Starling	medium	2
Macropus robustus	Common Wallaroo*	high	3
Ocyphaps lophotes	Crested Pigeon*	medium	2
Cervinae - unspecified species	Deer	high	3
Geopelia cuneata	Diamond Dove*	low	1
Canis lupus dingo	Dingo*	high	3
Canis lupus familiaris	Domestic Dog	high	3
Mustela putorius furo	Domestic Ferret	high	3
Anser anser	Domestic Goose	medium	2
Equus asinus	Donkey	major concern	4
Dromaius novaehollandiae	Emu	medium	2
Passer montanus	Eurasian Tree Sparrow	low	1
Bos taurus	European Cattle	high	3
Carduelis carduelis	European Goldfinch	low	1
Carduelis chloris	European Greenfinch	low	1
Dama dama	Fallow Deer	high	3
Callocephalon fimbriatum	Gang-gang Cockatoo*	medium	2
Varanus - unspecified species	Goanna	medium	2
Capra hircus	Goat	EPBC Key Threatening Process	4
Varanus gouldii	Gould's Goanna	medium	2
Macrotis lagotis	Greater Bilby*	low	1
Leporillus conditor	Greater Stick-nest Rat/Wopilkara*	medium	2
Cavia porcellus	Guinea Pig	low	1
Axis porcinus	Hog Deer	high	3
Equus caballus	Horse	major concern	4
Corvus splendens	House Crow	high	3

Scientific Name	Common Name	Potential feral impact	Feral 'value'
Mus musculus domesticus	House Mouse	EPBC Key Threatening Process	4
Passer domesticus	House Sparrow	low	1
Pavo cristatus	Indian Peafowl	medium	2
Phascolarctos cinereus	Koala	low	1
Leggadina lakedownensis	Lakeland Downs Mouse*	low	1
Dacelo novaeguineae	Laughing Kookaburra*	medium	2
Lama glama	Llama	high	3
Anseranas semipalmata	Magpie Goose*	medium	2
Anas platyrhynchos	Mallard	medium	2
Leipoa ocellata	Malleefowl*	medium	2
Lepidodactylus lugubris	Mourning Gecko	low	1
Cairina moschata	Muscovy Duck	medium	2
Rattus exulans	Pacific Rat	EPBC Key Threatening Process	4
Geopelia striata	Peaceful Dove*	low	1
Sus scrofa	Pig	EPBC Key Threatening Process	4
Ornithorhynchus anatinus	Platypus*	low	1
Oryctolagus cuniculus	Rabbit	EPBC Key Threatening Process	4
Rattus - unspecified species	Rat	EPBC Key Threatening Process	4
Cervus elaphus	Red Deer	high	3
Vulpes vulpes	Red Fox	EPBC Key Threatening Process	4
Gallus gallus	Red Junglefowl	low	1
Columba livia	Rock Dove*	low	1
Petrogale rothschildi	Rothschild's Rock-wallaby	high	3
Cervus unicolor	Sambar	high	3
Pseudomys fieldi	Shark Bay Mouse*	medium	2
Ovis aries	Sheep	high	3
Tiliqua rugosa	Shingle-back*	low	1
Alauda arvensis	Skylark	low	1
Lasiorhinus latifrons	Southern Hairy-nosed Wombat*	medium	2
Geophaps plumifera	Spinifex Pigeon*	low	1

Scientific Name	Common Name	Potential feral impact	Feral 'value'
Streptopelia chinensis	Spotted Turtle-Dove	medium	2
Macropus eugenii	Tammar Wallaby*	high	3
Sarcophilus harrisii	Tasmanian Devil*	high	3
Bubalus bubalis	Water Buffalo	major concern	4
Macropus fuliginosus	Western Grey Kangaroo*	high	3
Melagris gallopavo	Wild Turkey	medium	2
Leucosarcia melanoleuca	Wonga Pigeon*	low	1
Taeniopygia guttata	Zebra Finch*	low	1

Appendix B – Biodiversity Value Listed Fauna

This is a full list of the threatened fauna species that were included in the biodiversity value component of the Australian offshore islands assessment. Species here are either listed under the Commonwealth of Australia's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), or under one or more Australian state/territory legislation. Relevant state/territory legislative acts referenced are: *Threatened Species Conservation Act 1995* (NSW); *Parks and Wildlife Commission Act* (NT); *Nature Conservation Act 1992* (QLD); *National Parks and Wildlife Act 1972* (SA); *Nature Conservation Act 2002* (TAS); *Flora and Fauna Guarantee Act* 1988 (VIC); and *Wildlife Conservation Act 1950* (WA). Listing categories 'EPBC Status' and 'EPBC Category' are in keeping with fields used in DEWHA's Species of National Environmental Significance Database (DEWHA 2009e). For species that are not listed under the EPBC Act, EPBC Status is listed as 'Not Listed' and 'EPBC Category' contains the relevant state/territory conservation status listing.

This is not a comprehensive list of all legislation under which an individual species is listed. For state/territory listed species, it is possible that not all appropriate legislation is cited – for example, if a species is listed under the EPBC Act, we have not listed additional state/territory legislation under which that species is covered, since the EPBC Status has been used in the biodiversity assessment (see Methods, Chapter 2). Similarly, for EPBC listed Migratory or Marine Species, only one of the relevant listings is included for the purposes of the biodiversity assessment, but we acknowledge that many of these species are listed under more than one bilateral agreement (CAMBA, JAMBA and/or ROKAMBA), sometimes in addition to Bonn and Marine status. The purpose of this list is to provide a reference for the biodiversity value assessment used in this project, and for threatened species referred to in the report. Every effort has been made to ensure that species scientific names, common names and conservation status are correct and up to date at the time of this report preparation.

Key references used to determine species' nomenclature and conservation status are: Bryant and Jackson 1999; Clayton et al. 2006; DEC 2009a; DECC 2009; DEH 2009a; DEWHA 2009d,i; DPIPWE 2009; DSE 2009; EPA 2009; and NRETAS 2009.

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Acanthophis antarcticus	Common Death Adder	Animalia	1	Not listed	Rare (QLD), Threatened (VIC)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Accipiter novaehollandiae	Grey Goshawk	Animalia	1	Not listed	Threatened (ACT), Rare (SA)
Acrobates pygmaeus	Feathertail Glider	Animalia	1	Not listed	Endangered (SA)
Actitis hypoleucos	Common Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Aerodramus terraereginae	Australian Swiflet	Animalia	1	Not listed	Rare (QLD)
Amphidromus cognatus	Cognate Land Snail	Animalia	1	Not Listed	Vulnerable (NT)
Anas rhynchotis	Australasian Shoveler	Animalia	1	Not listed	Rare (SA)
Anous minutus	Black Noddy	Animalia	1	Listed	EPBC_LISTED_MARINE
Anous stolidus	Brown Noddy	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Anous tenuirostris melanops	Australian Lesser Noddy	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Anseranas semipalmata	Magpie Goose	Animalia	1	Listed	EPBC_LISTED_MARINE
Antechinus minimus	Swamp Antechinus	Animalia	1	Not listed	Endangered (SA)
Anthus novaeseelandiae	Richard's Pipit	Animalia	1	Listed	EPBC_LISTED_MARINE
Aprasia haroldi	Shark Bay Worm-lizard	Animalia	1	Not Listed	Priority 1 (WA)
Aprasia inaurita	Red-tailed Worm-lizard	Animalia	1	Not listed	Endangered (NT)
Aprasia rostrata rostrata	Hermite Island Worm-lizard	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Aptenodytes patagonicus	King Penguin	Animalia	1	Listed	EPBC_LISTED_MARINE
Apus pacificus	Fork-tailed Swift	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Aquila audax fleayi	Wedge-tailed Eagle (Tasmanian)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Arctocephalus forsteri	New Zealand Fur Seal	Animalia	1	Listed	EPBC_LISTED_MARINE
Arctocephalus pusillus	Afro-Australian fur seal	Animalia	1	Listed	EPBC_LISTED_MARINE
Arctocephalus tropicalis	Subantarctic Fur Seal	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Ardenna carneipes	Flesh-footed Shearwater/Fleshy-footed Shearwater	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Ardenna grisea	Sooty Shearwater	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Ardenna tenuirostris	Short-tailed Shearwater	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Ardeotis australis	Australian Bustard	Animalia	1	Not Listed	Vulnerable (NT)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Arenaria interpres	Ruddy Turnstone	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Aspidites ramsayi	Woma (southwest pop)	Animalia	1	Not Listed	Priority 1 (WA)
Atrichornis clamosus	Noisy Scrub-bird	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Attacus wardi	Atlas Moth	Animalia	1	Not Listed	Endangered (NT)
Bassiana trilineata	Western Three-lined Skink	Animalia	1	Not listed	Rare (SA)
Bettongia lesueur lesueur	Burrowing Bettong (Shark Bay)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Bettongia lesueur unnamed subsp.	Burrowing Bettong (Barrow and Boodie Islands)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Bettongia penicillata	Brush-tailed Bettong	Animalia	1	Not listed	Rare (SA)
Biziura lobata	Musk Duck	Animalia	1	Listed	EPBC_LISTED_MARINE
Botaurus poiciloptilus	Australasian Bittern	Animalia	1	Not listed	Vulnerable (NSW & WA), Threatened (VIC), Rare (SA)
Bubulcus ibis (*Ardea ibis*)	Cattle Egret	Animalia	1	Listed - overfly marine area	EPBC_LISTED_MARINE
Burhinus grallarius	Bush Stone-curlew	Animalia	1	Not listed	Endangered (NSW), Vulnerable (SA)
Cacomantis flabelliformis	Fan-tailed Cuckoo	Animalia	1	Listed	EPBC_LISTED_MARINE
Calamanthus campestris dorrie	Rufous Fieldwren (Dorre Island)	Animalia	1	Not listed	Vulnerable (WA)
Calamanthus cautus	Shy Heath-wren	Animalia	1	Not listed	Vulnerable (NT)
Calidris acuminata	Sharp-tailed Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Calidris alba (*Crocethia alba*)	Sanderling	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Calidris canutus	Red Knot	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Calidris ferruginea	Curlew Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Calidris melanotos	Pectoral Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Calidris ruficollis	Red-necked Stint	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Calidris tenuirostris	Great Knot	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Calyptorhynchus banksii	Red-tailed Black-Cockatoo	Animalia	1	Not listed	Vulnerable (NSW), Threatened (VIC)
Calyptorhynchus baudinii	Baudin's Black Cockatoo	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Calyptorhynchus lathami	Glossy Black-Cockatoo	Animalia	1	Not listed	Vulnerable (NSW & QLD)
Calyptorhynchus lathami halmaturinus	Glossy Black-Cockatoo (Kangaroo Island)/Glossy Black-Cockatoo (South Australian)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Calyptorhynchus lathami lathami	Glossy Black-Cockatoo (eastern)	Animalia	1	Not listed	Threatened (VIC)
Caretta caretta	Loggerhead Sea Turtle	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Casuarius casuarius johnsonii	Southern Cassowary (Australian)/ Southern Cassowary	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Catharacta lonnbergi lonnbergi	Subantarctic Skua (southern)	Animalia	1	Listed	EPBC_LISTED_MARINE
Catharacta skua	Great Skua	Animalia	1	Listed	EPBC_LISTED_MARINE
Cereopsis novaehollandiae	Cape Barren Goose	Animalia	1	Listed	EPBC_LISTED_MARINE
Cereopsis novaehollandiae grisea	Cape Barren Goose (south-western)/Recherche Cape Barren Goose	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Chalcites basalis	Horsfield's Bronze-Cuckoo	Animalia	1	Listed	EPBC_LISTED_MARINE
Chalinolobus dwyeri	Large-eared Pied Bat	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Chalinolobus nigrogriseus	Hoary Wattled Bat	Animalia	1	Not listed	Vulnerable (NSW)
Charadrius bicinctus	Double-banded Plover	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Charadrius leschenaultii	Greater Sand Plover	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Charadrius mongolus	Lesser Sand Plover	Animalia	1	A2H	EPBC_MIGRATORY_BONN
Charadrius ruficapillus	Red-capped Plover	Animalia	1	Listed	EPBC_LISTED_MARINE
Charadrius veredus (Charadrius asiaticus	Oriental Plover	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
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Chelonia mydas	Green Turtle	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Chlidonias hybridus	Whiskered Tern	Animalia	1	Listed	EPBC_LISTED_MARINE
Chlidonias leucopterus	White-winged Tern	Animalia	1	Listed	EPBC_MIGRATORY_CAMBA
Christinus guentheri	Lord Howe Island Gecko	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Cinclosoma punctatum	Spotted Quail-thrush	Animalia	1	Not listed	Endangered (SA)
Circus approximans	Swamp Harrier	Animalia	1	Listed	EPBC_LISTED_MARINE
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Conilurus penicillatus	Brush-tailed Rabbit-rat	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Coracina tenuirostris melvillensis	Melville Cicadabird	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Corvus mellori	Little Raven	Animalia	1	Listed	EPBC_LISTED_MARINE
Coturnix chinensis	King Quail	Animalia	1	Not listed	Critically Endangered (VIC)
Coturnix pectoralis	Stubble Quail	Animalia	1	Listed	EPBC_LISTED_MARINE
Coturnix ypsilophora	Brown Quail	Animalia	1	Not listed	Vulnerable (SA)
Crinia tinnula	Wallum Froglet	Animalia	1	Not listed	Vulnerable (QLD)
Crocodylus porosus	Saltwater Crocodile	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Cryptoblepharus gurrmul	Arafura Snake-eyed Skink	Animalia	1	Not Listed	Endangered (NT)
Cuculus pallidus	Pallid Cuckoo	Animalia	1	Listed	EPBC_LISTED_MARINE
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Daption capense	Cape Petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Dasycercus cristicauda	Crest-tailed Mulgara	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Dasyornis longirostris	Western Bristlebird	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Dasyurus geoffroii	Chuditch	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Dasyurus hallucatus	Northern Quoll	Animalia	3	Endangered	EPBC_THREATENED_SPECIES

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Dasyurus maculatus gracilis	Spotted-tailed Quoll	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Dasyurus maculatus maculatus (SE mainland population)	Spotted-tailed Quoll (SE mainland)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Delma labialis	Striped-tailed Delma	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Denisonia maculata	Ornamental Snake	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Dermochelys coriacea	Leatherback Turtle	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Diomedea exulans (sensu lato)	Wandering Albatross	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Dromaius novaehollandiae	Emu	Animalia	1	Not Listed	Vulnerable (NT)
Drycocelus australis	Lord Howe Island Phasmid	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Ducula bicolor	Pied Imperial Pigeon	Animalia	1	Listed	EPBC_LISTED_MARINE
Dupetor flavicollis	Black Bittern	Animalia	1	Not listed	Vulnerable (NSW)
Egernia coventryi	Eastern Mourning Skink	Animalia	1	Not listed	Threatened (VIC), Endangered (SA)
Egernia rugosa	Yakka Skink	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Egernia stokesii badia	Western Spiny-tailed Skink	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Egretta alba (Ardea alba)	Great Egret	Animalia	1	Listed	EPBC_MIGRATORY_CAMBA
Egretta garzetta nigripes?	Little Egret	Animalia	1	Not listed	Critically Endangered (VIC)
Egretta intermedia	Intermediate Egret	Animalia	1	Listed	EPBC_LISTED_MARINE
Egretta sacra	Eastern Reef Egret	Animalia	1	Listed	EPBC_MIGRATORY_CAMBA
Ephippiorhynchus asiaticus	Black-necked Stork	Animalia	1	Not listed	Rare (QLD), Endangered (NSW)
Epthianura crocea macgregori	Yellow Chat (Dawson)	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Eretmochelys imbricata	Hawksbill Turtle	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Erythrotriorchis radiatus	Red Goshawk	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Esacus neglectus	Beach Stone-curlew	Animalia	1	Listed	EPBC_LISTED_MARINE

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Eudyptes chrysocome	Rockhopper Penguin	Animalia	1	Listed	EPBC_LISTED_MARINE
Eudyptes chrysolophus sensu lato	Macaroni Penguin/Royal Penguin	Animalia	1	Listed	EPBC_LISTED_MARINE
Eudyptula minor	Little Penguin	Animalia	1	Listed	EPBC_LISTED_MARINE
Eurostopodus argus	Spotted Nightjar	Animalia	1	Listed	EPBC_LISTED_MARINE
Falcunculus frontatus whitei	Crested Shrike-tit (northern)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Fregata andrewsi	Christmas Island Frigatebird/ Andrew's Frigatebird	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Fregata ariel	Lesser Frigatebird	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Fregata minor	Great Frigatebird	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Fregetta grallaria grallaria	White-bellied Storm-Petrel (Tasman Sea)/White-bellied Storm-Petrel (Australasian)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Fulmarus glacialoides	Southern/Antarctic Fulmar	Animalia	1	Listed	EPBC_LISTED_MARINE
Gallinago hardwickii	Latham's Snipe	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Gallirallus sylvestris	Lord Howe Woodhen	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Garrodia nereis	Grey-backed Storm-petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Geophaps scripta scripta	Squatter Pigeon	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Geophaps smithii smithii	Partridge Pigeon (eastern)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Glareola maldivarum	Oriental Pratincole	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Grus rubicunda	Brolga	Animalia	1	Not listed	Vulnerable (NSW), Threatened (VIC), Vulnerable (SA)
Gygis alba	White Tern	Animalia	1	Not listed	Vulnerable (NSW)
Haematopus fuliginosus	Sooty Oystercatcher	Animalia	1	Not listed	Vulnerable (NSW), Rare (QLD)
Haematopus longirostris	Pied Oystercatcher	Animalia	1	Not listed	Vulnerable (NSW)
Haliaeetus leucogaster	White-bellied Sea-Eagle	Animalia	1	Listed	EPBC_MIGRATORY_CAMBA
Haliastur indus	Brahminy Kite	Animalia	1	Listed	EPBC_LISTED_MARINE

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Halobaena caerulea	Blue Petrel	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Heteroscelus brevipes	Grey-tailed Tattler	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Heteroscelus incanus	Wandering Tattler	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Hirundo rustica	Barn Swallow	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Hoplocephalus bungaroides	Broad-headed Snake	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Hoplocephalus stephensii	Stephen's Banded Snake	Animalia	1	Not listed	Rare (QLD), Vulnerable (NSW)
Hydroprogne caspia (Sterna caspia)	Caspian Tern	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	Animalia	1	Not listed	Threatened (VIC)
Isoodon auratus auratus	Golden Bandicoot (mainland)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Isoodon auratus barrowensis	Golden Bandicoot	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Isoodon obesulus	Southern Brown Bandicoot	Animalia	1	Not listed	Vulnerable (SA)
Isoodon obesulus nauticus	Nuyts Island Bandicoot	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Lagorchestes conspicillatus conspicillatus	Spectacled Hare-wallaby (Barrow Island)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Lagorchestes hirsutus bernieri	Rufous Hare-Wallaby	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Lagorchestes hirsutus dorreae	Rufous Hare-wallaby (Dorre Island)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Lagostrophus fasciatus fasciatus	Banded Hare-wallaby	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Larus dominicanus	Kelp Gull	Animalia	1	Listed	EPBC_LISTED_MARINE
Larus novaehollandiae	Silver Gull	Animalia	1	Listed	EPBC_LISTED_MARINE
Larus pacificus	Pacific Gull	Animalia	1	Listed	EPBC_LISTED_MARINE
Lathamus discolor	Swift Parrot	Animalia	3	Endangered	EPBC_THREATENED_SPECIES

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Leggadina lakedownensis	Lakeland Downs Mouse/Thevenard Island Short-tailed Mouse	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Leipoa ocellata	Malleefowl	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Lepidochelys olivacea	Olive Ridley Turtle	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Leporillus conditor	Greater Stick-nest Rat/Wopilkara	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Lerista microtis	Long-legged Slider	Animalia	1	Not Listed	Rare (SA)
Leucocarbo atriceps purpurascens	Imperial Shag (Macquarie Island)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Lichenostomus melanops cassidix	Yellow-tufted Honeyeater	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Limicola falcinellus	Broad-billed Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Limosa lapponica	Bar-tailed Godwit	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Limosa limosa	Black-tailed Godwit	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Lissotes latidens	Broad-toothed Stag Beetle	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Lissotes menalcas	Mt Mangana Stag Beetle	Animalia	1	Not listed	Vulnerable (TAS)
Litoria aurea	Green and Golden Bell Frog	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Litoria cooloolensis	Cooloolah Tree Frog	Animalia	1	Not listed	Rare (QLD)
Litoria freycineti	Freycinet's Frog	Animalia	1	Not listed	Vulnerable (QLD)
Litoria nannotis	Waterfall Frog	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Litoria nyakalensis	Mountain Mistfrog	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Litoria olongburensis	Wallum Sedge Frog	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Litoria raniformis	Southern Bell Frog	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Litoria rheocola	Common Mistfrog	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Lophoictinia isura	Square-tailed Kite	Animalia	1	Not listed	Rare (QLD)
Macroderma gigas	Ghost Bat	Animalia	1	Not listed	Vulnerable (QLD), Near threatened (NT), Vulnerable under a bilateral

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					agreement with Japan
Macronectes giganteus	Southern Giant-Petrel	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Macronectes halli	Northern Giant-Petrel	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Macropus robustus isabellinus	Barrow Island Wallaroo	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Macrotis lagotis	Greater Bilby	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Malurus lamberti bernieri	Variegated Fairy-wren (Shark Bay)	Animalia	1	Not Listed	Vulnerable (WA)
Malurus leucopterus edouardi	White-winged Fairy-wren (Barrow Island)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Malurus leucopterus leucopterus	White-winged Fairy-wren (Dirk Hartog Island)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Melanodryas cucullata	Hooded Robin	Animalia	1	Not Listed	Threatened (VIC)
Melanodryas cucullata melvillensis	Hooded Robin (Tiwi Islands)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Melithreptus gularis	Black-chinned Honeyeater	Animalia	1	Not listed	Rare (QLD), Vulnerable (SA)
Merops ornatus	Rainbow Bee-eater	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Mesembriomys macrurus	Golden-backed Tree-rat	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Miniopterus australis	Little Bent-winged Bat	Animalia	1	Not listed	Vulnerable (NSW)
Miniopterus schreibersii	Eastern Bent-winged Bat	Animalia	1	Not listed	Threatened (VIC)
Miniopterus schreibersii bassanii	Southern Bent-wing Bat	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Mirounga leonina	Southern Elephant Seal	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Mixophyes balbus	Stuttering Frog	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Mixophyes iteratus	Southern Barred Frog	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Monarcha frater	Black-winged Monarch	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Monarcha melanopsis	Black-faced Monarch	Animalia	1	Listed	EPBC_MIGRATORY_BONN

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Monarcha trivirgatus	Spectacled Monarch	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Morethia adelaidensis	Saltbush Morethia Skink	Animalia	1	Not Listed	Threatened (VIC)
Mormopterus beccarii	Beccari's Freetail Bat	Animalia	1	Not listed	Vulnerable (NSW)
Morus capensis	Cape Gannet	Animalia	1	Listed	EPBC_LISTED_MARINE
Morus serrator	Australasian Gannet	Animalia	1	Listed	EPBC_LISTED_MARINE
Myiagra cyanoleuca	Satin Flycatcher	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Mystivagor mastersi	Masters' Charopid Land Snail	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Natator depressus	Flatback Turtle	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Neochmia ruficauda ruficauda	Star Finch (eastern and southern)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Neophema chrysogaster	Orange-bellied Parrot	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Neophema chrysostoma	Blue-winged Parrot	Animalia	1	Listed	EPBC_LISTED_MARINE
Neophema petrophila	Rock Parrot	Animalia	1	Listed	EPBC_LISTED_MARINE
Neophema pulchella	Turquoise Parrot	Animalia	1	Not listed	Rare (QLD), Vulnerable (NSW), Threatened (VIC)
Neophoca cinerea	Australian Sea-lion	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Nettapus coromandelianus albipennis	Cotton Pygmy-goose	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Ninox connivens	Barking Owl	Animalia	1	Not listed	Vulnerable (NSW), Threatened (VIC), Rare (SA)
Ninox strenua	Powerful Owl	Animalia	1	Not listed	Vulnerable (NSW & QLD), Threatened (VIC)
Notechis ater serventyi	Chappell Island Tiger Snake	Animalia	1	Not listed	Vulnerable (NSW)
Notomys aquilo	Northern Hopping-mouse	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Numenius madagascariensis	Eastern Curlew	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Numenius minutus	Little Curlew	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA

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Numenius phaeopus	Whimbrel	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Nycticorax caledonicus	Rufous/Nankeen Night Heron	Animalia	1	Listed	EPBC_LISTED_MARINE
Nyctimene robinsoni	Eastern Tube-nosed Bat	Animalia	1	Not listed	Vulnerable (NSW)
Nyctimystes dayi	Lace-eyed Tree Frog	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Nyctophilus bifax	Northern Long-eared Bat	Animalia	1	Not listed	Vulnerable (NSW)
Ogyris iphis	Dodd's Azure Butterfly	Animalia	1	Not Listed	Vulnerable (NT)
Oligosoma lichenigera	Lord Howe Island Skink	Animalia	1	Not listed	Vulnerable (NSW)
Onychoprion anaethetus	Bridled Tern	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Onychoprion fuscata	Sooty Tern	Animalia	1	Listed	EPBC_LISTED_MARINE
Ophioscincus truncatus	Short-limbed Snake-skink	Animalia	1	Not listed	Rare (QLD)
Ornithoptera richmondia	Richmond Birdwing	Animalia	1	Not listed	Vulnerable (QLD)
Oxyura australis	Blue-billed Duck	Animalia	1	Not listed	Vulnerable (NSW), Threatened (VIC), Rare (SA)
Pachycephala pectoralis contempta	Lord Howe Island Golden Whistler	Animalia	1	Not listed	Vulnerable (NSW)
Pachyptila belcheri	Slender-billed Prion	Animalia	1	Listed	EPBC_LISTED_MARINE
Pachyptila crassirostris	Fulmar Prion	Animalia	1	Listed	EPBC_LISTED_MARINE
Pachyptila desolata	Antarctic Prion	Animalia	1	Listed	EPBC_LISTED_MARINE
Pachyptila turtur subantarctica	Fairy Prion (southern)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pandion cristatus	Eastern Osprey	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Panesthia lata	Lord Howe Island Wood-eating Cockroach	Animalia	1	Not Listed	Endangered (NSW)
Papasula abbotti	Abbott's Booby	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Paradelma orientalis	Brigalow Scaly-foot	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Parantechinus apicalis	Dibbler	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Pardalotus quadragintus	Forty-spotted Pardalote	Animalia	3	Endangered	EPBC_THREATENED_SPECIES

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Pedionomus torquatus	Plains-wanderer	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pelagodroma marina	White-faced Storm-Petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Pelecanoides urinatrix	Common Diving-Petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Pelecanus conspicillatus	Australian Pelican	Animalia	1	Listed	EPBC_LISTED_MARINE
Perameles bougainville bougainville	Western Barred Bandicoot (Shark Bay)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Perameles gunnii gunnii	Eastern Barred Bandicoot (Tasmania)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pericryptodrilus nanus	Lord Howe Island Earthworm	Animalia	1	Not Listed	Endangered (NSW)
Petaurus breviceps	Sugar Glider	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Petaurus norfolcensis	Squirrel Glider	Animalia	1	Not listed	Vulnerable (NSW)
Petrogale lateralis lateralis	Black-flanked Rock-wallaby	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Petrogale lateralis pearsoni	Pearson Island Rock-wallaby/Black-footed Rock-wallaby	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Petroica phoenicea	Flame Robin	Animalia	1	Not listed	EPBC_LISTED_MARINE
Petroica rodinogaster	Pink Robin	Animalia	1	Listed	EPBC_LISTED_MARINE
Pezoporus wallicus	Ground Parrot	Animalia	1	Not listed	Vulnerable (QLD), Threatened (VIC), Endangered (SA)
Pezoporus wallicus flaviventris	Western Ground Parrot	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Phaethon lepturus	White-tailed Tropicbird	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Phaethon rubricauda	Red-tailed Tropicbird	Animalia	1	Listed	EPBC_LISTED_MARINE
Phalacrocorax fuscescens	Black-faced Cormorant	Animalia	1	Listed	EPBC_LISTED_MARINE
Phalacrocorax purpurascens	Macquarie Island shag	Animalia	1	Listed	EPBC_LISTED_MARINE
Phalacrocorax varius	Pied Cormorant	Animalia	1	Not listed	Near Threatened (VIC)
Phascogale pirata	Northern Brush-tailed	Animalia	1	Not listed	Endangered (NT)

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	Phascogale				
Phascolarctos cinereus	Koala	Animalia	1	Not listed	Vulnerable (NSW), Rare (SA)
Philemon citreogularis	Little Friarbird	Animalia	1	Not listed	Rare (SA)
Philomachus pugnax	Ruff (Reeve)	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Phoebetria palpebrata	Light-mantled Sooty Albatross	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Placostylus bivaricosus	Lord Howe Placostylus/Flax Snail	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Planigale maculata	Common Planigale	Animalia	1	Not listed	Vulnerable (NSW)
Platalea regia	Royal Spoonbill	Animalia	1	Not listed	Vulnerable (VIC)
Plegadis falcinellus	Glossy Ibis	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Pluvialis fulva	Pacific Golden Plover	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Pluvialis squatarola	Grey Plover	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Podargus ocellatus	Marbled Frogmouth	Animalia	1	Not listed	Vulnerable (QLD)
Poecilodryas superciliosa cerviniventris	Derby White-browed Robin	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Poephila cincta cincta	Black-throated finch (southern subspecies)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Pomatostomus temporalis	Grey-crowned Babbler	Animalia	1	Not listed	Threatened (VIC), Rare (SA)
Porzana pusilla	Baillon's Crake	Animalia	1	Not listed	Threatened (VIC), Rare (SA)
Potorous gilbertii	Gilbert's Potoroo	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Potorous tridactylus	Long-nosed Potoroo	Animalia	1	Not listed	Vulnerable (NSW & QLD), Endangered (SA)
Potorous tridactylus tridactylus	Long-nosed Potoroo (SE mainland)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Procellaria cinerea	Grey Petrel	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Procelsterna cerulea	Grey Ternlet	Animalia	1	Listed	EPBC_LISTED_MARINE
Pseudantechinus mimulus	Carpentarian Antechinus	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Pseudemoia rawlinsoni	Swampland Cool-skink	Animalia	1	Not listed	Rare (TAS), Endangered (SA)
Pseudocharopa lidgbirdi	Mount Lidgbird Charopid Land Snail	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Pseudocharopa whiteleggei	Whitelegge's Land Snail	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Pseudocheirus occidentalis	Western Ringtail Possum	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pseudomys fieldi	Shark Bay Mouse	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pseudomys fumeus	Smoky Mouse	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Animalia	1	Not listed	Vulnerable (NSW)
Pseudomys novaehollandiae	New Holland Mouse	Animalia	1	Not listed	Endangered (TAS), Threatened VIC)
Psophodes nigrogularis leucogaster	Western Whipbird (eastern)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pterodroma cervicalis	White-necked Petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Pterodroma heraldica	Herald Petrel	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Pterodroma lessonii	White-headed Petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Pterodroma leucoptera leucoptera	Gould's Petrel	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Pterodroma macroptera	Great-winged Petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Pterodroma mollis	Soft-plumaged Petrel	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pterodroma neglecta neglecta	Kermadec Petrel (western)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pterodroma nigripennis	Black-winged Petrel	Animalia	1	Listed	EPBC_LISTED_MARINE
Pterodroma solandri	Providence Petrel	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Pteropus conspicillatus	Spectacled Flying-fox	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Pteropus poliocephalus	Grey-headed Flying-fox	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Ptilinopus magnificus	Wompoo Fruit-Dove	Animalia	1	Not listed	Vulnerable (NSW)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Ptilinopus superbus	Superb Fruit-Dove	Animalia	1	Not listed	Vulnerable (NSW)
Puffinus assimilis	Little Shearwater	Animalia	1	Listed	EPBC_LISTED_MARINE
Puffinus pacificus	Wedge-tailed Shearwater	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Pygoscelis papua	Gentoo Penguin	Animalia	1	Listed	EPBC_LISTED_MARINE
Rallus pectoralis	Lewin's Rail	Animalia	1	Not listed	Rare (QLD)
Ramphotyphlops longissimus	a blind snake	Animalia	1	Not listed	under consideration for EPBC listing, Priority 2 (WA)
Rattus sordidus	Canefield Rat	Animalia	1	Not listed	Vulnerable (NT)
Rattus tunneyi	Pale Field Rat	Animalia	1	Not listed	Endangered (SA)
Rhipidura rufifrons	Rufous Fantail	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Rostratula australis	Australian Painted Snipe	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	Animalia	1	Not listed	Vulnerable (NSW), Threatened (VIC), Rare (SA
Saccolaimus saccolaimus nudicluniatus	Bare-rumped Sheathtail Bat	Animalia	4	Critically Endangered	EPBC_THREATENED_SPECIES
Setonix brachyurus	Quokka	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Sminthopsis aitkeni	Kangaroo Island Dunnart	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Sminthopsis butleri	Butler's Dunnart	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Sminthopsis griseoventer boullangerensis	Boullanger Island Dunnart	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Sminthopsis leucopus	White-footed Dunnart	Animalia	1	Not listed	Rare (QLD), Vulnerable (NSW), Threatened (VIC)
Stercorarius longicaudus	Long-tailed Jaeger	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Stercorarius parasiticus	Arctic Jaeger	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Sterna albifrons	Little Tern	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Sterna bengalensis	Lesser Crested Tern	Animalia	1	Listed	EPBC_MIGRATORY_CAMBA
Sterna bergii	Crested Tern	Animalia	1	Listed	EPBC_LISTED_MARINE

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Sterna dougallii	Roseate Tern	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Sterna fuscata	Sooty Tern	Animalia	1	Listed	EPBC_LISTED_MARINE
Sterna hirundo	Common Tern	Animalia	1	Listed	EPBC_MIGRATORY_CAMBA
Sterna nereis	Fairy Tern	Animalia	1	Listed	EPBC_LISTED_MARINE
Sterna nilotica	Gull-billed Tern	Animalia	1	Listed	EPBC_LISTED_MARINE
Sterna paradisaea	Arctic Tern	Animalia	1	Listed	EPBC_LISTED_MARINE
Sterna striata	White-fronted Tern	Animalia	1	Listed	EPBC_LISTED_MARINE
Sterna sumatrana	Black-naped Tern	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Sterna vittata bethunei	Antarctic Tern (New Zealand)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Stictonetta naevosa	Freckled Duck	Animalia	1	Not listed	Rare (QLD), Vulnerable (NSW & SA), Threatened (VIC), Near Threatened (NT)
Stipiturus malachurus hartogi	Southern Emu-wren (Dirk Hartog Is)	Animalia	1	Not Listed	Vulnerable (WA)
Stipiturus malachurus parimeda	Southern Emu-wren (Eyre Peninsula)	Animalia	1	Not listed	Endangered (SA)
Strepera graculina crissalis	Lord Howe Island Currawong	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Sula dactylatra	Masked Booby	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Sula leucogaster	Brown Booby	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Sula sula	Red-footed Booby	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Syconycteris australis	Common Blossom Bat	Animalia	1	Not listed	Vulnerable (NSW)
Tadorna radjah	Radjah Shelduck	Animalia	1	Not listed	Rare (QLD)
Taudactylus acutirostris	Sharp-snouted Day Frog	Animalia	4	Extinct	EPBC_THREATENED_SPECIES
Thalassarche cauta cauta	Shy Albatross/Tasmanian Shy Albatross	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Thalassarche chrysostoma	Grey-headed Albatross	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Thalassarche melanophris	Black-browed Albatross	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Thinornis rubricollis rubricollis	Hooded Plover	Animalia	1	Listed	EPBC_LISTED_MARINE
Thylogale billardierii	Tasmanian Pademelon	Animalia	1	Not listed	Vulnerable (NSW)
Todiramphus sanctus	Sacred Kingfisher	Animalia	1	Listed	EPBC_LISTED_MARINE
Tringa glareola	Wood Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Tringa nebularia	Common Greenshank	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Tringa stagnatilis	Marsh Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_BONN
Trochomorpha melvillensis	Land Snail	Animalia	1	Not Listed	Vulnerable (NT)
Tryngites subruficollis	Buff-breasted Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_JAMBA
Turnix melanogaster	Black-breasted Button-quail	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Turnix varius scintillans	Painted Button-quail (Houtman Abrolhos)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Turnix velox	Little Button-quail	Animalia	1	Not listed	Lower Risk (VIC)
Tyto novaehollandiae	Masked Owl	Animalia	1	Not listed	Vulnerable (NSW), Threatened (VIC), Endangered (SA)
Tyto novaehollandiae castanops	Masked Owl (Tasmanian)	Animalia	1	Not listed	Endangered (TAS)
Tyto novaehollandiae kimberli	Masked Owl (Kimberleys)	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Tyto novaehollandiae melvillensis	Masked Owl (Tiwi Islands)	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Varanus mertensi	Merten's Water Monitor	Animalia	1	Not Listed	Vulnerable (NT)
Varanus panoptes	Yellow-spotted Monitor	Animalia	1	Not Listed	Vulnerable (NT)
Varanus rosenbergi	Heath Goanna	Animalia	1	Not listed	Rare (SA)
Varanus varius	Lace Monitor	Animalia	1	Not listed	Rare (SA)
Wallabia bicolor	Swamp Wallaby	Animalia	1	Not listed	Vulnerable (SA)
Xanthomyza phrygia	Regent Honeyeater	Animalia	3	Endangered	EPBC_THREATENED_SPECIES
Xenus cinereus	Terek Sandpiper	Animalia	1	Listed	EPBC_MIGRATORY_BONN

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Xeromys myoides	Water Mouse	Animalia	2	Vulnerable	EPBC_THREATENED_SPECIES
Zosterops lateralis tephropleura	Lord Howe Island Silvereye	Animalia	1	Not listed	Vulnerable (NSW)

Appendix C – Biodiversity Value Listed Flora

This is a full list of the threatened flora species that were included in the biodiversity value component of the Australian offshore islands assessment. Species here are either listed under the Commonwealth of Australia's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), or under one or more Australian state/territory legislation. Relevant state/territory legislative acts referenced are: *Threatened Species Conservation Act 1995* (NSW); *Parks and Wildlife Commission Act* (NT); *Nature Conservation Act 1992* (QLD); *National Parks and Wildlife Act 1972* (SA); *Nature Conservation Act 2002* (TAS); *Flora and Fauna Guarantee Act* 1988 (VIC); and *Wildlife Conservation Act 1950* (WA). Listing categories 'EPBC Status' and 'EPBC Category' are in keeping with fields used in DEWHA's Species of National Environmental Significance Database (DEWHA 2009e). For species that are not listed under the EPBC Act, EPBC Status is listed as 'Not Listed' and 'EPBC Category' contains the relevant state/territory conservation status listing.

This is not a comprehensive list of all legislation under which an individual species is listed. For state/territory listed species, it is possible that not all appropriate legislation is cited – for example, if a species is listed under the EPBC Act, we have not listed additional state/territory legislation under which that species is covered, since the EPBC Status has been used in the biodiversity assessment (see Methods, Chapter 2). The purpose of this list is to provide a reference for the biodiversity value assessment used in this project, and for threatened species referred to in the report. Every effort has been made to ensure that species scientific names, common names and conservation status are correct and up to date at the time of this report preparation.

Key references used to determine species' nomenclature and conservation status are: Bryant and Jackson 1999; Clayton et al. 2006; DEC 2009a; DECC 2009; DEH 2009a; DEWHA 2009d,i; DPIPWE 2009; DSE 2009; EPA 2009; and NRETAS 2009.

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Acacia attenuata	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Acacia baueri	Black Wattle	Plantae	1	Not Listed	Vulnerable (QLD)
Acacia drepanophylla	Shark Bay endemic	Plantae	1	Not Listed	Priority 3 (WA)
Acacia retinodes var. *uncifolia*	Coast Wirilda	Plantae	1	Not listed	Rare (VIC)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Acacia subrigida	na	Plantae	1	Not Listed	Priority 2 (WA)
Acanthocarpus parviflorus	na	Plantae	1	Not Listed	Priority 3 (WA)
Acanthocarpus rupestris	na	Plantae	1	Not Listed	Priority 2 (WA)
Amphibromus fluitans	River Swamp Wallaby-grass	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Angianthus microcephalus	Small-headed Angianthus	Plantae	1	Not Listed	Priority 2 (WA)
Anthocercis intricata	a dense, spinescent shrub	Plantae	1	Not Listed	Priority 3 (WA)
Anthotroche myoporoides	Myoporum-like Anthotroche	Plantae	1	Not Listed	Priority 2 (WA)
Arachnorchis caudata	Tailed Spider-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Arachnorchis insularis	French Island Spider-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Arachnorchis reticulata	Veined Spider-orchid	Plantae	1	Not listed	Vulnerable (VIC)
Arachnorchis tensa	Greencomb Spider-orchid	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Arachnorchis tessellata	Thick-lipped Spider-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Archidendron lovelliae	Bacon Wood	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Arenga australasica	Australian Arenga Palm	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Arnocrinum drummondii	na	Plantae	1	Not Listed	Priority 3 (WA)
Arthraxon hispidus	Hairy-joint Grass	Plantae	1	Vulnerable	EPBC_THREATENED_SPECIES
Asterolasia phebalioides	Downy Star-bush	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Atriplex paludosa ssp. paludosa	Marsh Saltbush	Plantae	1	Not listed	Rare (VIC)
Avicennia marina ssp. australasica	White Mangrove	Plantae	1	Not listed	Rare (VIC)
Azorella macquariensis	Subantarctic Cushion Plant	Plantae	1	Not listed	Endemic to Macquarie Island, under consideration for listing
Baloghia marmorata	Marbled Balogia	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Banksia plagiocarpa	a shrub	Plantae	1	Not Listed	restricted to Hinchinbrook Island and adjacent mainland
Banksia verticillata	Granite Banksia	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Beyeria subtecta	Kangaroo Island Turpentine Bush	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Blandfordia grandiflora	Christmas bells	Plantae	1	Not Listed	Rare (QLD)
Boronia rivularis	Wide Bay Boronia	Plantae	1	Not Listed	Rare (QLD)
Bosistoa transversa	Three-leaved Bosistoa	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Brachyscome halophila	a herb	Plantae	1	Not Listed	Priority 3 (WA)
Bulbophyllum globuliforme	Miniature Moss-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Burmannia sp. (D61177) Bathurst Island	a herb	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Burnettia cuneata	Lizard Orchid	Plantae	1	Rare	Rare (VIC)
Caesalpinia bonduc	Knicker Nut	Plantae	1	Not Listed	Endangered (NSW)
Caladenia barbarella	Common Dragon Orchid	Plantae	1	Vulnerable	EPBC_THREATENED_SPECIES
Caladenia fragrantissima subsp. *orientalis*	Cream Spider-orchid	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Caladenia ovata	Kangaroo Island Spider-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Calocephalus aervoides	Woolly Beauty-heads	Plantae	1	Not Listed	Priority 3 (WA)
Calochilus caeruleus	an erect terrestrial orchid	Plantae	1	Not Listed	Vulnerable (NT)
Calophyllum bicolor	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Calystegia affinis	a creeper	Plantae	4	Critically Endangered	EPBC_THREATENED_SPECIES
Calytrix harvestiana	a myrtaceous species	Plantae	1	Not Listed	Priority 2 (WA)
Carex tasmanica	Curly Sedge	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Carmichaelia exsul	a shrub	Plantae	1	Not Listed	Endangered (NSW)
Centrolepis pulvinata	Scarce centrolepis	Plantae	1	Not listed	Rare (TAS)
Cephalomanes obscurum	a terrestrial fern	Plantae	1	Not Listed	Endangered (NT)
Chamaesyce psammogeton	a herb	Plantae	1	Not Listed	Endangered (NSW)
Chamelaucium oenanthum	na	Plantae	1	Not Listed	Priority 1 (WA)
Cheiranthera volubilis	Twining Finger Flower	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Chthonocephalus muellerianus	na	Plantae	1	Not Listed	Priority 2 (WA)
Chthonocephalus tomentellus	na	Plantae	1	Not Listed	Priority 2 (WA)
Comesperma praexcelsum	na	Plantae	1	Not Listed	Found only on Hinchinbrook Island
Conospermum hookeri	Variable Smoke-bush	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Coprosma inopinata	a shrub	Plantae	1	Not Listed	Endangered (NSW)
Correa calycina	Hindmarsh Correa	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Corymbia maculata	Spotted Gum	Plantae	1	Not listed	Vulnerable (VIC)
Cotula vulgaris var. *australasica*	Slender cotula	Plantae	1	Not listed	Rare (TAS)
Crassula moschata	Musky Crassula	Plantae	1	Not listed	Rare (TAS)
Croton magneticus	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Cryptocarya foetida	Stinking Cryptocarya	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Cryptocarya hypospodia	Northern Laurel/Rib-fruited Pepperberry	Plantae	1	Not Listed	Endangered (NT)
Cryptostylis hunteriana	Leafless Tongue-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Cycas armstrongii	a cycad	Plantae	1	Not Listed	Vulnerable (NT)
Cynanchum elegans	White-flowered Wax Plant	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Daviesia purpurascens	na	Plantae	1	Not Listed	Priority 3 (WA)
Dendrobium bigibbum	Mauve Butterfly Orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Dendrobium johannis	Chocolate Tea Tree Orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Dendrobium superbiens	Curly Pinks	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Dendromyza reinwardtiana	a parasitic vine/scrambling shrub	Plantae	1	Not Listed	Vulnerable (NT)
Desmocladus biformis	a sedge-like perennial herb	Plantae	1	Not listed	Priority 3 (WA)
Dicrastylis micrantha	na	Plantae	1	Not Listed	Priority 3 (WA)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Dicrastylis sp. Denham	*Dicrastylis* sp. Denham (M. Lewis 42/92)	Plantae	1	Not listed	Priority 1 (WA)
Diomedea exulans	Wandering Albatross	Critical Habitat	1	Critical Habitat	EPBC_CRITICAL HABITAT
Drosera adelae	Lance-leaved Sundew	Plantae	1	Not Listed	restricted to Hinchinbrook Island and adjacent mainland
Durringtonia paludosa	Durringtonia	Plantae	1	Not Listed	Rare (QLD)
Ectrosia blakei	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Elaeocarpus miegei	a tall tree	Plantae	1	Not Listed	Critically Endangered (NT)
Elymus multiflorus var. *kingianus*	Phillip Island Wheat Grass	Plantae	4	Critically Endangered	EPBC_THREATENED_SPECIES
Endiandra limnophila	a tree	Plantae	1	Not Listed	Vulnerable (NT)
Eremophila cuneata	na	Plantae	1	Not Listed	Priority 1 (WA)
Eremophila glabra subsp. *psammophora*	na	Plantae	1	Not Listed	Priority 2 (WA)
Eremophila occidens	na	Plantae	1	Not Listed	Priority 2 (WA)
Eremophila splendens	na	Plantae	1	Not Listed	Priority 1 (WA)
Eucalyptus beardiana	Beard's Mallee	Plantae	1	Endangered	EPBC_THREATENED_SPECIES
Eucalyptus insularis	Twin Peak Island Mallee	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Eucalyptus paludicola	Mount Compass Swamp Gum	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Euchiton involucratus	Common cudweed	Plantae	1	Not listed	Rare (TAS)
Euphrasia collina subsp. *osbornii*	Osborn's Eyebright	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Frankenia plicata	Sea Heath	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Freycinetia excelsa	a small woody climber	Plantae	1	Not Listed	Vulnerable (NT)
Freycinetia percostata	a large woody climber	Plantae	1	Not Listed	Vulnerable (NT)
Garcinia warrenii	a tree	Plantae	1	Not Listed	Endangered (NT)
Geniostoma huttonii	Hutton's Geniostoma	Plantae	1	Not Listed	Endangered (NSW)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Glycine latrobeana	Clover Glycine	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Grevillea annulifera	Prickly Plume Grevillea	Plantae	1	Not Listed	Priority 3 (WA)
Grevillea rogersoniana	Rogersons' Grevillea	Plantae	1	Not Listed	Priority 3 (WA)
Grevillea stenomera	Lace Net Grevillea	Plantae	1	Not Listed	Priority 2 (WA)
Gyrostemon thesioides	Broom wheel fruit	Plantae	1	Not listed	Rare (TAS)
Hemigenia saligna	na	Plantae	1	Not Listed	Priority 3 (WA)
Hernandia nymphaeifolia	a shrub to tree	Plantae	1	Not Listed	Vulnerable (NT)
Hodgkinsonia frutescens	Atherton Turkey Bush	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Hoya australis oramicola	a vine	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Huperzia australiana	a fern on Macquarie Island	Plantae	1	Not Listed	Endemic to Macquarie Island, under consideration for listing
Huperzia dalhousieana	Blue Tassel-fern	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Hydrocharis dubia	Frogbit	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Hydrorchis orbicularis	Swamp Onion-orchid	Plantae	1	Not listed	Rare (TAS & VIC)
Jacksonia dendrospinosa	na	Plantae	1	Not Listed	Priority 4 (WA)
Jacksonia velutina	na	Plantae	1	Not Listed	Priority 4 (WA)
Juncus revolutus	Creeping Rush	Plantae	1	Not listed	Rare (VIC)
Kennedia glabrata	Northcliffe Kennedia	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Lawrencia spicata	Salt Lawrencia	Plantae	1	Not listed	Rare (VIC)
Leionema equestre	Kangaroo Island Phebalium	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Lepidium biplicatum	a pepper-cress	Plantae	1	Not Listed	Priority 2 (WA)
Lepidium hyssopifolium	Basalt Pepper-cress	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Lepidium pseudotasmanicum	Shade peppercress	Plantae	1	Not listed	Rare (TAS)
Lepidium puberulum	a pepper-cress	Plantae	1	Not Listed	Priority 4 (WA)
Lepidobolus densus	na	Plantae	1	Not Listed	Priority 3 (WA)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Leucopogon cuspidatus	Beard Heath	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Leucopogon lanceolatus	Lance beard heath	Plantae	1	Not listed	Rare (TAS)
Logania insularis	Kangaroo Island logania	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Luisia teretifolia	an epiphytic orchid	Plantae	1	Not Listed	Vulnerable (NT)
Lycopodiella serpentina	Bog Clubmoss	Plantae	1	Not listed	Rare (VIC)
Macadamia integrifolia	Macadamia Nut	Plantae	1	Vulnerable	EPBC_THREATENED_SPECIES
Macarthuria intricata	a small, intricately branched shrub	Plantae	1	Not Listed	Priority 3 (WA)
Macrozamia pauli-guilielmi	Pineapple Zamia	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Mapania macrocephala	a robust sedge	Plantae	1	Not Listed	Vulnerable (NT)
Marsdenia brevifolia	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Marsdenia longiloba	Clear Milkvine	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Melaleuca huegelii subsp. *pritsicensis*	na	Plantae	1	Not Listed	Priority 2 (WA)
Mitrella tiwiensis	a vine	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Nematoceras dienemum	Windswept Helmet Orchid	Plantae	1	Not listed	Endemic to Macquarie Island, under consideration for listing
Nematoceras sulcatum	an endemic (Macquarie Island) orchid	Plantae	1	Not listed	Endemic to Macquarie Island, under consideration for listing
Olearia hygrophila	Swamp Daisy	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Olearia microdisca	Small-flowered Daisy-bush	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Olearia occidentissima	a daisy-bush	Plantae	1	Not Listed	Priority 2 (WA)
Olearia pannosa subsp. *pannosa*	Silver Daisy-bush	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Olearia viscosa	Viscid Daisy bush	Plantae	1	Not listed	Rare (VIC)
Parietaria debilis	Shade pellitory	Plantae	1	Not listed	Rare (TAS)
Persicaria elatior	Knotweed	Plantae	1	Vulnerable	EPBC_THREATENED_SPECIES

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Petalochilus aurantiacus	Orange-tipped caladenia	Plantae	1	Not listed	Endangered (TAS)
Phaius australis	Lesser Swamp-orchid	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Phaius bernaysii	a swamp orchid	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Physopsis chrysophylla	Golden Lambstail	Plantae	1	Not Listed	Priority 3 (WA)
Pileanthus aurantiacus	na	Plantae	1	Not Listed	Priority 1 (WA)
Pileanthus bellus	na	Plantae	1	Not Listed	Priority 3 (WA)
Pityrodia glutinosa	na	Plantae	1	Not Listed	Priority 3 (WA)
Pleurophascum occidentale	Western Giant-leaved Moss	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Poa poiformis var. *ramifer*	Island purple grass	Plantae	1	Not listed	Rare (TAS)
Polystichum moorei	a fern	Plantae	1	Not Listed	Endangered (NSW)
Polystichum vestitum	Prickly Shield Fern	Plantae	1	Not listed	Endemic to Macquarie Island, under consideration for listing
Pomaderris halmaturina halmaturina	Kangaroo Island Pomaderris	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Pomaderris paniculosa subsp. *paralia*	Coast Pomaderris	Plantae	1	Not listed	Rare (TAS)
Prasophyllum castaneum	Chestnut Leek-orchid	Plantae	4	Critically Endangered	EPBC_THREATENED_SPECIES
Prasophyllum frenchii	Maroon Leek-orchid	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Prasophyllum pallidum	Pale Leek-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Prasophyllum parviflorum	Broad-lip Leek-orchid	Plantae	1	Not listed	Rare (VIC)
Prasophyllum pulchellum	Pretty Leek-orchid	Plantae	4	Critically Endangered	EPBC_THREATENED_SPECIES
Prasophyllum secutum	Northern Leek-orchid	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Prasophyllum spicatum	Dense Leek-orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Prostanthera calycina	West Coast Mintbush	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Pterostylis atriola	Snug Greenhood	Plantae	3	Endangered	EPBC_THREATENED_SPECIES

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Pterostylis chlorogramma	Green-striped Greenhood	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Pterostylis cucullata	Leafy Greenhood	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Pterostylis nigricans	Dark Greenhood	Plantae	1	Not Listed	Rare (QLD), Vulnerable (NSW)
Pterostylis sanguinea	Banded greenhood	Plantae	1	Not listed	Rare (TAS)
Pterostylis ziegeleri	Grassland Greenhood	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Ptilotus alexandri	na	Plantae	1	Not Listed	Priority 2 (WA)
Ptilotus beckerianus	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Pultenaea villifera var. *glabrescens*	Yellow Bush-pea	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Quassia bidwillii	Quassia	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Scaevola chrysopogon	na	Plantae	1	Not Listed	Priority 2 (WA)
Schoenus scabripes	na	Plantae	1	Not Listed	Rare (QLD)
Sclerolaena stylosa	na	Plantae	1	Not Listed	Priority 1 (WA)
Solanum dunalianum	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Sondottia glabrata	na	Plantae	1	Not Listed	Priority 2 (WA)
Sophora fraseri	na	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Spyridium coactilifolium	Butterfly Spyridium	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Spyridium eriocephalum var. *glabrisepalum*	MacGillivray Spyridium	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Stellaria multiflora	Many-flowered starwort	Plantae	1	Not listed	Rare (TAS)
Stenanthemum divaricatum	na	Plantae	1	Not Listed	Priority 3 (WA)
Taeniophyllum muelleri	Minute Orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Taraxacum cygnorum	Coast Dandelion	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Tarennoidea wallichii	a small tree	Plantae	1	Not Listed	Endangered (NT)
Tetratheca stenocarpa	Long Pink-bells	Plantae	1	Not listed	Rare (VIC)
Thalassarche chrysostoma	Grey-headed Albatross	Plantae	1	Critical Habitat	EPBC_CRITICAL HABITAT

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Thelymitra benthamiana	Blotched Sun-orchid	Plantae	1	Not listed	Rare (VIC)
Thelymitra epipactoides	Metallic Sun-orchid	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Thelymitra jonesii	Sky-blue Sun-orchid	Plantae	4	Critically Endangered	EPBC_THREATENED_SPECIES
Thelymitra longiloba	Marsh Sun-orchid	Plantae	1	Not listed	Endangered (VIC)
Thelymitra matthewsii	Spiral Sun Orchid	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Thelymitra mucida	Plum Orchid	Plantae	1	Not listed	Vulnerable (VIC)
Thelypteris confluens	Swamp Fern	Plantae	1	Not Listed	Vulnerable (QLD)
Thesium australe	Austral toadflax	Plantae	2	Vulnerable	EPBC_THREATENED_SPECIES
Thrixspermum congestum	an epiphytic orchid	Plantae	1	Not Listed	Vulnerable (NT)
Thryptomene sp. Eagle Gorge	*Thryptomene* sp. Eagle Gorge (A.G. Gunness 2360)	Plantae	1	Not listed	Priority 2 (WA)
Triglochin minutissimum	Tiny Arrowgrass	Plantae	1	Not listed	Rare (VIC)
Triodia bromoides	na	Plantae	1	Not Listed	Priority 4 (WA)
Typhonium jonesii	a herb	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Typhonium mirabile	a small tuberous herb	Plantae	3	Endangered	EPBC_THREATENED_SPECIES
Verticordia capillaris	a featherflower	Plantae	1	Not Listed	Priority 4 (WA)
Verticordia cooloomia	Shark Bay Featherflower	Plantae	1	Not Listed	Priority 3 (WA)
Verticordia dichroma var. *syntoma*	a featherflower	Plantae	1	Not Listed	Priority 3 (WA)
Verticordia dichroma var.*dichroma*	a featherflower	Plantae	1	Not Listed	Priority 3 (WA)
Verticordia lepidophylla var. *quantula*	a featherflower	Plantae	1	Not Listed	Priority 1 (WA)
Xanthoparmelia microphyllizans	Lichen	Plantae	1	Not listed	Rare (TAS)
Xylopia monosperma	a tree	Plantae	1	Endangered	EPBC_THREATENED_SPECIES
Xylosma parvifolium	Mountain Xylosma	Plantae	1	Not Listed	Endangered (NSW)

Scientific Name	Common Name	Kingdom	Biodiversity Value	EPBC Status	EPBC Category
Yellow Limonium australe	Sea-lavender	Plantae	1	Not listed	Rare (VIC)
Zygophyllum billardierei	Coast twin-leaf	Plantae	1	Not listed	Rare (TAS)

Appendix D – GIS Data Preparation

These flowcharts document the process of combing data from different DEWHA datasets using ArcGIS 9.3 (ESRI 2009). This is a background document for the Methods section (see Chapter 2). This process spatially linked EPBC listed threatened species distributions (DEWHA 2009e) with Australian offshore islands and their feral species records (DEWHA 2009b) and any seabird breeding records (DEWHA 2009f) and relevant Critical Habitat (DEWHA 2009g). All data were supplied to Ecosure Pty Ltd under licence from DEWHA for the purposes of this project.

Initial file preparation

1

Seabird_breeding_minus_mainland – selected 'islands' and exported selected group to new file – CE74_Seabirds_islandsonly

Island_biodiv shapefile spatial join to CE74_Seabirds_islandsonly to produce new file – CE74_Islands_biodiv_seabirds_join

2

feralislands_epcspecies_ecosure selected based on category of status all threatened species (excluded weeds and invasive species) – exported selected group to new file – CE74_Threatenedspp_noinvasive

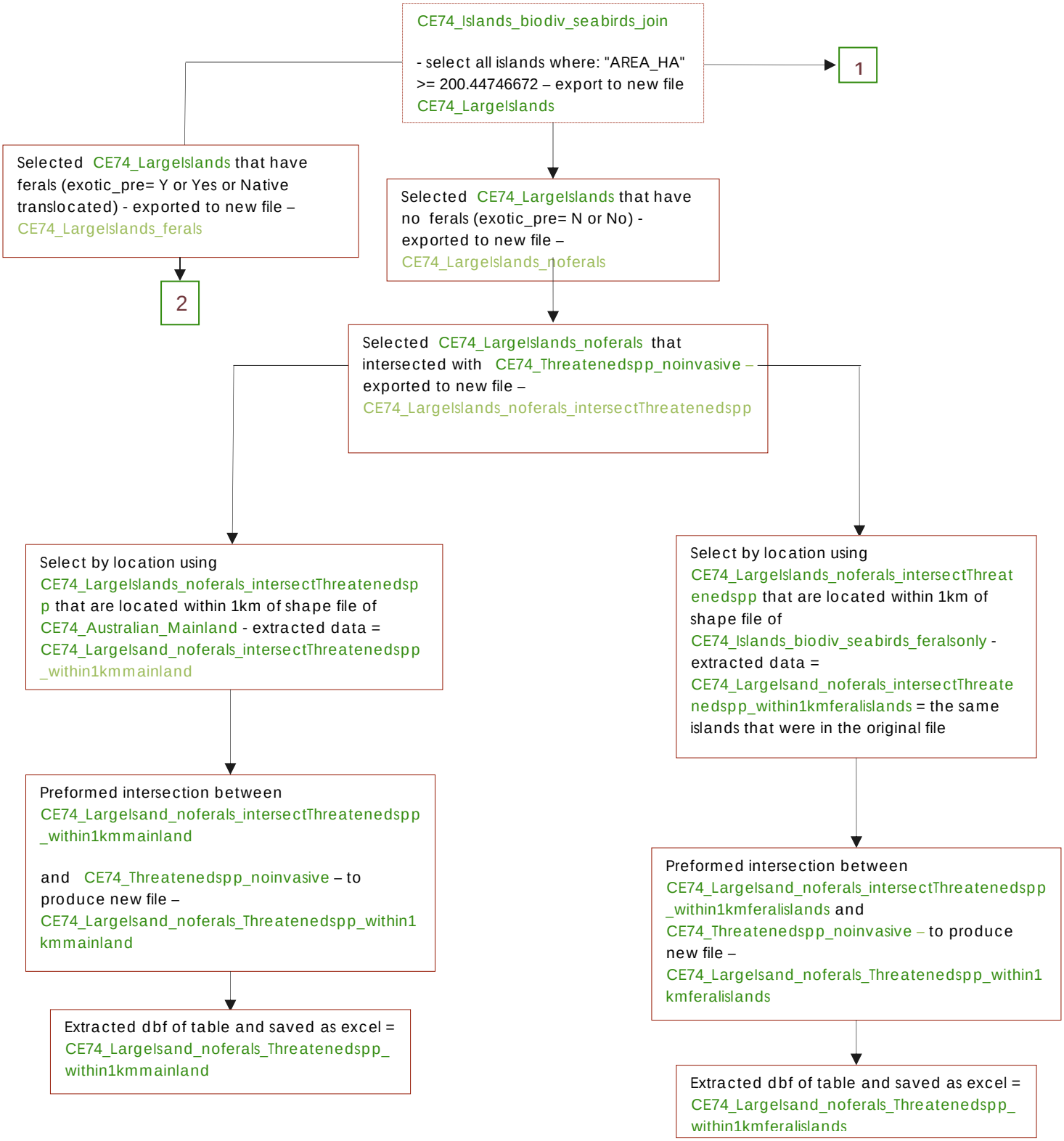
3

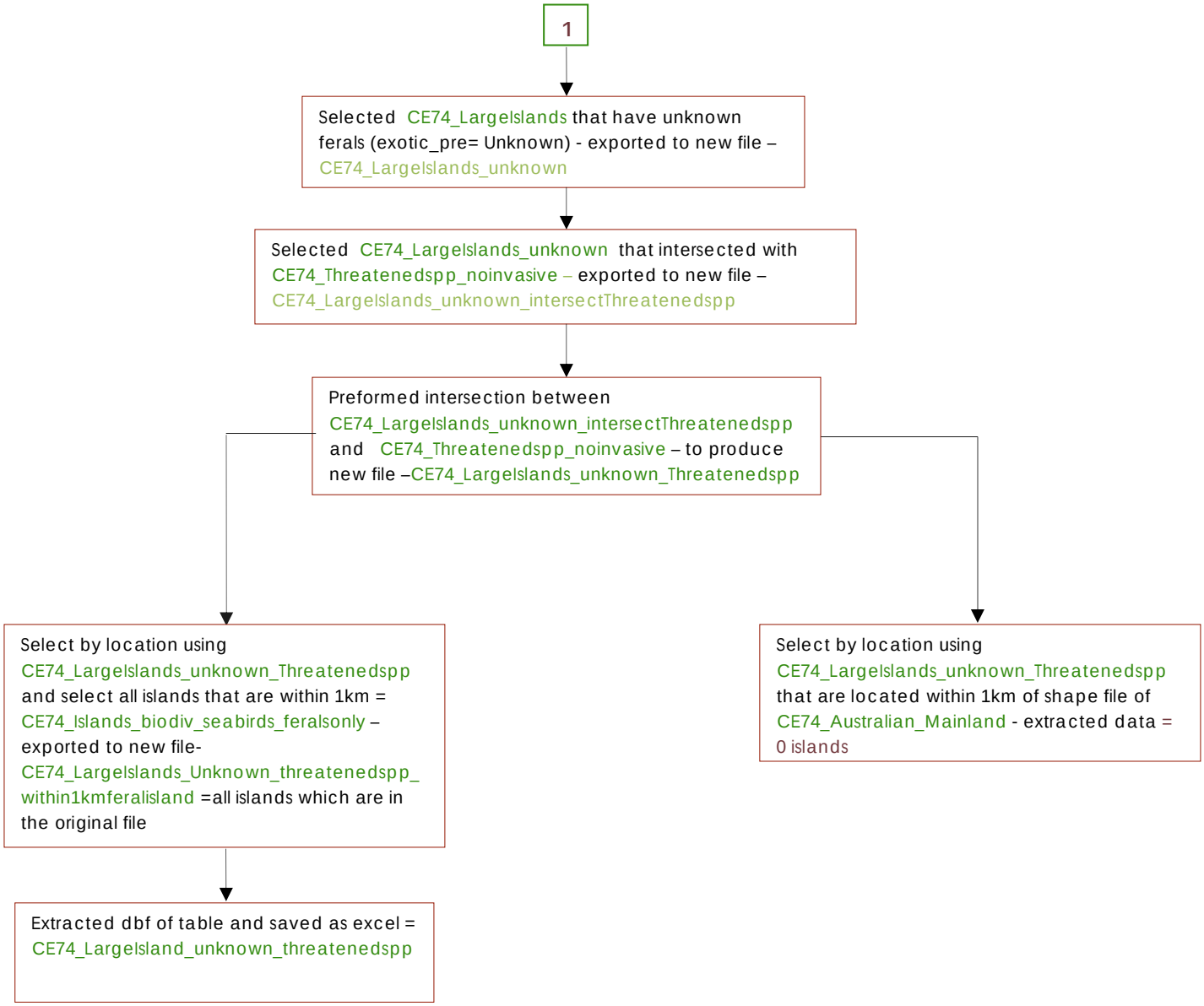
Geoscience Australia aus5fgd_r – selected Australian mainland only – exported to new file CE74_Australian_Mainland

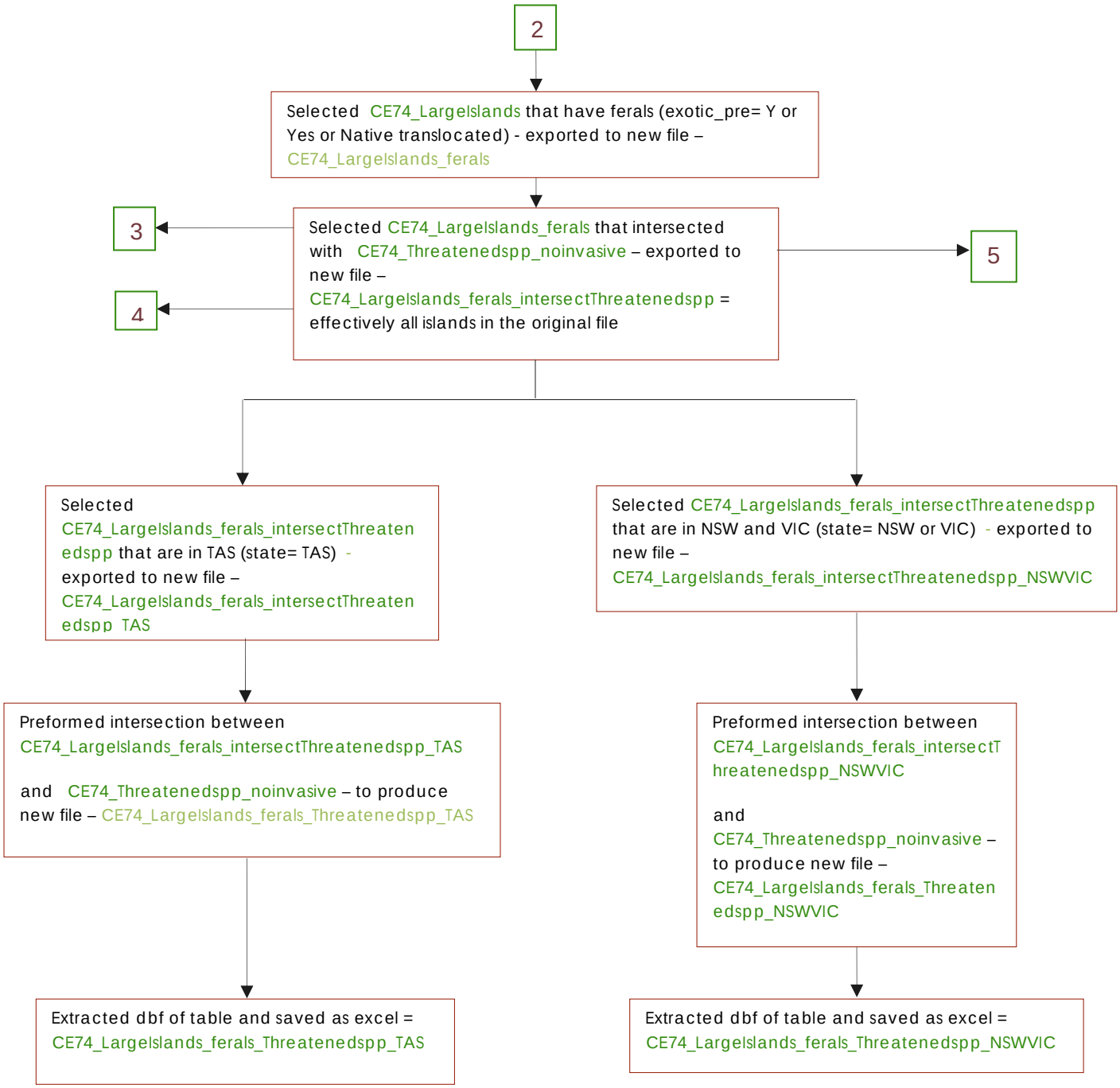
4

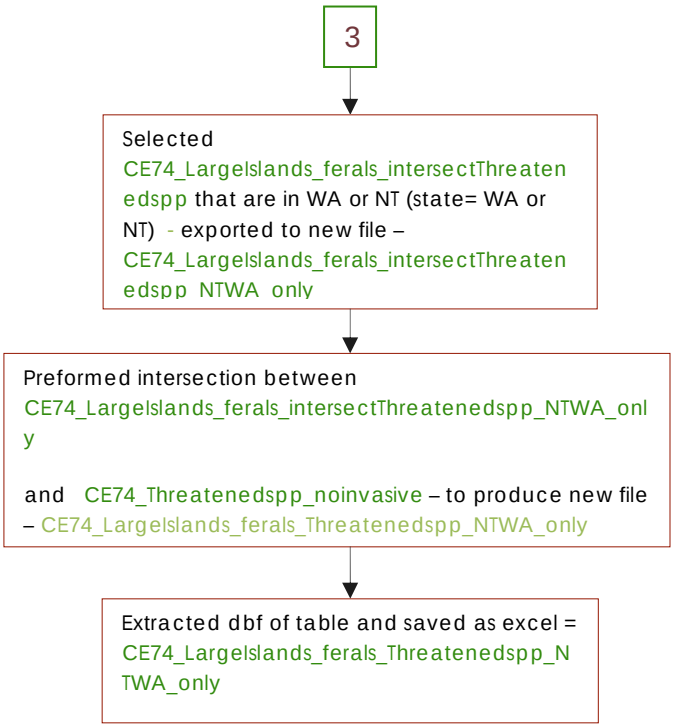
CE74_Islands_biodiv_seabirds_join - selected exotic presence is Yes or native translocated – exported to new file CE74_Islands_biodiv_seabirds_feralsonly

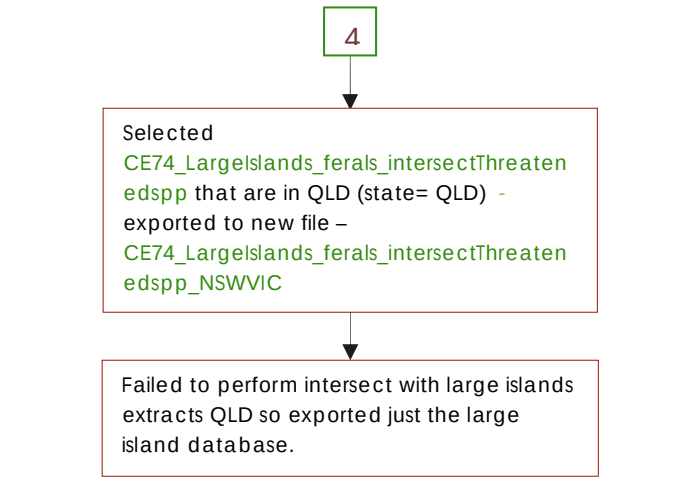
Islands over 200ha

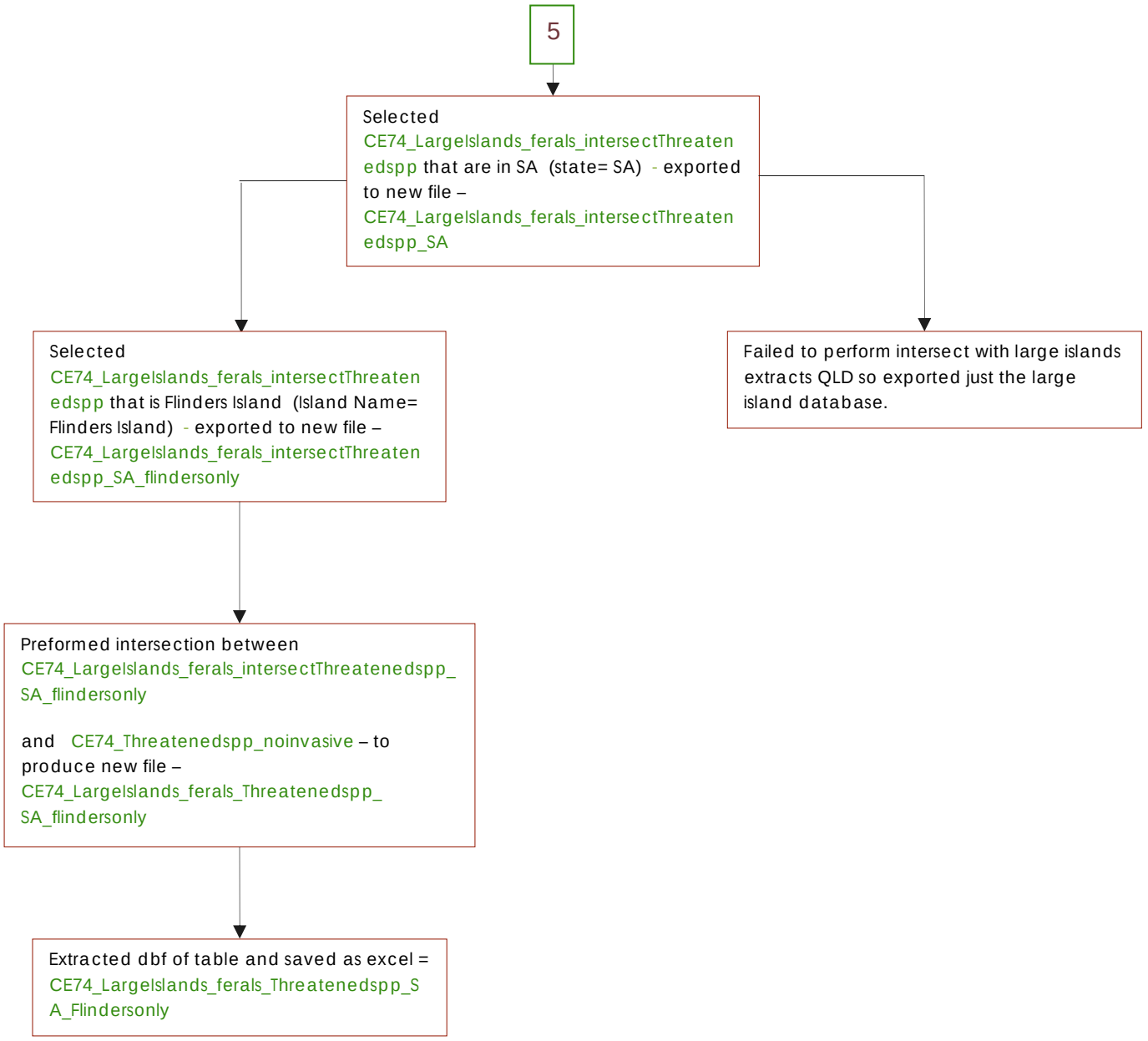



1
Selected CE74_LargeIslands that have unknown ferals (exotic_pre= Unknown) - exported to new file – CE74_LargeIslands_unknown
Selected CE74_LargeIslands_unknown that intersected with CE74_Threatenedspp_noinvasive – exported to new file – CE74_LargeIslands_unknown_intersectThreatenedspp
Preformed intersection between CE74_LargeIslands_unknown_intersectThreatenedspp and CE74_Threatenedspp_noinvasive – to produce new file –CE74_LargeIslands_unknown_Threatenedspp
Select by location using CE74_LargeIslands_unknown_Threatenedspp and select all islands that are within 1km = CE74_Islands_biodiv_seabirds_feralsonly – exported to new file- CE74_LargeIslands_Unknown_threatenedspp_within1kmferalisland =all islands which are in the original file
Extracted dbf of table and saved as excel = CE74_LargeIsland_unknown_threatenedspp
Select by location using CE74_LargeIslands_unknown_Threatenedspp that are located within 1km of shape file of CE74_Australian_Mainland - extracted data = 0 islands

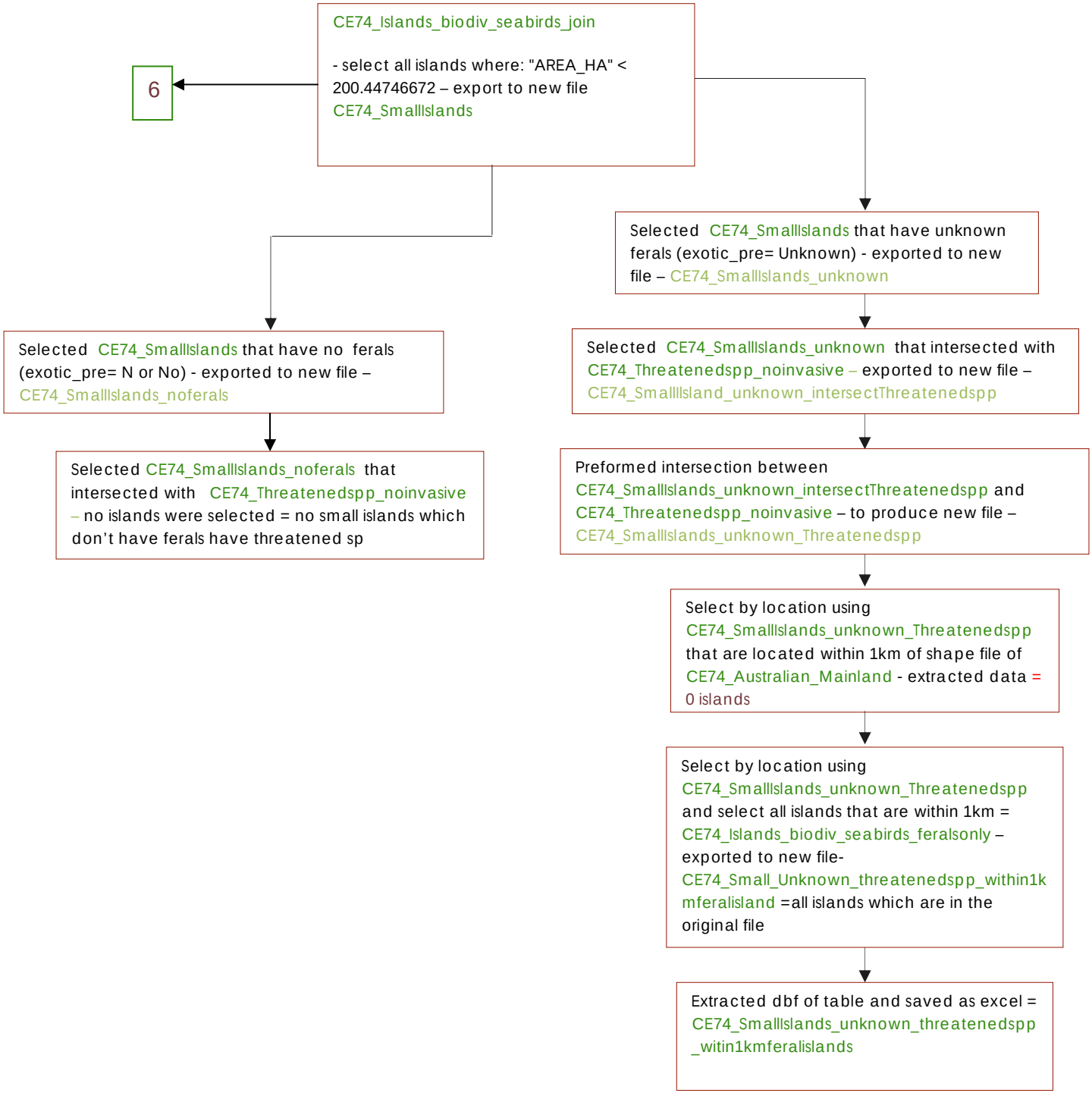

2
Selected CE74_LargeIslands that have ferals (exotic_pre= Y or Yes or Native translocated) - exported to new file – CE74_LargeIslands_ferals
3
Selected CE74_LargeIslands_ferals that intersected with CE74_Threatenedspp_noinvasive – exported to new file – CE74_LargeIslands_ferals_intersectThreatenedspp = effectively all islands in the original file
5
4
Selected CE74_LargeIslands_ferals_intersectThreatenedspp that are in TAS (state= TAS) - exported to new file – CE74_LargeIslands_ferals_intersectThreatenedspp_TAS
Selected CE74_LargeIslands_ferals_intersectThreatenedspp that are in NSW and VIC (state= NSW or VIC) - exported to new file – CE74_LargeIslands_ferals_intersectThreatenedspp_NSWVIC
Preformed intersection between CE74_LargeIslands_ferals_intersectThreatenedspp_TAS
and CE74_Threatenedspp_noinvasive – to produce new file – CE74_LargeIslands_ferals_Threatenedspp_TAS
Preformed intersection between CE74_LargeIslands_ferals_intersectThreatenedspp_NSWVIC
and CE74_Threatenedspp_noinvasive – to produce new file – CE74_LargeIslands_ferals_Threatenedspp_NSWVIC
Extracted dbf of table and saved as excel = CE74_LargeIslands_ferals_Threatenedspp_TAS
Extracted dbf of table and saved as excel = CE74_LargeIslands_ferals_Threatenedspp_NSWVIC

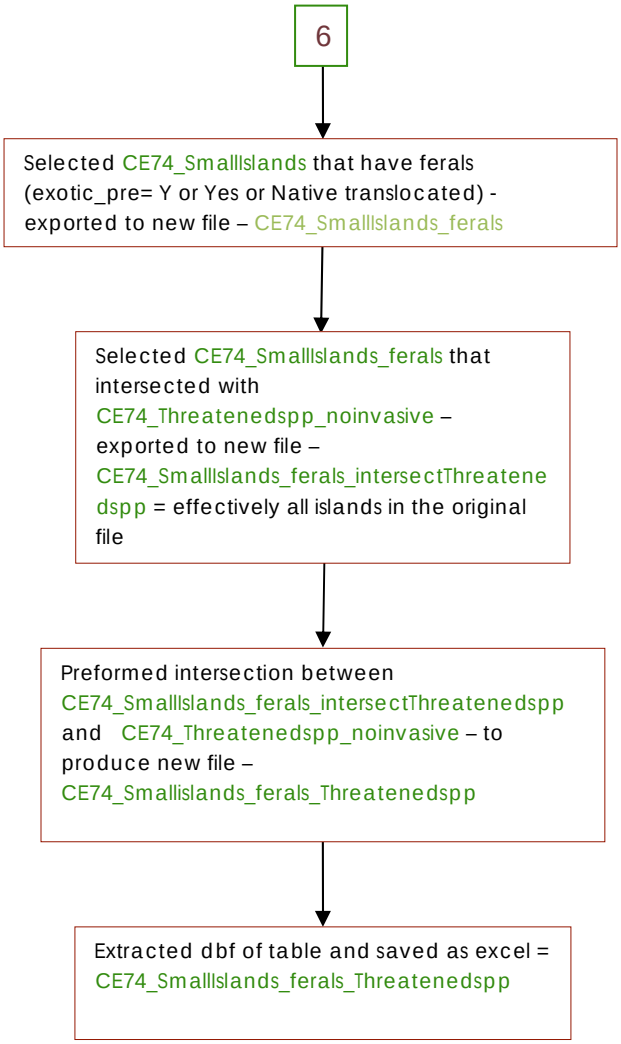

3
Selected CE74_LargeIslands_ferals_intersectThreatenedspp that are in WA or NT (state= WA or NT) - exported to new file – CE74_LargeIslands_ferals_intersectThreatenedspp_NTWA_only
Preformed intersection between CE74_LargeIslands_ferals_intersectThreatenedspp_NTWA_only
and CE74_Threatenedspp_noinvasive – to produce new file – CE74_LargeIslands_ferals_Threatenedspp_NTWA_only
Extracted dbf of table and saved as excel = CE74_LargeIslands_ferals_Threatenedspp_NTWA_only


4
Selected CE74_LargeIslands_ferals_intersectThreatenedspp that are in QLD (state= QLD) - exported to new file – CE74_LargeIslands_ferals_intersectThreatenedspp_NSWVIC
Failed to perform intersect with large islands extracts QLD so exported just the large island database.

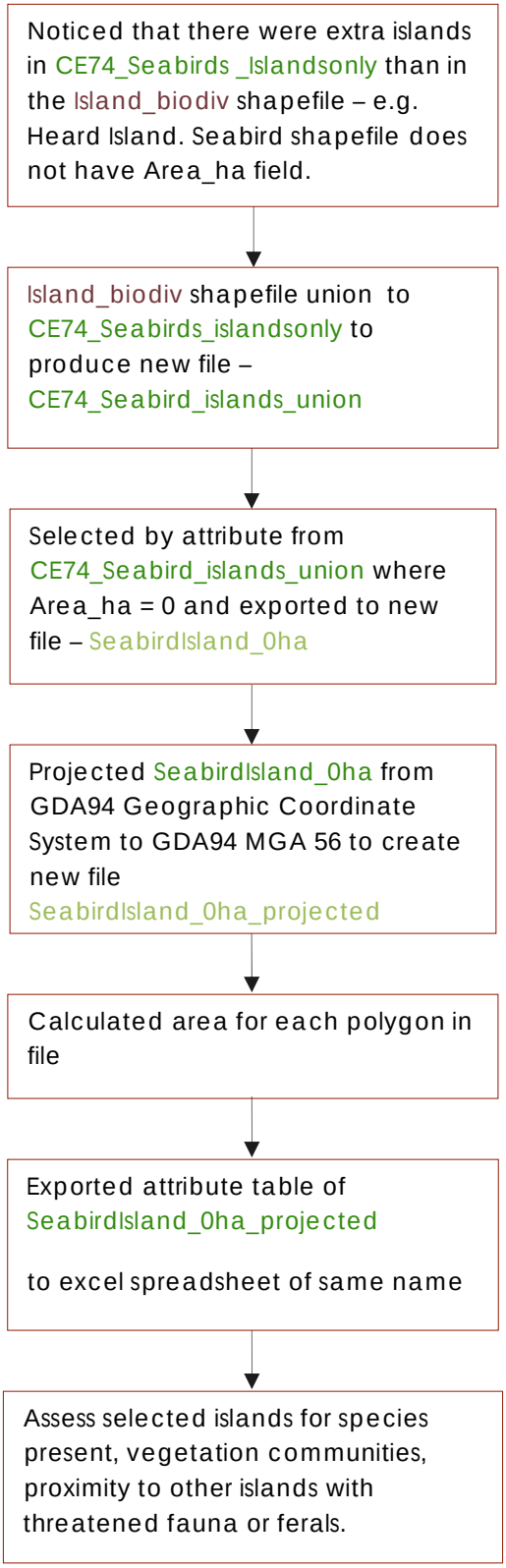

5
Selected CE74_LargeIslands_ferals_intersectThreatenedspp that are in SA (state= SA) - exported to new file – CE74_LargeIslands_ferals_intersectThreatenedspp_SA
Selected CE74_LargeIslands_ferals_intersectThreatenedspp that is Flinders Island (Island Name= Flinders Island) - exported to new file – CE74_LargeIslands_ferals_intersectThreatenedspp_SA_flindersonly
Failed to perform intersect with large islands extracts QLD so exported just the large island database.
Preformed intersection between CE74_LargeIslands_ferals_intersectThreatenedspp_SA_flindersonly
and CE74_Threatenedspp_noinvasive – to produce new file – CE74_LargeIslands_ferals_Threatenedspp_SA_flindersonly
Extracted dbf of table and saved as excel = CE74_LargeIslands_ferals_Threatenedspp_SA_Flindersonly

Islands under 200ha




6
Selected CE74_SmallIslands that have ferals (exotic_pre= Y or Yes or Native translocated) - exported to new file – CE74_SmallIslands_ferals
Selected CE74_SmallIslands_ferals that intersected with CE74_Threatenedspp_noinvasive – exported to new file – CE74_SmallIslands_ferals_intersectThreatenedspp = effectively all islands in the original file
Preformed intersection between CE74_SmallIslands_ferals_intersectThreatenedspp and CE74_Threatenedspp_noinvasive – to produce new file – CE74_Smallislands_ferals_Threatenedspp
Extracted dbf of table and saved as excel = CE74_SmallIslands_ferals_Threatenedspp

Other Tasks


Noticed that there were extra islands in CE74_Seabirds _Islandsonly than in the Island_biodiv shapefile – e.g. Heard Island. Seabird shapefile does not have Area_ha field.
Island_biodiv shapefile union to CE74_Seabirds_islandsonly to produce new file – CE74_Seabird_islands_union
Selected by attribute from CE74_Seabird_islands_union where Area_ha = 0 and exported to new file – SeabirdIsland_0ha
Projected SeabirdIsland_0ha from GDA94 Geographic Coordinate System to GDA94 MGA 56 to create new file SeabirdIsland_0ha_projected
Calculated area for each polygon in file
Exported attribute table of SeabirdIsland_0ha_projected
to excel spreadsheet of same name
Assess selected islands for species present, vegetation communities, proximity to other islands with threatened fauna or ferals.

SPECIES_NA	COMMON NAME	KINGDOM	Black Rat	Brown Rat	Pacific Rat	House Mouse	Red Fox	Dog or Dingo	Domestic Dog	Cane Toad	Rabbit	Cat	Pig	Goat	Horse	Sheep	Camel	Water Buffalo	Donkey	Western Grey Kangaroo	Tammar Wallaby	Rock Dove	Goanna	Gould's Goanna	Tasmanian Devil	European Cattle	Indian Peafowl	Fallow Deer	Hog Deer	Red Deer	Wild Turkey
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	Animalia	3	2	2	1	1	1	1	1	2	3	0	1	1	1	1	0	1	1	1	0	0	0	1	3	0	2	2	2	0
Acanthophis antarcticus	Common Death Adder	Animalia	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Accipiter novaehollandiae	Grey Goshawk	Animalia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Acrobates pygmaeus	Feathertail Glider	Animalia	1	0	0	0	1	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Actitis hypoleucos	Common Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aerodramus terraereginae	Australian Swiftlet	Animalia	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphidromus cognatus	Cognate Land Snail	Animalia	3	3	3	1	1	1	1	2	0	1	3	1	1	1	1	1	1	0	0	0	1	1	1	2	0	1	1	1	0
Anas rhynchotis	Australasian Shoveler	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anous minutus	Black Noddy	Animalia	3	2	2	1	1	1	1	0	0	3	1	1	1	1	1	0	1	1	1	0	2	1	2	1	0	1	1	1	0
Anous stolidus	Brown Noddy	Animalia	3	3	3	1	3	3	3	1	2	3	2	2	2	2	2	0	1	2	2	0	3	3	3	3	1	2	2	2	0
Anous tenuirostris melanops	Australian Lesser Noddy	Animalia	3	2	2	0	2	1	1	0	0	3	1	1	1	1	1	0	1	1	1	0	2	1	2	1	0	1	1	1	0
Anseranas semipalmata	Magpie Goose	Animalia	1	1	1	0	3	3	3	0	0	3	1	1	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Antechinus minimus	Swamp Antechinus	Animalia	3	3	1	1	2	2	2	2	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Anthus novaeseelandiae	Richard's Pipit	Animalia	1	1	1	0	3	2	2	1	0	3	1	1	1	1	1	1	1	1	1	0	0	0	1	3	0	1	1	1	0
Aprasia haroldi	Shark Bay Worm-lizard	Animalia	3	3	3	2	2	1	1	1	2	3	1	2	2	2	2	2	2	2	1	0	2	2	2	3	0	2	2	2	0
Aprasia inaurita	Red-tailed Worm-lizard	Animalia	3	3	3	2	2	1	1	2	2	3	1	2	2	2	2	2	2	2	1	0	2	2	2	3	0	2	2	2	0
Aprasia rostrata rostrata	Hermite Island Worm-lizard	Animalia	3	3	3	2	2	1	1	1	2	3	1	2	2	2	2	2	2	2	1	0	2	2	2	3	0	2	2	2	0
Aptenodytes patagonicus	King Penguin	Animalia	1	1	0	0	3	3	3	0	1	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Apus pacificus	Fork-tailed Swift	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aquila audax fleayi	Wedge-tailed Eagle	Animalia	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0
Arctocephalus forsteri	New Zealand Fur Seal	Animalia	0	0	0	0	2	3	3	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	3	0	0	0	0	0
Arctocephalus pusillus	Afro-Australian fur seal	Animalia	0	0	0	0	2	3	3	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	3	0	0	0	0	0
Arctocephalus tropicalis	Subantarctic Fur Seal	Animalia	0	0	0	0	2	3	3	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	3	0	0	0	0	0
Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	0
Ardenna grisea	Sooty Shearwater	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	0
Ardenna tenuirostris	Short-tailed Shearwater	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	0
Ardeotis australis	Australian Bustard	Animalia	0	0	0	0	2	2	2	3	2	2	2	2	1	2	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0
Arenaria interpres	Ruddy Turnstone	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspidites ramsayi	Woma (southwest pop)	Animalia	0	0	0	0	2	2	2	3	1	2	2	2	1	2	1	2	1	0	0	0	1	1	0	2	0	2	2	2	0
Atrichornis clamosus	Noisy Scrub-bird	Animalia	3	3	3	1	3	2	2	1	2	3	2	2	2	2	2	2	2	2	2	0	1	1	2	2	0	2	2	2	0
Attacus wardi	Atlas Moth	Animalia	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bassiana trilineata	Western Three-lined Skink	Animalia	3	3	3	2	1	1	1	2	2	3	1	1	0	0	0	0	0	2	2	0	0	0	2	2	0	1	1	1	0
Bettongia lesueur lesueur	Burrowing Bettong (Shark Bay)	Animalia	2	2	2	1	3	3	3	1	3	3	2	2	2	2	2	2	2	2	2	0	1	1	2	2	0	2	2	2	0
Bettongia lesueur unnamed subsp.	Burrowing Bettong (Barrow and Boodie Islands)	Animalia	2	2	2	1	3	3	3	1	3	3	2	2	2	2	2	2	2	2	2	0	1	1	2	2	0	2	2	2	0
Bettongia penicillata	Brush-tailed Bettong	Animalia	2	2	2	1	3	3	3	1	3	3	2	2	2	2	2	2	2	2	2	0	1	1	2	2	0	2	2	2	0
Biziura lobata	Musk Duck	Animalia	1	1	1	0	3	3	3	0	0	3	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Botaurus poiciloptilus	Australasian Bittern	Animalia	1	1	0	0	2	2	2	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bubulcus ibis (Ardea ibis)	Cattle Egret	Animalia	1	0	0	0	2	2	2	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	0
Burhinus grallarius	Bush Stone-curlew	Animalia	1	1	1	0	3	3	3	2	0	3	2	1	1	1	1	1	1	1	1	0	2	2	2	3	0	1	1	1	0
Cacomantis flabelliformis	Fan-tailed Cuckoo	Animalia	1	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Calamanthus campestris dorrie	Rufous Fieldwren (Dorre Island)	Animalia	3	2	2	1	1	1	1	0	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Calamanthus cautus	Shy Heath-wren	Animalia	3	2	2	1	1	0	0	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	2	2	2	0
Calidris acuminata	Sharp-tailed Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calidris alba (Crocethia alba)	Sanderling	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calidris canutus	Red Knot	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calidris ferruginea	Curlew Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calidris melanotos	Pectoral Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calidris ruficollis	Red-necked Stint	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calidris tenuirostris	Great Knot	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calyptorhynchus banksii	Red-tailed Black-Cockatoo	Animalia	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Calyptorhynchus baudinii	Baudin's Black Cockatoo	Animalia	1	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Calyptorhynchus lathami	Glossy Black-Cockatoo	Animalia	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Calyptorhynchus lathami halmaturinus	Glossy Black-Cockatoo (Kangaroo Island)/Glossy Black-Cockatoo (South Australian)	Animalia	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calyptorhynchus lathami lathami	Glossy Black-Cockatoo (eastern)	Animalia	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Caretta caretta	Loggerhead Sea Turtle	Animalia	0	0	0	0	3	2	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Casuarius casuarius johnsonii	Southern Cassowary (Australian), Southern Cassowary	Animalia	0	0	0	0	2	3	3	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Catharacta lonnbergi lonnbergi	Subantarctic Skua (southern)	Animalia	1	2	1	0	3	2	2	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
Catharacta skua	Great Skua	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cereopsis novaehollandiae	Cape Barren Goose	Animalia	1	1	1	0	3	3	3	0	0	3	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Cereopsis novaehollandiae grisea	Cape Barren Goose (south-western), Recherche Cape Barren Goose	Animalia	1	1	1	0	3	3	3	0	0	3	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Chalcites basalis	Horsfield's Bronze-Cuckoo	Animalia	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Chalinolobus dwyeri	Large-eared Pied Bat	Animalia	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chalinolobus nigrogriseus	Hoary Wattled Bat	Animalia	2	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charadrius bicinctus	Double-banded Plover	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charadrius leschenaultii	Greater Sand Plover	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charadrius mongolus	Lesser Sand Plover	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charadrius ruficapillus	Red-capped Plover	Animalia	3	3	2	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charadrius veredus (Charadrius asiaticus veredus)	Oriental Plover	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chelonia mydas	Green Turtle	Animalia	0	0	0	0	3	2	2	0	0	0	3	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0
Chlidonias hybridus	Whiskered Tern	Animalia	1	3	0	0	3	3	3	0	1	3	2	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Chlidonias leucopterus	White-winged Tern	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Christinus guentheri	Lord Howe Island Gecko	Animalia	3	3	3	2	1	1	1	2	2	3	1	1	1	0	0	0	0	2	2	0	0	0	2	2	0	1	1	1	0
Cinclosoma punctatum	Spotted Quail-thrush	Animalia	1	1	1	1	1	1	1	0	2	2	1	1	1	1	1	0	0	1	0	0	0	0	1	2	0	1	1	1	0
Circus approximans	Swamp Harrier	Animalia	0	1	0	0	3	2	2	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	Animalia	3	3	3	2	1	1	1	1	2	3	1	1	0	0	0	0	0	2	2	0	0	0	2	2	0	1	1	1	0
Conilurus penicillatus	Brush-tailed Rabbit-rat	Animalia	1	1	1	1	3	2	2	1	2	3	2	2	2	2	2	1	1	1	1	0	1	1	2	3	0	1	1	1	0
Coracina tenuirostris melvillensis	Melville Cicadabird	Animalia	2	1	1	0	1	0	0	1	1	2	1	1	1	1	1	0	1	1	1	0	1	1	1	2	0	1	1	1	0
Corvus mellori	Little Raven	Animalia	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Coturnix chinensis	King Quail	Animalia	1	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coturnix pectoralis	Stubble Quail	Animalia	1	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coturnix ypsilophora	Brown Quail	Animalia	1	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crinia tinnula	Wallum Froglet	Animalia	2	2	2	1	2	1	1	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Crocodylus porosus	Saltwater Crocodile	Animalia	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Cryptoblepharus gurrmul	Arafura Snake-eyed Skink	Animalia	1	1	1	1	3	1	1	2	2	3	2	2	1	1	1	0	1	1	1	0	1	1	2	3	0	2	2	2	0
Cuculus pallidus	Pallid Cuckoo	Animalia	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	Animalia	2	1	1	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daption capense	Cape Petrel	Animalia	3	3	1	0	3	3	3	0	2	3	2	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	0
Dasycercus cristicauda	Crest-tailed Mulgara	Animalia	1	1	1	1	3	2	2	1	3	3	1	1	1	1	1	1	1	1	1	0	0	0	1	3	0	1	1	1	0
Dasyornis longirostris	Western Bristlebird	Animalia	1	1	1	0	3	0	0	0	1	1	3	2	1	1	1	1	1	0	0	0	0	0	1	2	0	1	1	1	0
Dasyurus geoffroii	Chuditch	Animalia	1	1	1	1	3	2	2	1	1	3	1	1	1	1	1	0	1	1	1	0	0	0	3	3	0	1	1	1	0
Dasyurus hallucatus	Northern Quoll	Animalia	1	1	1	1	3	2	2	3	1	3	1	1	1	1	1	0	1	1	1	0	0	0	3	3	0	1	1	1	0
Dasyurus maculatus gracilis	Spotted-tailed Quoll	Animalia	1	1	1	1	3	2	2	3	1	3	1	1	1	1	1	0	1	1	1	0	0	0	3	3	0	1	1	1	0
Dasyurus maculatus maculatus (SE mainland population)	Spotted-tailed Quoll (SE mainland)	Animalia	1	1	1	1	3	2	2	1	1	3	1	1	1	1	1	0	1	1	1	0	0	0	3	3	0	1	1	1	0
Delma labialis	Striped-tailed Delma	Animalia	2	2	1	1	3	2	2	1	2	3	1	2	2	2	2	0	1	1	1	0	1	1	2	3	0	2	2	2	0
Denisonia maculata	Ornamental Snake	Animalia	1	1	1	1	3	3	2	1	2	3	1	2	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Dermochelys coriacea	Leatherback Turtle	Animalia	0	0	0	0	3	2	2	0	0	0	3	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0
Diomedea exulans gibsoni	Gibson's Albatross	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dromaius novaehollandiae	Emu	Animalia	0	0	0	0	2	2	2	1	2	1	2	2	1	2	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0
Drycocelus australis	Lord Howe Island Phasmid	Animalia	0	0	0	0	0	0	0	2	0	3	2	1	1	1	1	1	0	0	0	0	1	1	1	2	0	1	1	1	0
Ducula bicolor	Pied Imperial Pigeon	Animalia	1	0	1	0	1	1	1	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Dupetor flavicollis	Black Bittern	Animalia	1	1	0	0	2	2	2	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egernia coventryi	Eastern Mourning Skink	Animalia	1	1	1	1	3	1	1	2	2	3	2	2	1	1	1	0	1	1	1	0	1	1	2	3	0	2	2	2	0
Egernia rugosa	Yakka Skink	Animalia	1	1	1	1	3	1	1	2	2	3	2	2	1	1	1	0	1	1	1	0	1	1	2	3	0	2	2	2	0
Egernia stokesii badia	Western Spiny-tailed Skink	Animalia	1	1	1	1	3	1	1	2	2	3	2	2	1	1	1	0	1	1	1	0	1	1	2	3	0	2	2	2	0
Egretta alba (Ardea alba)	Great Egret	Animalia	1	0	0	0	2	2	2	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	0
Egretta garzetta nigripes	Little Egret	Animalia	1	0	0	0	2	2	2	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	0
Egretta intermedia	Intermediate Egret	Animalia	1	0	0	0	2	2	2	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	0
Egretta sacra	Eastern Reef Egret	Animalia	1	0	0	0	2	2	2	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	0
Ephippiorhynchus asiaticus	Black-necked Stork	Animalia	1	0	0	0	1	0	0	1	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Epthianura crocea macgregori	Yellow Chat (Dawson)	Animalia	1	1	1	1	1	0	0	1	0	2	3	1	1	1	1	2	1	1	1	0	1	1	1	3	0	1	1	1	0
Eretmochelys imbricata	Hawksbill Turtle	Animalia	0	0	0	0	0	2	2	0	0	0	3	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0
Erythrotriorchis radiatus	Red Goshawk	Animalia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Esacus neglectus	Beach Stone-curlew	Animalia	1	2	1	0	3	3	3	2	0	3	2	1	1	1	1	1	1	1	1	0	2	2	2	3	0	1	1	1	0
Eudyptes chrysocome	Rockhopper Penguin	Animalia	1	1	0	0	3	3	3	0	2	3	3	2	2	2	0	0	0	1	1	0	0	0	2	3	0	2	2	2	0
Eudyptes chrysolophus sensu lato	Macaroni Penguin, Royal Penguin	Animalia	1	1	0	0	3	3	3	0	2	3	3	2	2	2	0	0	0	1	1	0	0	0	2	3	0	2	2	2	0
Eudyptula minor	Little Penguin	Animalia	1	1	0	0	3	3	3	0	2	3	3	2	2	2	0	0	0	1	1	0	0	0	2	3	0	2	2	2	0
Eurostopodus argus	Spotted Nightjar	Animalia	1	1	1	0	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Falcunculus frontatus whitei	Crested Shrike-tit (northern)	Animalia	1	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Fregata andrewsi	Christmas Island Frigatebird, Andrew's Frigatebird	Animalia	2	2	1	0	3	3	3	0	1	3	1	2	2	2	0	0	0	1	1	0	2	2	2	3	0	2	2	2	0
Fregata ariel	Lesser Frigatebird	Animalia	2	2	1	0	3	3	3	0	1	3	1	2	2	2	0	0	0	1	1	0	2	2	2	3	0	2	2	2	0
Fregata minor	Great Frigatebird	Animalia	2	2	1	0	3	3	3	0	1	3	1	2	2	2	0	0	0	1	1	0	2	2	2	3	0	2	2	2	0
Fregetta grallaria grallaria	White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian)	Animalia	3	3	3	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	0
Fulmarus glacialoides	Southern/Antarctic Fulmar	Animalia	3	3	2	0	2	2	2	0	1	3	2	2	2	2	1	1	1	1	1	0	3	3	1	2	1	2	2	2	1
Gallinago hardwickii	Latham's Snipe	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gallirallus sylvestris	Lord Howe Woodhen	Animalia	1	2	1	0	1	1	1	0	1	1	2	1	1	1	1	1	0	1	1	0	1	1	1	2	0	1	1	1	0
Garrodia nereis	Grey-backed Storm-petrel	Animalia	3	3	2	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Geophaps scripta scripta	Squatter Pigeon	Animalia	1	1	1	1	2	1	1	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	1	1	1	0
Geophaps smithii smithii	Partridge Pigeon (eastern)	Animalia	1	1	1	1	2	1	1	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	2	2	2	0
Glareola maldivarum	Oriental Pratincole	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grus rubicunda	Brolga	Animalia	1	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gygis alba	White Tern	Animalia	3	1	1	1	1	1	1	0	0	3	1	1	1	1	1	0	1	1	1	0	2	1	2	1	0	1	1	1	0
Haematopus fuliginosus	Sooty Oystercatcher	Animalia	1	2	1	0	3	3	3	0	0	3	2	1	1	1	1	1	1	1	1	0	2	2	2	3	0	1	1	1	0
Haematopus longirostris	Pied Oystercatcher	Animalia	1	2	1	0	3	3	3	0	0	3	2	1	1	1	1	1	1	1	1	0	2	2	2	3	0	1	1	1	0
Haliaeetus leucogaster	White-bellied Sea-Eagle	Animalia	1	0	0	0	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haliastur indus	Brahminy Kite	Animalia	1	0	0	0	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halobaena caerulea	Blue Petrel	Animalia	3	3	1	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Heteroscelus brevipes	Grey-tailed Tattler	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heteroscelus incanus	Wandering Tattler	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hirundapus caudacutus	White-throated Needletail	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hirundo rustica	Barn Swallow	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hoplocephalus bungaroides	Broad-headed Snake	Animalia	2	1	1	1	1	1	1	3	0	2	1	1	1	1	0	0	0	1	1	0	2	2	2	0	0	1	1	1	0
Hoplocephalus stephensii	Stephen's Banded Snake	Animalia	2	1	1	1	1	1	1	3	0	2	1	1	1	1	0	0	0	1	1	0	2	2	2	0	0	1	1	1	0
Hydroprogne caspia (Sterna caspia)	Caspian Tern	Animalia	3	3	1	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	1
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	Animalia	3	2	2	1	1	0	0	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	2	2	2	0
Isoodon auratus auratus	Golden Bandicoot (mainland)	Animalia	2	2	1	1	3	2	2	1	2	3	1	1	1	0	1	0	1	1	1	0	1	1	2	3	0	1	1	1	0
Isoodon auratus barrowensis	Golden Bandicoot	Animalia	2	2	1	1	3	2	2	1	2	3	1	1	1	0	1	0	1	1	1	0	1	1	2	3	0	1	1	1	0
Isoodon obesulus	Southern Brown Bandicoot	Animalia	1	1	1	1	3	2	2	1	2	3	1	1	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Isoodon obesulus nauticus	Nuyts Island Bandicoot	Animalia	1	1	1	1	3	2	2	1	2	3	1	1	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Animalia	1	1	1	1	3	2	2	1	2	3	1	1	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Lagorchestes conspicillatus conspicillatus	Spectacled Hare-wallaby (Barrow Island)	Animalia	1	1	1	1	3	2	2	1	2	3	1	1	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Lagorchestes hirsutus bernieri	Rufous Hare-Wallaby	Animalia	1	1	1	1	3	2	2	1	2	3	1	1	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Lagorchestes hirsutus dorreae	Rufous Hare-wallaby (Dorre Island)	Animalia	1	1	1	1	3	2	2	1	2	3	1	1	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Lagostrophus fasciatus fasciatus	Banded Hare-wallaby	Animalia	1	1	1	1	3	2	2	1	2	3	1	1	1	1	1	1	1	1	1	0	1	1	2	3	0	2	2	2	0
Larus dominicanus	Kelp Gull	Animalia	1	1	0	0	3	3	3	0	0	2	2	0	1	1	1	0	0	0	0	0	2	2	1	1	0	1	1	1	0
Larus novaehollandiae	Silver Gull	Animalia	2	2	1	0	3	3	3	0	0	3	2	0	1	1	1	0	0	0	0	0	2	2	1	1	0	1	1	1	0
Larus pacificus	Pacific Gull	Animalia	2	2	1	0	3	3	3	0	0	3	2	0	1	1	1	0	0	0	0	0	2	2	1	1	0	1	1	1	0
Lathamus discolor	Swift Parrot	Animalia	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leggadina lakedownensis	Lakeland Downs Mouse/Thevenard Island Short-tailed Mouse	Animalia	1	1	0	2	3	2	2	2	1	3	1	1	1	1	0	0	0	0	0	0	0	0	0	3	0	1	1	1	0
Leipoa ocellata	Malleefowl	Animalia	0	0	0	0	3	1	1	0	2	3	3	3	1	1	1	0	1	0	0	0	1	1	0	3	0	2	2	2	0
Lepidochelys olivacea	Olive Ridley Turtle	Animalia	0	0	0	0	2	2	2	0	0	0	3	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0
Leporillus conditor	Wopilkara/Greater Stick-nest Rat	Animalia	1	1	1	1	3	1	1	0	3	3	1	1	1	1	1	0	1	0	0	0	0	0	1	3	0	2	2	2	0
Lerista microtis	Long-legged Slider	Animalia	0	0	0	0	2	2	2	0	0	0	3	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0
Leucocarbo atriceps purpurascens	Imperial Shag (Macquarie Island)	Animalia	2	2	1	0	2	2	2	0	1	3	2	1	1	1	1	0	0	0	0	0	0	0	2	1	0	1	1	1	0
Lichenostomus melanops cassidix	Yellow-tufted Honeyeater	Animalia	1	0	0	0	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limicola falcinellus	Broad-billed Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limosa lapponica	Bar-tailed Godwit	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limosa limosa	Black-tailed Godwit	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lissotes latidens	Broad-toothed Stag Beetle	Animalia	2	2	2	1	0	0	0	0	2	2	2	2	2	2	2	0	2	2	2	0	0	0	1	2	0	2	2	2	0
Lissotes menalcas	Mt Mangana Stag Beetle	Animalia	2	2	2	1	0	0	0	0	2	2	2	2	2	2	2	0	2	2	2	0	0	0	1	2	0	2	2	2	0
Litoria aurea	Green and Golden Bell Frog	Animalia	0	0	0	0	2	1	1	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Litoria cooloolensis	Cooloolah Tree Frog	Animalia	0	0	0	0	1	1	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Litoria freycineti	Freycinet's Frog	Animalia	0	0	0	0	2	1	1	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Litoria nannotis	Waterfall Frog	Animalia	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Litoria nyakalensis	Mountain Mistfrog	Animalia	0	0	0	0	2	1	1	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Litoria olongburensis	Wallum Sedge Frog	Animalia	0	0	0	0	2	1	1	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Litoria raniformis	Southern Bell Frog	Animalia	0	0	0	0	2	1	1	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Litoria rheocola	Common Mistfrog	Animalia	0	0	0	0	2	1	1	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Lophoictinia isura	Square-tailed Kite	Animalia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Macroderma gigas	Ghost Bat	Animalia	1	1	1	0	1	1	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macronectes giganteus	Southern Giant-Petrel	Animalia	1	1	0	0	3	3	3	0	1	3	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macronectes halli	Northern Giant-Petrel	Animalia	1	1	0	0	3	3	3	0	1	3	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macropus eugenii	Tammar Wallaby	Animalia	0	0	0	0	2	3	3	0	2	1	2	2	2	2	0	2	2	3	2	0	0	0	0	3	1	3	3	3	1
Macropus robustus isabellinus	Barrow Island Wallaroo	Animalia	0	0	0	0	1	3	3	0	2	1	2	2	2	2	0	2	2	3	2	0	0	0	0	3	1	3	3	3	1
Macrotis lagotis	Greater Bilby	Animalia	2	2	1	1	3	2	2	1	2	3	1	1	1	1	1	0	1	1	1	0	1	1	2	3	0	1	1	1	0
Malurus lamberti bernieri	Variegated Fairy-wren (Shark Bay)	Animalia	3	2	2	1	1	1	1	0	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Malurus leucopterus edouardi	White-winged Fairy-wren (Barrow Island)	Animalia	3	2	2	1	1	0	0	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	2	2	2	0
Malurus leucopterus leucopterus	White-winged Fairy-wren (Dirk Hartog Island)	Animalia	3	2	2	1	1	0	0	0	2	3	1	3	1	1	1	0	1	1	1	0	1	1	1	3	0	2	2	2	0
Melanodryas cucullata melvillensis	Hooded Robin (Tiwi Islands)	Animalia	3	2	2	1	1	0	0	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	2	2	2	0
Melithreptus gularis	Black-chinned Honeyeater	Animalia	1	0	0	0	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Merops ornatus	Rainbow Bee-eater	Animalia	1	1	1	0	1	1	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Mesembriomys macrurus	Golden-backed Tree-rat	Animalia	2	1	1	1	2	1	1	2	1	3	1	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	0
Miniopterus australis	Little Bent-winged Bat	Animalia	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miniopterus schreibersii	Eastern Bent-winged Bat	Animalia	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miniopterus schreibersii bassanii	Southern Bent-wing Bat	Animalia	2	1	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mirounga leonina	Southern Elephant Seal	Animalia	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Mixophyes balbus	Stuttering Frog	Animalia	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Mixophyes iteratus	Southern Barred Frog	Animalia	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Monarcha frater	Black-winged Monarch	Animalia	2	1	1	0	1	0	0	0	2	1	1	0	0	0	0	0	0	1	1	0	1	1	1	2	0	2	2	2	0
Monarcha melanopsis	Black-faced Monarch	Animalia	2	1	1	0	1	0	0	0	2	1	1	0	0	0	0	0	0	1	1	0	1	1	1	2	0	2	2	2	0
Monarcha trivirgatus	Spectacled Monarch	Animalia	2	1	1	0	1	0	0	0	2	1	1	0	0	0	0	0	0	1	1	0	1	1	1	2	0	2	2	2	0
Morelia spilota imbricata	Carpet Python	Animalia	1	0	1	0	1	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	1	0
Morethia adelaidensis	Saltbush Morethia Skink	Animalia	3	3	3	2	1	1	1	2	2	3	1	1	0	0	0	0	0	2	2	0	0	0	2	2	0	1	1	1	0
Mormopterus beccarii	Beccari's Freetail Bat	Animalia	2	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Morus serrator	Australasian Gannet	Animalia	0	0	0	0	3	2	2	0	1	2	2	1	1	1	0	0	0	1	1	0	2	2	1	2	0	2	2	2	0
Myiagra cyanoleuca	Satin Flycatcher	Animalia	2	1	1	0	1	0	0	0	2	1	1	0	0	0	0	0	0	1	1	0	1	1	1	2	0	2	2	2	0
Mystivagor mastersi	Masters' Charopid Land Snail	Animalia	3	3	3	1	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Natator depressus	Flatback Turtle	Animalia	0	0	0	0	3	2	2	0	0	0	3	0	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0	0	0
Neochmia ruficauda ruficauda	Star Finch (eastern and southern)	Animalia	1	1	1	1	1	0	0	1	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	3	0	2	2	2	0
Neophema chrysogaster	Orange-bellied Parrot	Animalia	2	1	1	1	3	0	0	0	2	3	1	1	1	1	0	0	1	1	1	0	1	1	1	2	0	1	1	1	0
Neophema chrysostoma	Blue-winged Parrot	Animalia	2	1	1	1	3	0	0	0	2	3	1	1	1	1	0	0	1	1	1	0	1	1	1	2	0	1	1	1	0
Neophema petrophila	Rock Parrot	Animalia	2	1	1	1	3	1	1	0	2	3	2	2	2	2	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Neophema pulchella	Turquoise Parrot	Animalia	2	1	1	1	3	0	0	0	2	3	1	1	1	1	0	0	1	1	1	0	1	1	1	2	0	1	1	1	0
Neophoca cinerea	Australian Sea-lion	Animalia	0	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Nettapus coromandelianus albipennis	Cotton Pygmy-goose	Animalia	1	1	1	0	3	3	3	0	0	3	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ninox connivens	Barking Owl	Animalia	1	1	1	0	1	1	1	2	0	2	1	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Ninox strenua	Powerful Owl	Animalia	1	1	1	0	1	1	1	2	0	2	1	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Notechis ater serventyi	Chappell Island Tiger Snake	Animalia	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Notomys aquilo	Northern Hopping-mouse	Animalia	2	2	1	1	2	1	1	1	2	3	1	1	1	1	1	0	1	1	1	0	0	0	2	2	0	2	2	2	0
Numenius madagascariensis	Eastern Curlew	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Numenius minutus	Little Curlew	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Numenius phaeopus	Whimbrel	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nycticorax caledonicus	Rufous/Nankeen Night Heron	Animalia	1	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nyctimene robinsoni	Eastern Tube-nosed Bat	Animalia	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nyctimystes dayi	Lace-eyed Tree Frog	Animalia	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nyctophilus bifax	Northern Long-eared Bat	Animalia	2	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ogyris iphis	Dodd's Azure Butterfly	Animalia	1	1	1	1	0	0	0	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0
Oligosoma lichenigera	Lord Howe Island Skink	Animalia	3	3	3	1	3	1	1	2	2	3	2	2	1	1	1	1	0	1	1	0	1	1	2	3	0	2	2	2	0
Onychoprion anaethetus	Bridled Tern	Animalia	3	3	3	1	3	3	3	1	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	0
Onychoprion fuscata	Sooty Tern	Animalia	3	3	3	1	3	3	3	1	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Ophioscincus truncatus	Short-limbed Snake-skink	Animalia	3	3	3	2	2	1	1	2	2	3	1	2	2	2	2	2	2	2	1	0	2	2	2	3	0	2	2	2	0
Ornithoptera richmondia	Richmond Birdwing	Animalia	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxyura australis	Blue-billed Duck	Animalia	1	1	1	0	3	3	3	0	0	3	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Pachycephala pectoralis contempta	Lord Howe Island Golden Whistler	Animalia	1	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Pachyptila belcheri	Slender-billed Prion	Animalia	3	3	3	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Pachyptila crassirostris	Fulmar Prion	Animalia	3	3	3	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Pachyptila desolata	Antarctic Prion	Animalia	3	3	3	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Pachyptila turtur subantarctica	Fairy Prion (southern)	Animalia	3	3	1	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Pandion cristatus	Eastern Osprey	Animalia	0	0	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Panesthia lata	Lord Howe Island Wood-eating Cockroach	Animalia	1	1	1	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0
Papasula abbotti	Abbott's Booby	Animalia	1	1	0	0	2	2	2	0	1	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradelma orientalis	Brigalow Scaly-foot	Animalia	0	0	0	0	2	2	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Parantechinus apicalis	Dibbler	Animalia	3	3	2	2	3	3	1	1	0	2	3	2	2	2	2	2	2	1	1	0	1	1	1	3	0	2	2	2	0
Pardalotus quadragintus	Forty-spotted Pardalote	Animalia	3	3	1	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	1	0
Pedionomus torquatus	Plains-wanderer	Animalia	3	3	3	0	3	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	1	1	0
Pelagodroma marina	White-faced Storm-Petrel	Animalia	3	3	3	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Pelecanoides urinatrix	Common Diving-Petrel	Animalia	3	3	3	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Pelecanus conspicillatus	Australian Pelican	Animalia	0	0	0	0	1	2	2	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Perameles bougainville bougainville	Western Barred Bandicoot (Shark Bay)	Animalia	1	1	1	1	3	1	1	0	1	3	1	1	1	1	1	1	1	0	0	0	0	0	1	2	0	1	1	1	0
Perameles gunnii gunnii	Eastern Barred Bandicoot (Tasmania)	Animalia	1	1	1	1	3	2	2	0	2	3	1	1	1	1	1	1	1	0	0	0	0	0	1	2	0	1	1	1	0
Pericryptodrilus nanus	Lord Howe Island Earthworm	Animalia	1	1	1	1	1	1	1	0	2	1	1	3	2	1	1	1	1	0	1	0	1	1	1	1	0	1	1	1	1
Petaurus breviceps	Sugar Glider	Animalia	1	0	0	0	1	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Petaurus norfolcensis	Squirrel Glider	Animalia	1	0	0	0	1	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Petrogale lateralis lateralis	Black-flanked Rock-wallaby	Animalia	0	0	0	0	3	3	3	0	3	2	1	3	1	1	1	1	0	1	1	0	0	0	0	2	0	1	1	1	0
Petrogale lateralis pearsoni	Pearson Island Rock-wallaby	Animalia	0	0	0	0	3	3	3	0	3	2	1	2	1	1	1	1	0	1	1	0	0	0	0	2	0	1	1	1	0
Petrogale lateralis pearsoni	Pearson Island Rock-wallaby/Black-footed Rock-wallaby	Animalia	0	0	0	0	3	3	3	0	3	2	1	2	1	1	1	1	0	1	1	0	0	0	0	2	0	1	1	1	0
Petroica phoenicea	Flame Robin	Animalia	2	1	1	0	1	0	0	0	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Petroica rodinogaster	Pink Robin	Animalia	2	1	1	0	1	0	0	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	1	1	1	0
Pezoporus wallicus	Ground Parrot	Animalia	2	2	1	1	3	1	1	0	2	3	2	2	2	2	1	1	1	1	1	0	1	1	1	3	0	2	2	2	0
Pezoporus wallicus flaviventris	Western Ground Parrot	Animalia	1	2	1	1	3	0	0	0	1	3	1	2	2	2	2	0	2	0	0	0	0	0	1	3	0	2	2	2	0
Phaethon lepturus	White-tailed Tropicbird	Animalia	3	2	2	0	1	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phaethon rubricauda	Red-tailed Tropicbird	Animalia	3	3	2	0	3	3	3	0	2	3	3	2	2	2	2	0	2	2	2	0	2	2	2	2	0	2	2	2	0
Phalacrocorax fuscescens	Black-faced Cormorant	Animalia	1	1	1	0	3	2	2	0	1	3	2	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Phalacrocorax melanoleucos	Little Pied Cormorant	Animalia	2	1	1	0	1	1	1	0	1	2	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
Phalacrocorax varius	Pied Cormorant	Animalia	2	1	1	0	1	1	1	0	1	2	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
Phascogale pirata	Northern Brush-tailed Phascogale	Animalia	2	2	1	1	3	1	1	3	1	3	1	1	1	1	1	0	1	1	1	0	0	0	2	2	0	2	2	2	0
Phascolarctos cinereus	Koala	Animalia	1	0	0	0	3	3	3	0	0	2	1	1	1	1	0	0	0	1	1	0	1	1	0	2	0	1	1	1	0
Philemon citreogularis	Little Friarbird	Animalia	1	0	0	0	1	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Philomachus pugnax	Ruff (Reeve)	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phoebetria palpebrata	Light-mantled Sooty Albatross	Animalia	2	2	1	0	3	3	3	0	1	3	3	1	1	1	0	0	0	1	1	0	0	0	2	2	0	1	1	1	0
Placostylus bivaricosus	Lord Howe Placostylus/Flax Snail	Animalia	3	3	3	1	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Planigale maculata	Common Planigale	Animalia	2	2	1	1	3	1	1	1	1	3	1	1	1	1	1	0	1	1	1	0	0	0	2	3	0	2	2	2	0
Platalea regia	Royal Spoonbill	Animalia	1	0	0	0	2	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plegadis falcinellus	Glossy Ibis	Animalia	1	0	0	0	2	2	2	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	0
Pluvialis fulva	Lesser Golden Plover	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pluvialis squatarola	Grey Plover	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Podargus ocellatus	Marbled Frogmouth	Animalia	1	1	1	0	2	1	1	2	0	2	1	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Poecilodryas superciliosa cerviniventris	Derby White-browed Robin	Animalia	2	1	1	0	1	0	0	0	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Poephila cincta cincta	Black-throated finch (southern subspecies)	Animalia	2	2	1	1	1	0	0	1	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	2	2	2	0
Pomatostomus temporalis	Grey-crowned Babbler	Animalia	2	1	1	0	1	0	0	0	1	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Porzana pusilla	Baillon's Crake	Animalia	1	2	1	0	2	2	2	1	1	2	1	1	1	1	1	0	1	0	0	0	1	1	0	2	0	1	1	1	0
Potorous gilbertii	Gilbert's Potoroo	Animalia	2	1	1	1	3	2	2	1	1	3	1	1	1	1	1	0	1	1	1	0	0	0	2	2	0	1	2	2	0
Potorous tridactylus	Long-nosed Potoroo	Animalia	1	1	1	1	3	1	1	1	1	2	1	1	1	1	1	0	1	0	0	0	0	0	0	3	0	1	1	1	0
Potorous tridactylus tridactylus	Long-nosed Potoroo (SE mainland)	Animalia	1	1	1	1	3	1	1	1	1	2	1	1	1	1	1	0	1	0	0	0	0	0	0	3	0	1	1	1	0
Procellaria cinerea	Grey Petrel	Animalia	2	3	3	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	0
Procelsterna cerulea	Grey Ternlet	Animalia	3	3	3	1	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	2	1	2	2	2	0
Pseudantechinus mimulus	Carpentarian Antechinus	Animalia	3	3	1	1	2	1	1	2	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	2	0	1	1	1	0
Pseudemoia rawlinsoni	Swampland Cool-skink	Animalia	3	3	3	1	3	1	1	2	2	3	2	2	1	1	1	0	1	1	1	0	1	1	2	3	0	2	2	2	0
Pseudocharopa lidgbirdi	Mount Lidgbird Charopid Land Snail	Animalia	3	3	3	1	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Pseudocharopa whiteleggei	Whitelegge's Land Snail	Animalia	3	3	3	1	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Pseudocheirus occidentalis	Western Ringtail Possum	Animalia	0	0	0	0	3	2	2	0	0	3	1	1	1	1	1	0	1	1	1	0	0	0	1	2	0	1	1	1	0
Pseudomys fieldi	Shark Bay Mouse	Animalia	1	2	1	1	3	1	1	2	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	2	0	1	1	1	0
Pseudomys fumeus	Smoky Mouse	Animalia	1	2	1	1	3	1	1	2	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	2	0	1	1	1	0
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Animalia	1	2	1	1	3	1	1	2	3	3	1	1	1	1	1	0	1	1	1	0	0	0	1	2	0	1	1	1	0

Pseudomys novaehollandiae	New Holland Mouse	Animalia	1	2	1	1	3	1	1	2	3	3	1	1	1	1	1	0	1	1	1	0	0	0	1	2	0	1	1	1	0
Psophodes nigrogularis leucogaster	Western Whipbird (eastern)	Animalia	1	1	1	1	1	1	1	0	2	2	1	1	1	1	1	0	0	1	1	0	0	0	1	2	0	1	1	1	0
Pterodroma cervicalis	White-necked Petrel	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma heraldica	Herald Petrel	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma lessonii	White-headed Petrel	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma leucoptera leucoptera	Gould's Petrel	Animalia	3	3	2	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma macroptera	Great-winged Petrel	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma mollis	Soft-plumaged Petrel	Animalia	3	3	1	0	3	3	3	0	3	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma neglecta neglecta	Kermadec Petrel (western)	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma nigripennis	Black-winged Petrel	Animalia	3	3	2	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pterodroma solandri	Providence Petrel	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pteropus conspicillatus	Spectacled Flying-fox	Animalia	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pteropus poliocephalus	Grey-headed Flying-fox	Animalia	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ptilinopus magnificus	Wompoo Fruit-Dove	Animalia	1	0	1	0	1	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	1	0
Ptilinopus superbus	Superb Fruit-Dove	Animalia	1	0	1	0	1	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	1	0
Puffinus assimilis	Little Shearwater	Animalia	3	3	2	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	0	0	3	3	1	2	2	2	1
Puffinus pacificus	Wedge-tailed Shearwater	Animalia	3	3	1	0	3	3	3	0	2	3	3	2	2	2	2	2	2	2	2	0	3	3	3	3	1	2	2	2	1
Pygoscelis papua	Gentoo Penguin	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rallus pectoralis	Lewin's Rail	Animalia	1	2	1	0	2	2	2	1	1	2	1	1	1	1	0	0	1	0	0	0	1	1	0	2	0	1	1	1	0
Ramphotyphlops longissimus	a blind snake	Animalia	3	3	3	2	2	1	1	2	2	3	1	2	2	2	2	2	2	2	1	0	2	2	2	3	0	2	2	2	0
Rattus sordidus	Canefield Rat	Animalia	3	2	2	1	2	1	1	2	1	3	1	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	0
Rattus tunneyi	Pale Field Rat	Animalia	3	2	2	1	2	1	1	2	1	3	1	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	0
Rhipidura rufifrons	Rufous Fantail	Animalia	2	1	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rostratula australis	Australian Painted Snipe	Animalia	1	2	1	0	1	1	1	1	0	2	1	1	1	1	1	1	1	1	1	0	0	0	1	3	0	1	1	1	0
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	Animalia	2	1	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Saccolaimus saccolaimus nudicluniatus	Bare-rumped Sheathtail Bat	Animalia	2	1	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Setonix brachyurus	Quokka	Animalia	0	0	0	0	3	2	2	0	1	3	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0
Sminthopsis aitkeni	Kangaroo Island Dunnart	Animalia	2	2	1	1	3	1	1	0	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	2	0	1	1	1	0
Sminthopsis butleri	Butler's Dunnart	Animalia	2	2	1	1	3	1	1	1	1	3	1	1	1	1	1	0	1	1	1	0	0	0	2	2	0	2	2	2	0
Sminthopsis griseoventer boullangerensis	Boullanger Island Dunnart	Animalia	3	3	3	1	3	1	1	1	2	3	1	1	1	1	1	0	1	1	1	0	1	1	1	2	0	1	1	1	0
Sminthopsis leucopus	White-footed Dunnart	Animalia	2	2	1	1	3	1	1	1	1	3	1	1	1	1	1	0	1	1	1	0	0	0	2	2	0	2	2	2	0
Stercorarius longicaudus	Long-tailed Jaeger /Skua	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stercorarius parasiticus	Arctic Jaeger	Animalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna albifrons	Little Tern	Animalia	3	3	3	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna bengalensis	Lesser Crested Tern	Animalia	3	3	1	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna bergii	Crested Tern	Animalia	3	3	1	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna dougallii	Roseate Tern	Animalia	3	3	2	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna fuscata	Sooty Tern	Animalia	3	3	3	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna hirundo	Common Tern	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna nereis	Fairy Tern	Animalia	3	3	3	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna nilotica	Gull-billed Tern	Animalia	3	3	1	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna paradisaea	Arctic Tern	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna striata	White-fronted Tern	Animalia	3	3	3	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	0	0	2	3	0	1	1	1	0
Sterna sumatrana	Black-naped Tern	Animalia	3	3	3	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Sterna vittata bethunei	Antarctic Tern	Animalia	3	3	2	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	2	2	2	3	0	1	1	1	0
Stictonetta naevosa	Freckled Duck	Animalia	1	1	1	0	3	3	3	0	0	3	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Stipiturus malachurus hartogi	Southern Emu-wren (Dirk Hartog Is)	Animalia	3	2	2	1	1	1	1	0	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Stipiturus malachurus parimeda	Southern Emu-wren (Eyre Peninsula)	Animalia	3	2	2	1	1	1	1	0	2	3	1	1	1	1	1	0	1	1	1	0	0	0	1	3	0	1	1	1	0
Strepera graculina crissalis	Lord Howe Island Currawong	Animalia	2	0	1	0	1	1	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sula dactylatra	Masked Booby	Animalia	2	2	1	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	1	1	1	3	0	1	1	1	0
Sula leucogaster	Brown Booby	Animalia	2	2	1	0	3	3	3	0	1	3	2	1	1	1	1	0	1	1	1	0	1	1	1	3	0	1	1	1	0
Sula sula	Red-footed Booby	Animalia	2	1	1	0	3	3	3	0	1	3	1	1	1	1	1	0	1	1	1	0	1	1	1	3	0	1	1	1	0
Syconycteris australis	Common Blossom Bat	Animalia	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tadorna radjah	Radjah Shelduck	Animalia	1	1	1	0	3	3	3	0	0	3	2	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Taudactylus acutirostris	Sharp-snouted Day Frog	Animalia	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Thalassarche cauta cauta	Shy Albatross/Tasmanian Shy Albatross	Animalia	2	3	1	0	3	3	3	0	1	3	3	2	2	1	0	0	1	1	1	0	0	0	2	2	0	1	0	0	0
Thalassarche chrysostoma	Grey-headed Albatross	Animalia	2	2	1	0	3	3	3	0	1	3	3	2	2	1	0	0	1	1	1	0	0	0	2	2	0	1	0	0	0
Thalassarche melanophris	Black-browed Albatross	Animalia	2	2	1	0	3	3	3	0	1	3	3	2	2	1	0	0	1	1	1	0	0	0	2	2	0	1	0	0	0
Thinornis rubricollis rubricollis	Hooded Plover (eastern)	Animalia	3	2	1	0	3	3	3	0	1	3	1	1	1	1	1	0	1	1	1	0	0	0	1	2	0	1	1	0	0
Thylogale billardierii	Tasmanian Pademelon	Animalia	0	0	0	0	2	3	3	0	2	1	2	2	2	2	0	2	2	3	2	0	0	0	0	3	1	3	3	3	1
Todiramphus sanctus	Sacred Kingfisher	Animalia	1	1	1	0	1	1	1	2	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Tringa glareola	Wood Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tringa nebularia	Common Greenshank	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tringa stagnatilis	Marsh Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trochomorpha melvillensis	Land Snail	Animalia	3	3	3	1	1	1	1	2	0	1	3	1	1	1	1	1	1	0	0	0	1	1	1	2	0	1	1	1	0
Tryngites subruficollis	Buff-breasted Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turnix melanogaster	Black-breasted Button-quail	Animalia	2	2	1	0	3	1	1	0	1	3	2	1	1	1	1	0	0	0	0	0	1	1	1	2	0	1	1	0	1
Turnix varius scintillans	Painted Button-quail (Houtman Abrolhos)	Animalia	2	2	1	0	3	1	1	0	1	3	2	1	1	1	1	0	0	0	0	0	1	1	1	2	0	1	1	0	1
Turnix velox	Little Button-quail	Animalia	2	2	1	0	3	1	1	0	1	3	2	1	1	1	1	0	0	0	0	0	1	1	1	2	0	1	1	0	1
Tyto novaehollandiae	Masked Owl	Animalia	1	1	1	0	1	1	1	2	0	2	1	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Tyto novaehollandiae castanops	Masked Owl (Tasmanian)	Animalia	1	1	1	0	1	1	1	2	0	2	1	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Tyto novaehollandiae kimberli	Masked Owl (Kimberleys)	Animalia	1	1	1	0	1	1	1	2	0	2	1	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Tyto novaehollandiae melvillensis	Masked Owl (Tiwi Islands)	Animalia	1	1	1	0	1	1	1	2	0	2	1	1	1	1	1	1	1	1	1	0	1	1	1	2	0	1	1	1	0
Varanus mertensi	Merten's Water Monitor	Animalia	1	1	1	0	2	2	2	3	0	2	2	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	0	0
Varanus panoptes	Yellow-spotted Monitor	Animalia	1	1	1	0	2	2	2	3	0	2	2	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	0	0
Varanus rosenbergi	Heath Goanna	Animalia	1	1	1	0	2	2	2	3	0	2	2	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	0	0
Varanus varius	Lace Monitor	Animalia	1	1	1	0	2	2	2	3	0	2	2	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	0	0
Wallabia bicolor	Swamp Wallaby	Animalia	0	0	0	0	1	3	3	0	2	1	2	2	2	2	0	2	2	3	2	0	0	0	0	3	1	3	3	3	1
Xanthomyza phrygia	Regent Honeyeater	Animalia	1	0	0	0	1	0	1	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	1	0
Xenus cinereus	Terek Sandpiper	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Xeromys myoides	Water Mouse	Animalia	1	1	0	2	3	2	2	2	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	1	1	0
Zosterops lateralis tephropleura	Lord Howe Island Silvereye	Animalia	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pseudomys novaehollandiae	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psophodes nigrogularis leucogaster	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pterodroma cervicalis	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma heraldica	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma lessonii	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma leucoptera leucoptera	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma macroptera	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma mollis	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma neglecta neglecta	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma nigripennis	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pterodroma solandri	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pteropus conspicillatus	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pteropus poliocephalus	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ptilinopus magnificus	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ptilinopus superbus	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Puffinus assimilis	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Puffinus pacificus	1	2	2	2	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	1	2	2	1	1	1
Pygoscelis papua	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rallus pectoralis	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ramphotyphlops longissimus	0	2	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rattus sordidus	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rattus tunneyi	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhipidura rufifrons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rostratula australis	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saccolaimus flaviventris	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Saccolaimus saccolaimus nudicluniatus	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Setonix brachyurus	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sminthopsis aitkeni	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sminthopsis butleri	0	2	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sminthopsis griseoventer boullangerensis	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sminthopsis leucopus	0	2	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stercorarius longicaudus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stercorarius parasiticus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna albifrons	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna bengalensis	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna bergii	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna dougallii	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna fuscata	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna hirundo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna nereis	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna nilotica	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna paradisaea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna striata	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna sumatrana	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna vittata bethunei	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stictonetta naevosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stipiturus malachurus hartogi	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stipiturus malachurus parimeda	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Strepera graculina crissalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sula dactylatra	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sula leucogaster	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sula sula	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syconycteris australis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tadorna radjah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taudactylus acutirostris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thalassarche cauta cauta	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thalassarche chrysostoma	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thalassarche melanophris	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thinornis rubricollis rubricollis	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thylogale billardierii	1	3	3	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Todiramphus sanctus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tringa glareola	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tringa nebularia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tringa stagnatilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trochomorpha melvillensis	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0
Tryngites subruficollis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turnix melanogaster	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turnix varius scintillans	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turnix velox	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tyto novaehollandiae	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tyto novaehollandiae castanops	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tyto novaehollandiae kimberli	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tyto novaehollandiae melvillensis	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Varanus mertensi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Varanus panoptes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Varanus rosenbergi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Varanus varius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wallabia bicolor	1	3	3	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Xanthomyza phrygia	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Xenus cinereus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Xeromys myoides	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zosterops lateralis tephropleura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pseudomys novaehollandiae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
Psophodes nigrogularis leucogaster	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
Pterodroma cervicalis	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma heraldica	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma lessonii	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma leucoptera leucoptera	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma macroptera	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma mollis	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma neglecta neglecta	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma nigripennis	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pterodroma solandri	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	0	1
Pteropus conspicillatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Pteropus poliocephalus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
Ptilinopus magnificus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Ptilinopus superbus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Puffinus assimilis	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Puffinus pacificus	1	1	1	0	0	1	1	2	2	2	2	0	0	0	0	0	2	2	0	1	2	0	1	0	2	1	1	3
Pygoscelis papua	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rallus pectoralis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Ramphotyphlops longissimus	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1
Rattus sordidus	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1
Rattus tunneyi	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1
Rhipidura rufifrons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Rostratula australis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Saccolaimus flaviventris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Saccolaimus saccolaimus nudicluniatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Setonix brachyurus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sminthopsis aitkeni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sminthopsis butleri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
Sminthopsis griseoventer boullangerensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sminthopsis leucopus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
Stercorarius longicaudus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stercorarius parasiticus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterna albifrons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna bengalensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna bergii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna dougallii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna fuscata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna hirundo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sterna nereis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna nilotica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna paradisaea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sterna striata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna sumatrana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sterna vittata bethunei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Stictonetta naevosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Stipiturus malachurus hartogi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Stipiturus malachurus parimeda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Strepera graculina crissalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sula dactylatra	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
Sula leucogaster	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
Sula sula	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Syconycteris australis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tadorna radjah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Taudactylus acutirostris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thalassarche cauta cauta	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Thalassarche chrysostoma	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
Thalassarche melanophris	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		3
Thinornis rubricollis rubricollis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Thylogale billardierii	1	1	2	0	0	0	1	2	2	2	2	0	0	0	0	0	2	2	0	1	0	0	1	0	3	0	0	0
Todiramphus sanctus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Tringa glareola	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tringa nebularia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tringa stagnatilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Trochomorpha melvillensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tryngites subruficollis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Turnix melanogaster	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turnix varius scintillans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turnix velox	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tyto novaehollandiae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Tyto novaehollandiae castanops	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Tyto novaehollandiae kimberli	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Tyto novaehollandiae melvillensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Varanus mertensi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Varanus panoptes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Varanus rosenbergi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Varanus varius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wallabia bicolor	1	1	2	0	0	0	1	2	2	2	2	0	0	0	0	0	2	2	0	1	0	0	1	0	3	0	0	0
Xanthomyza phrygia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Xenus cinereus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Xeromys myoides	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
Zosterops lateralis tephropleura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Prioritisation of high conservation status offshore islands - Appendix f - flora impacts

SPECIES_NA	COMMON NAME	KINGDOM	Black Rat	Brown Rat	Pacific Rat	House Mouse	Red Fox	Dog or Dingo	Domestic Dog	Cane Toad	Rabbit	Cat	Pig	Goat	Horse	Sheep	Camel	Water Buffalo	Donkey	Western Grey Kangaroo	Tammar Wallaby	Rock Dove	Goanna	Gould's Goanna	Tasmanian	European (
Acacia attenuata	na	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Acacia baueri	Black Wattle	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Acacia drepanophylla	Shark Bay endemic	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Acacia retinodes var. uncifolia	Coast Wirilda	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Acacia subrigida	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Acanthocarpus parviflorus	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Acanthocarpus rupestris	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Amphibromus fluitans	River Swamp Wallaby-grass	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Angianthus microcephalus	Small-headed Angianthus	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Anthocercis intricata	a dense, spinescent shrub	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Anthotroche myoporoides	Myoporum-like Anthotroche	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Arachnorchis caudata	Tailed Spider-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Arachnorchis insularis	French Island Spider-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Arachnorchis reticulata	Veined Caladenia	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Arachnorchis tensa	Greencomb Spider-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Arachnorchis tessellata	Thick-lipped Spider-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Archidendron lovelliae	Bacon Wood	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	1	1	0	3
Arenga australasica	Australian Arenga Palm	Plantae	1	1	2	1	1	1	1	0	2	1	3	2	2	2	2	2	2	2	2	1	1	1	0	2
Arnocrinum drummondii	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Arthraxon hispidus	Hairy-joint Grass	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Asterolasia phebalioides	Downy Star-bush	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Atriplex paludosa ssp. paludosa	Marsh Saltbush	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Avicennia marina ssp. australasica	White Mangrove	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Azorella macquariensis	Subantarctic Cushion Plant	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Baloghia marmorata	Marbled Balogia	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Banksia plagiocarpa	a shrub	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Banksia verticillata	Granite Banksia	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Beyeria subtecta	Kangaroo Island Turpentine Bush	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Blandfordia grandiflora	Christmas bells	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Boronia rivularis	Wide Bay Boronia	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Bosistoa transversa	Three-leaved Bosistoa	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Brachyscome halophila	a herb	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Bulbophyllum globuliforme	Miniature Moss-orchid	Plantae	1	0	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1
Burmannia sp. (D61177) Bathurst Island	a herb	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Burnettia cuneata	Lizard Orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Caesalpinia bonduc	Knicker Nut	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Caladenia barbarella	Common Dragon Orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Caladenia fragrantissima subsp. Orientalis	Cream Spider-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Caladenia ovata	Kangaroo Island Spider-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Calocephalus aervoides	Woolly Beauty-heads	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Calochilus caeruleus	an erect terrestrial orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Calophyllum bicolor	na	Plantae	1	1	1	1	1	1	1	0	2	1	3	2	2	2	2	2	2	2	2	1	1	1	0	2
Calystegia affinis	a creeper	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	1	1	0	3
Calytrix harvestiana	a myrtaceous species	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Carex tasmanica	Curly Sedge	Plantae	1	1	1	1	1	1	1	0	3	1	3	2	2	2	2	2	2	2	2	1	0	0	0	3
Carmichaelia exsul	a shrub	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Centrolepis pulvinata	Scarce centrolepis	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Cephalomanes obscurum	a terrestrial fern	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Chamaesyce psammogeton	a herb	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Chamelaucium oenanthum	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Cheiranthera volubilis	Twining Finger Flower	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Chthonocephalus muellerianus	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Chthonocephalus tomentellus	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Comesperma praexcelsum	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Conospermum hookeri	Variable Smoke-bush	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Coprosma inopinata	a shrub	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Correa calycina	Hindmarsh Correa	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Corymbia maculata	Spotted Gum	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Cotula vulgaris var. australasica	Slender cotula	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Crassula moschata	Musky Crassula	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Croton magneticus	na	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Cryptocarya foetida	Stinking Cryptocarya	Plantae	1	1	1	1	1	1	1	0	2	1	3	2	2	2	2	2	2	2	2	1	1	1	0	2
Cryptocarya hypospodia	Northern Laurel, Rib-fruited Pepperberry	Plantae	1	1	1	1	1	1	1	0	2	1	3	2	2	2	2	2	2	2	2	1	1	1	0	2
Cryptostylis hunteriana	Leafless Tongue-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Cycas armstrongii	a cycad	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Cynanchum elegans	White-flowered Wax Plant	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	1	1	0	3
Daviesia purpurascens	Purple-leaved Daviesia	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Dendrobium bigibbum	Mauve Butterfly Orchid	Plantae	1	0	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1
Dendrobium johannis	Chocolate Tea Tree Orchid	Plantae	1	0	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1
Dendrobium superbiens	Curly Pinks	Plantae	1	0	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1
Dendromyza reinwardtiana	a parasitic vine/scrambling shrub	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Desmocladus biformis	a sedge-like perennial herb	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Dicrastylis micrantha	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Dicrastylis sp. Denham	Dicrastylis sp. Denham (M. Lewis 42/92)	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Diomedea exulans	Wandering Albatross	Critical Habitat	2	2	0	0	3	3	3	0	2	3	2	1	2	1	0	0	1	1	1	0	3	3	3	2
Drosera adelae	Lance-leaved Sundew	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Durringtonia paludosa	Durringtonia	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Ectrosia blakei	na	Plantae	1	1	1	1	1	1	1	0	3	1	3	2	2	2	2	2	2	1	1	1	0	0	0	2
Elaeocarpus miegei	a tall tree	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Elymus multiflorus var. kingianus	Phillip Island Wheat Grass	Plantae	2	2	2	2	1	1	1	0	3	0	2	3	3	3	3	3	3	3	3	0	0	0	0	3
Endiandra limnophila	a tree	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Eremophila cuneata	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Eremophila glabra subsp. psammophora	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Eremophila occidens	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Eremophila splendens	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Eucalyptus beardiana	Beard's Mallee	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Eucalyptus insularis	Twin Peak Island Mallee	Plantae	1	1	1	1	1	1	1	0	2	1	3	2	2	2	2	2	2	2	2	1	1	1	0	2
Eucalyptus paludicola	Mount Compass Swamp Gum	Plantae	1	1	1	1	1	1	1	0	2	1	3	2	2	2	2	2	2	2	2	1	1	1	0	2
Euchiton involucratus	Common Cudweed	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Euphrasia collina subsp. osbornii	Osborn's Eyebright	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Frankenia plicata	Sea Heath	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Freycinetia excelsa	a small woody climber	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Freycinetia percostata	a large woody climber	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Garcinia warrenii	a tree	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Geniostoma huttonii	Hutton's Geniostoma	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Glycine latrobeana	Clover Glycine	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3		3	3	2	2	1	0	0	0	3
Grevillea annulifera	Prickly Plume Grevillea	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Grevillea rogersoniana	Rogersons' Grevillea	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Grevillea stenomera	Lace Net Grevillea	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Gyrostemon thesioides	Broom Wheel Fruit	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Hemigenia saligna	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Hernandia nymphaeifolia	a shrub to tree	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Hodgkinsonia frutescens	Atherton Turkey Bush	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Hoya australis oramicola	a vine	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	1	1	0	3
Huperzia australiana	a fern on Macquarie Island	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Huperzia dalhousieana	Blue Tassel-fern	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Hydrocharis dubia	Frogbit	Plantae	1	1	1	1	1	1	1	0	0	0	3	1	2	1	2	3	1	0	0	1	0	0	0	1
Hydrorchis orbicularis	Swamp Onion-orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Jacksonia dendrospinosa	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Jacksonia velutina	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Juncus revolutus	Creeping Rush	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Kennedia glabrata	Northcliffe Kennedia	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	1	1	0	3
Lawrencia spicata	Salt Lawrencia	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Leionema equestre	Kangaroo Island Phebalium	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Lepidium biplicatum	a Pepper-cress	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Lepidium hyssopifolium	Basalt Pepper-cress	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Lepidium pseudotasmanicum	Shade Pepper-cress	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Lepidium puberulum	a Pepper-cress	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Lepidobolus densus	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Leucopogon cuspidatus	Beard Heath	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Leucopogon lanceolatus	Lance Beard Heath	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Logania insularis	Kangaroo Island Logania	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Luisia teretifolia	an epiphytic orchid	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Lycopodiella serpentina	Bog Clubmoss	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Macadamia integrifolia	Macadamia Nut	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Macarthuria intricata	a small, intricately branched shrub	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Macrozamia pauli-guilielmi	Pineapple Zamia	Plantae	1	1	1	1	1	1	1	0	2	1	3	2	2	2	2	2	2	2	2	1	1	1	0	2
Mapania macrocephala	a robust sedge	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Marsdenia brevifolia	na	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Marsdenia longiloba	Clear Milkvine	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Melaleuca huegelii subsp. pritsicensis	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Mitrella tiwiensis	a vine	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Nematoceras dienemum	Windswept Helmet Orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Nematoceras sulcatum	an endemic (Macquarie Island) orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Olearia hygrophila	Swamp Daisy	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Olearia microdisca	Small-flowered Daisy-bush	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Olearia occidentissima	a daisy-bush	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Olearia pannosa subsp. pannosa	Silver Daisy-bush	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Olearia viscosa	Viscid Daisy-bush	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Parietaria debilis	Shade pellitory	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Persicaria elatior	Knotweed	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Petalochilus aurantiacus	Orange-tipped Caladenia	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Phaius australis	Lesser Swamp-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Phaius bernaysii	a swamp orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Physopsis chrysophylla	Golden Lambstail	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Pileanthus aurantiacus	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Pileanthus bellus	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Pityrodia glutinosa	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Pleurophascum occidentale	Western Giant-leaved Moss	Plantae	1	1	1	1	1	1	1	0	1	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Poa poiformis var. ramifer	Island purple grass	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Polystichum moorei	a fern	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Polystichum vestitum	a large fern on Macquarie Island	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Pomaderris halmaturina halmaturina	Kangaroo Island Pomaderris	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Pomaderris paniculosa subsp. paralia	Coast Pomaderris	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Prasophyllum castaneum	Chestnut Leek-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Prasophyllum frenchii	Maroon Leek-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Prasophyllum pallidum	Pale Leek-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Prasophyllum parviflorum	Broad-lip Leek-orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Prasophyllum pulchellum	Pretty Leek-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Prasophyllum secutum	Northern Leek-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Prasophyllum spicatum	Dense Leek-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Prostanthera calycina	West Coast Mintbush	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Pterostylis atriola	Snug Greenhood	Plantae	1	1	1	1	1	1	1	0	3	1	3	2	2	2	2	2	2	2	2	1	0	0	0	3
Pterostylis chlorogramma	Green-striped Greenhood	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Pterostylis cucullata	Leafy Greenhood	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Pterostylis nigricans	Dark Greenhood	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Pterostylis sanguinea	Banded greenhood	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Pterostylis ziegeleri	Grassland Greenhood	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Ptilotus alexandri	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Ptilotus beckerianus	na	Plantae	1	1	1	1	1	1	1	0	1	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Pultenaea villifera var. glabrescens	Yellow Bush-pea	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Quassia bidwillii	Quassia	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Scaevola chrysopogon	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Schoenus scabripes	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Sclerolaena stylosa	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Solanum dunalianum	na	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Sondottia glabrata	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Sophora fraseri	na	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Spyridium coactilifolium	Butterfly Spyridium	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Spyridium eriocephalum var. glabrisepalum	MacGillivray Spyridium	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Stellaria multiflora	Many-flowered Starwort	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Stenanthemum divaricatum	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Taeniophyllum muelleri	Minute Orchid	Plantae	1	0	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1
Taraxacum cygnorum	Coast Dandelion	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Tarennoidea wallichii	a small tree	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	1	1	0	3
Tetratheca stenocarpa	Long Pink-bells	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Thalassarche chrysostoma	Grey-headed Albatross	Critical Habitat	2	2	0	0	3	3	3	0	2	3	2	1	2	1	0	0	1	1	1	0	3	3	3	2
Thelymitra benthamiana	Blotched Sun-orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Thelymitra epipactoides	Metallic Sun-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Thelymitra jonesii	Sky-blue Sun-orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Thelymitra longiloba	Marsh Sun-orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Thelymitra matthewsii	Spiral Sun Orchid	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Thelymitra mucida	Plum Orchid	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Thelypteris confluens	Swamp Fern	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Thesium australe	Austral toadflax	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Thrixspermum congestum	an epiphytic orchid	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Thryptomene sp. Eagle Gorge	Thryptomene sp. Eagle Gorge (A.G. Gunness 2360)	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Triglochin minutissimum	Tiny Arrowgrass	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Triodia bromoides	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Typhonium jonesii	a herb	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Typhonium mirabile	a small tuberous herb	Plantae	1	1	1	1	1	1	1	0	3	1	3	3	3	3	3	3	3	2	2	1	0	0	0	3
Verticordia capillaris	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Verticordia cooloomia	Shark Bay Featherflower	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Verticordia dichroma var. syntoma	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Verticordia dichroma var.dichroma	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Verticordia lepidophylla var. quantula	na	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Xanthoparmelia microphyllizans	Lichen	Plantae	2	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	2	2	0	3
Xylopia monosperma	a tree	Plantae	1	1	1	1	0	0	0	0	2	0	2	3	3	3	3	3	3	2	2	0	0	0	0	3
Xylosma parvifolium	Mountain Xylosma	Plantae	1	1	1	1	0	0	0	0	2	0	2	3	3	3	3	3	3	2	2	0	0	0	0	3
Yellow Limonium australe	Sea-lavender	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3
Zygophyllum billardierei	Coast twin-leaf	Plantae	1	1	1	1	1	0	0	0	1	0	2	3	3	3	3	3	3	2	2	1	0	0	0	3

SPECIES_NA	Indian Pea	Fallow Dee	Hog Deer	Red Deer	Wild Turke	Sambar	Eurasian Tree Sparrow	Common Myna	Gang-gang	Crested Pigeon	European Goldfinch	Common Starling	House Spa	Muscovy D	Peacefull D	Zebra Finc	Diamond Dove	Bar-should	Magpie Go	Domestic (	Spinifex Pi	Wonga Pig	Koala	Platypus	Australian	Cape Barre	Common Ringtail Possum	Laughing K	Emu	Malleefow	Burrowing	Brush-taile	Southern I	Shark Bay Mouse
Acacia attenuata	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Acacia baueri	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Acacia drepanophylla	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Acacia retinodes var. uncifolia	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Acacia subrigida	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Acanthocarpus parviflorus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Acanthocarpus rupestris	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Amphibromus fluitans	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Angianthus microcephalus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Anthocercis intricata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Anthotroche myoporoides	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Arachnorchis caudata	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Arachnorchis insularis	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Arachnorchis reticulata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Arachnorchis tensa	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Arachnorchis tessellata	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Archidendron lovelliae	1	3	3	3	1	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	0
Arenga australasica	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	1	1	1	1	0
Arnocrinum drummondii	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Arthraxon hispidus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Asterolasia phebalioides	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Atriplex paludosa ssp. paludosa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Avicennia marina ssp. australasica	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Azorella macquariensis	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Baloghia marmorata	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Banksia plagiocarpa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Banksia verticillata	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Beyeria subtecta	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	1	1	0
Blandfordia grandiflora	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Boronia rivularis	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Bosistoa transversa	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Brachyscome halophila	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Bulbophyllum globuliforme	0	1	1	1	0	1	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burmannia sp. (D61177) Bathurst Island	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Burnettia cuneata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Caesalpinia bonduc	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Caladenia barbarella	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Caladenia fragrantissima subsp. Orientalis	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Caladenia ovata	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Calocephalus aervoides	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Calochilus caeruleus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Calophyllum bicolor	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	0
Calystegia affinis	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	0
Calytrix harvestiana	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Carex tasmanica	1	2	2	2	1	2	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Carmichaelia exsul	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Centrolepis pulvinata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Cephalomanes obscurum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Chamaesyce psammogeton	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Chamelaucium oenanthum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Cheiranthera volubilis	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Chthonocephalus muellerianus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Chthonocephalus tomentellus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Comesperma praexcelsum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Conospermum hookeri	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Coprosma inopinata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Correa calycina	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Corymbia maculata	1	3	3	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Cotula vulgaris var. australasica	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Crassula moschata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Croton magneticus	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Cryptocarya foetida	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	0
Cryptocarya hypospodia	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	1	1	1	1	0
Cryptostylis hunteriana	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Cycas armstrongii	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Cynanchum elegans	1	3	3	3	1	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	0
Daviesia purpurascens	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Dendrobium bigibbum	0	1	1	1	0	1	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dendrobium johannis	0	1	1	1	0	1	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dendrobium superbiens	0	1	1	1	0	1	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dendromyza reinwardtiana	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Desmocladus biformis	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Dicrastylis micrantha	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Dicrastylis sp. Denham	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Diomedea exulans	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drosera adelae	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Durringtonia paludosa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Ectrosia blakei	1	2	2	2	1	2	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Elaeocarpus miegei	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Elymus multiflorus var. kingianus	2	3	3	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	2	2	2	2	3	1
Endiandra limnophila	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Eremophila cuneata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Eremophila glabra subsp. psammophora	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Eremophila occidens	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Eremophila splendens	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Eucalyptus beardiana	1	3	3	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Eucalyptus insularis	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	1	0	1		1	0	0	1	1	1	1	0
Eucalyptus paludicola	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	1	0	1	0	1	0	0	1	1	1	1	0
Euchiton involucratus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Euphrasia collina subsp. osbornii	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Frankenia plicata	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Freycinetia excelsa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Freycinetia percostata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Garcinia warrenii	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Geniostoma huttonii	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Glycine latrobeana	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Grevillea annulifera	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Grevillea rogersoniana	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Grevillea stenomera	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Gyrostemon thesioides	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Hemigenia saligna	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Hernandia nymphaeifolia	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Hodgkinsonia frutescens	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Hoya australis oramicola	1	3	3	3	1	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1		0	0	0	1	1	1	1	0
Huperzia australiana	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Huperzia dalhousieana	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Hydrocharis dubia	0	1	1	1	0	1	0	1	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0
Hydrorchis orbicularis	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Jacksonia dendrospinosa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Jacksonia velutina	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Juncus revolutus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Kennedia glabrata	1	3	3	3	1	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	0
Lawrencia spicata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Leionema equestre	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Lepidium biplicatum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Lepidium hyssopifolium	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Lepidium pseudotasmanicum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Lepidium puberulum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Lepidobolus densus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Leucopogon cuspidatus	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Leucopogon lanceolatus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Logania insularis	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Luisia teretifolia	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Lycopodiella serpentina	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Macadamia integrifolia	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Macarthuria intricata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Macrozamia pauli-guilielmi	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	1	1	1	1	0
Mapania macrocephala	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Marsdenia brevifolia	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Marsdenia longiloba	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Melaleuca huegelii subsp. pritsicensis	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Mitrella tiwiensis	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Nematoceras dienemum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Nematoceras sulcatum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Olearia hygrophila	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Olearia microdisca	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Olearia occidentissima	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Olearia pannosa subsp. pannosa	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Olearia viscosa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Parietaria debilis	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Persicaria elatior	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Petalochilus aurantiacus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Phaius australis	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Phaius bernaysii	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Physopsis chrysophylla	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Pileanthus aurantiacus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Pileanthus bellus	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Pityrodia glutinosa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Pleurophascum occidentale	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Poa poiformis var. ramifer	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Polystichum moorei	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Polystichum vestitum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Pomaderris halmaturina halmaturina	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	1	1	0
Pomaderris paniculosa subsp. paralia	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Prasophyllum castaneum	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Prasophyllum frenchii	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Prasophyllum pallidum	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Prasophyllum parviflorum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Prasophyllum pulchellum	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Prasophyllum secutum	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Prasophyllum spicatum	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Prostanthera calycina	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Pterostylis atriola	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Pterostylis chlorogramma	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Pterostylis cucullata	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Pterostylis nigricans	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Pterostylis sanguinea	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Pterostylis ziegeleri	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Ptilotus alexandri	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Ptilotus beckerianus	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Pultenaea villifera var. glabrescens	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Quassia bidwillii	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Scaevola chrysopogon	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Schoenus scabripes	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Sclerolaena stylosa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Solanum dunalianum	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Sondottia glabrata	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Sophora fraseri	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Spyridium coactilifolium	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Spyridium eriocephalum var. glabrisepalum	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Stellaria multiflora	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Stenanthemum divaricatum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Taeniophyllum muelleri	0	1	1	1	0	1	0	1	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taraxacum cygnorum	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Tarennoidea wallichii	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0
Tetratheca stenocarpa	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Thalassarche chrysostoma	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thelymitra benthamiana	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Thelymitra epipactoides	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Thelymitra jonesii	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Thelymitra longiloba	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Thelymitra matthewsii	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Thelymitra mucida	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Thelypteris confluens	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Thesium australe	1	3	3	3	0	3	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0
Thrixspermum congestum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Thryptomene sp. Eagle Gorge	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Triglochin minutissimum	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Triodia bromoides	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Typhonium jonesii	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Typhonium mirabile	1	3	3	3	1	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	1	1	1	0
Verticordia capillaris	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Verticordia cooloomia	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Verticordia dichroma var. syntoma	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Verticordia dichroma var.dichroma	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Verticordia lepidophylla var. quantula	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Xanthoparmelia microphyllizans	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	1	1	1	1	1	0
Xylopia monosperma	1	3	3	3	1	3	1	1	2	1	1	1	1	0	0	1	1	1	0	0	1	1	0	0	1	0	1	1	1	1	1	1	1	0
Xylosma parvifolium	1	3	3	3	1	3	1	1	2	1	1	1	1	0	0	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	1	1	1	0
Yellow Limonium australe	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0
Zygophyllum billardierei	1	3	3	3	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	0

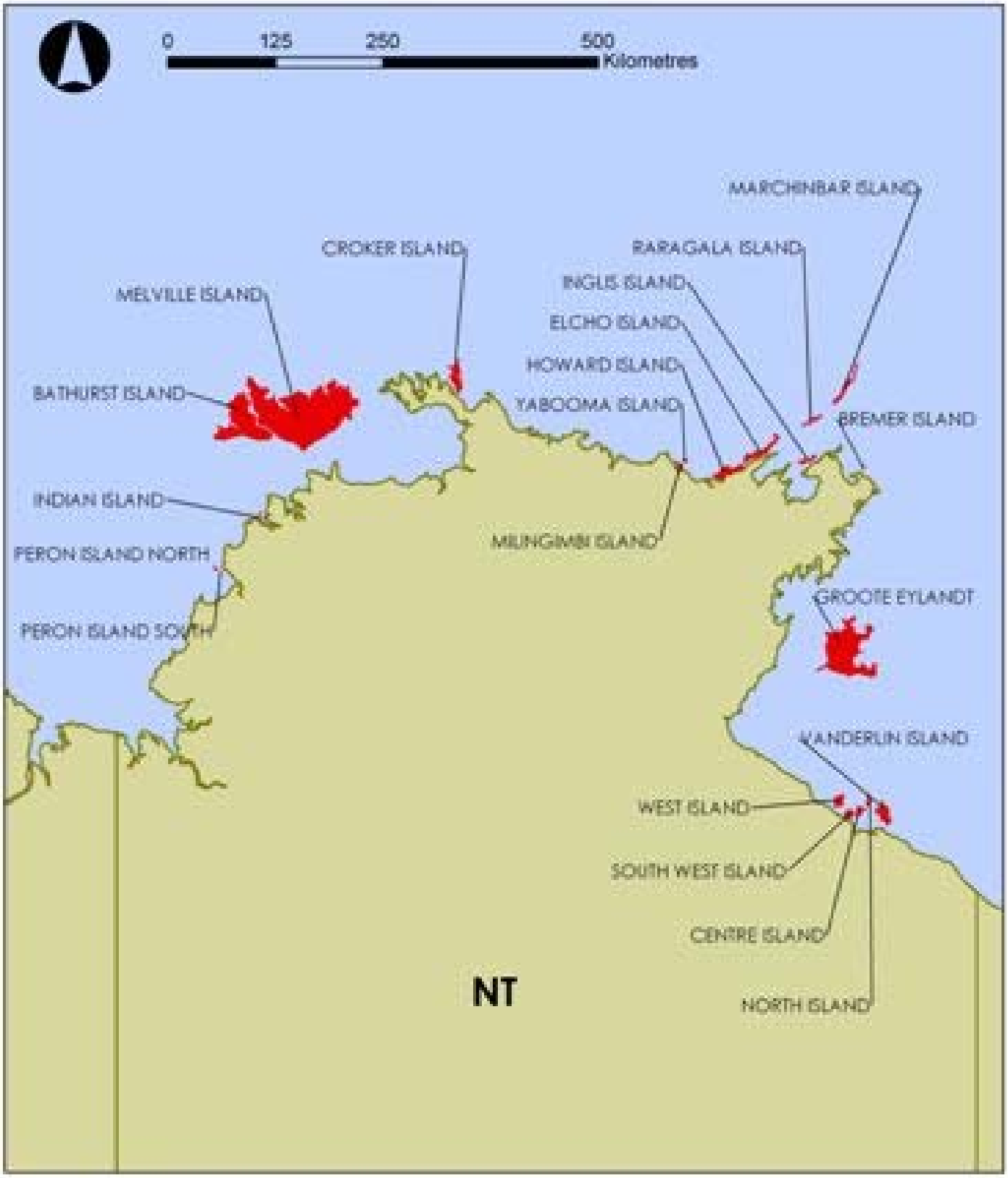
SPECIES_NA	Lakeland Downs Mouse	Shingle-back	Red Jungle	Common Wallaroo	Agile Walla	Black-foot	Rothschild	European Greenfinch	Skylark	Spotted Turtle-Dove	Common Blackbird	Common Pheasant	Alpaca	Llama	Asian House Gecko	Guinea Pig	House Crow	Mallard	Brown Hare	Mourning Gecko	Chital	Greater Stick-nest Rat	Greater Bil	Ferret
Acacia attenuata	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Acacia baueri	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	2	1	1	1
Acacia drepanophylla	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Acacia retinodes var. uncifolia	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	2	1	1	1
Acacia subrigida	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Acanthocarpus parviflorus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Acanthocarpus rupestris	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Amphibromus fluitans	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Angianthus microcephalus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Anthocercis intricata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Anthotroche myoporoides	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Arachnorchis caudata	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Arachnorchis insularis	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Arachnorchis reticulata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Arachnorchis tensa	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Arachnorchis tessellata	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Archidendron lovelliae	0	0	1	2	2	2	2	1	0	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Arenga australasica	0	0	0	2	2	2	2	1	0	1	1	1	2	2	0	0	0	0	2	0	3	0	0	0
Arnocrinum drummondii	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Arthraxon hispidus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Asterolasia phebalioides	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Atriplex paludosa ssp. paludosa	0	0	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	1	1	0	2	1	1	1
Avicennia marina ssp. australasica	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	2	1	1	1
Azorella macquariensis	0	0	1	1	1	1	1	0	0	0	0	0	1	1	0	1	1	1	1	0	2	1	1	1
Baloghia marmorata	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Banksia plagiocarpa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Banksia verticillata	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Beyeria subtecta	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Blandfordia grandiflora	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Boronia rivularis	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Bosistoa transversa	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Brachyscome halophila	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Bulbophyllum globuliforme	0	0	0	0	0	0	0	1	0	1	1	1	3	3	0	0	0	0	0	0	1	0	0	1
Burmannia sp. (D61177) Bathurst Island	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Burnettia cuneata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Caesalpinia bonduc	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Caladenia barbarella	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Caladenia fragrantissima subsp. Orientalis	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Caladenia ovata	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Calocephalus aervoides	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Calochilus caeruleus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Calophyllum bicolor	0	0	0	2	2	2	2	1	0	1	1	1	2	2	0	1	0	0	2	0	3	0	0	0
Calystegia affinis	0	0	1	2	2	2	2	1	0	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Calytrix harvestiana	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Carex tasmanica	0	1	1	2	2	2	2	1	1	1	1	1	2	2	0	2	0	0	2	0	2	1	0	1
Carmichaelia exsul	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Centrolepis pulvinata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Cephalomanes obscurum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Chamaesyce psammogeton	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Chamelaucium oenanthum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Cheiranthera volubilis	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Chthonocephalus muellerianus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Chthonocephalus tomentellus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Comesperma praexcelsum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Conospermum hookeri	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Coprosma inopinata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	1	1
Correa calycina	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Corymbia maculata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Cotula vulgaris var. australasica	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Crassula moschata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Croton magneticus	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Cryptocarya foetida	0	0	0	2	2	2	2	1	0	1	1	1	2	2	0	1	0	0	2	0	3	0	0	0
Cryptocarya hypospodia	0	0	0	2	2	2	2	1	0	1	1	1	2	2	0	1	0	0	2	0	3	0	0	0
Cryptostylis hunteriana	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Cycas armstrongii	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Cynanchum elegans	0	0	1	2	2	2	2	1	0	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Daviesia purpurascens	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Dendrobium bigibbum	0	0	0	0	0	0	0	1	0	1	1	1	3	3	0	0	0	0	0	0	1	0	0	1
Dendrobium johannis	0	0	0	0	0	0	0	1	0	1	1	1	3	3	0	0	0	0	0	0	1	0	0	1
Dendrobium superbiens	0	0	0	0	0	0	0	1	0	1	1	1	3	3	0	0	0	0	0	0	1	0	0	1
Dendromyza reinwardtiana	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Desmocladus biformis	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Dicrastylis micrantha	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Dicrastylis sp. Denham	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Diomedea exulans	0	0	0	1	1	1	1	0	0	0	0	0	0		0	0	0	0	0	0	1	0	0	3
Drosera adelae	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Durringtonia paludosa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Ectrosia blakei	0	1	1	2	2	2	2	1	1	1	1	1	2	2	0	2	0	0	2	0	2	1	0	1
Elaeocarpus miegei	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Elymus multiflorus var. kingianus	1	0	2	3	3	3	3	1	1	1	1	1	2	2	0	2	1	1	2	0	3	1	1	1
Endiandra limnophila	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Eremophila cuneata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Eremophila glabra subsp. psammophora	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Eremophila occidens	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Eremophila splendens	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Eucalyptus beardiana	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Eucalyptus insularis	0	0	0	2	2	2	2	1	0	1	1	1	2	2	0	1	0	0	2	0	3	0	0	0
Eucalyptus paludicola	0	0	0	2	2	2	2	1	0	1	1	1	2	2	0	1	0	0	2	0	3	0	0	0
Euchiton involucratus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Euphrasia collina subsp. osbornii	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Frankenia plicata	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Freycinetia excelsa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Freycinetia percostata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Garcinia warrenii	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Geniostoma huttonii	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Glycine latrobeana	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Grevillea annulifera	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Grevillea rogersoniana	0	0	1	1	1	1	1	1	1	1	1	1	3	3	0	3	1	1	2	0	3	1	0	1
Grevillea stenomera	0	0	1	1	1	1	1	1	1	1	1	1	3	3	0	3	1	1	2	0	3	1	0	1
Gyrostemon thesioides	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Hemigenia saligna	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Hernandia nymphaeifolia	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Hodgkinsonia frutescens	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Hoya australis oramicola	0	0	1	2	2	2	2	1	0	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Huperzia australiana	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Huperzia dalhousieana	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Hydrocharis dubia	0	0	0	0	0	0	0	1	0	1	1	1	3	3	0	0	0	1	0	0	1	0	0	1
Hydrorchis orbicularis	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Jacksonia dendrospinosa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Jacksonia velutina	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Juncus revolutus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Kennedia glabrata	0	0	1	2	2	2	2	1	0	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Lawrencia spicata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Leionema equestre	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Lepidium biplicatum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Lepidium hyssopifolium	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Lepidium pseudotasmanicum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Lepidium puberulum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Lepidobolus densus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Leucopogon cuspidatus	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Leucopogon lanceolatus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Logania insularis	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Luisia teretifolia	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Lycopodiella serpentina	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Macadamia integrifolia	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Macarthuria intricata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Macrozamia pauli-guilielmi	0	0	0	2	2	2	2	1	0	1	1	1	2	2	0	1	0	0	2	0	3	0	0	0
Mapania macrocephala	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Marsdenia brevifolia	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Marsdenia longiloba	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Melaleuca huegelii subsp. pritsicensis	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Mitrella tiwiensis	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Nematoceras dienemum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Nematoceras sulcatum	0	0	1	1	1	1	1	1	1	1	1	1	3	3	0	3	1	1	2	0	3	1	1	1
Olearia hygrophila	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Olearia microdisca	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Olearia occidentissima	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Olearia pannosa subsp. pannosa	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Olearia viscosa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Parietaria debilis	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Persicaria elatior	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Petalochilus aurantiacus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Phaius australis	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Phaius bernaysii	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Physopsis chrysophylla	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Pileanthus aurantiacus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Pileanthus bellus	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Pityrodia glutinosa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Pleurophascum occidentale	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Poa poiformis var. ramifer	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Polystichum moorei	0	0	1	1	1	1	1	1	1	1	1	1	3	3	0	3	1	1	2	0	3	1	0	1
Polystichum vestitum	0	0	1	1	1	1	1	1	1	1	1	1	3	3	0	3	1	1	2	0	3	1	0	1
Pomaderris halmaturina halmaturina	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Pomaderris paniculosa subsp. paralia	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Prasophyllum castaneum	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Prasophyllum frenchii	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Prasophyllum pallidum	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Prasophyllum parviflorum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Prasophyllum pulchellum	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Prasophyllum secutum	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Prasophyllum spicatum	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Prostanthera calycina	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Pterostylis atriola	0	1	1	2	2	2	2	1	1	1	1	1	2	2	0	2	0	0	2	0	2	1	0	1
Pterostylis chlorogramma	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Pterostylis cucullata	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Pterostylis nigricans	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Pterostylis sanguinea	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Pterostylis ziegeleri	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Ptilotus alexandri	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Ptilotus beckerianus	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Pultenaea villifera var. glabrescens	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Quassia bidwillii	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Scaevola chrysopogon	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Schoenus scabripes	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Sclerolaena stylosa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Solanum dunalianum	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Sondottia glabrata	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Sophora fraseri	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Spyridium coactilifolium	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Spyridium eriocephalum var. glabrisepalum	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Stellaria multiflora	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Stenanthemum divaricatum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Taeniophyllum muelleri	0	0	0	0	0	0	0	1	0	1	1	1	3	3	0	0	0	0	0	0	1	0	0	1
Taraxacum cygnorum	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Tarennoidea wallichii	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Tetratheca stenocarpa	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Thalassarche chrysostoma	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
Thelymitra benthamiana	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Thelymitra epipactoides	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Thelymitra jonesii	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Thelymitra longiloba	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Thelymitra matthewsii	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Thelymitra mucida	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Thelypteris confluens	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Thesium australe	0	0	0	2	2	2	2	1	0	1	1	1	3	3	0	1	0	0	2	0	3	0	0	1
Thrixspermum congestum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Thryptomene sp. Eagle Gorge	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Triglochin minutissimum	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Triodia bromoides	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Typhonium jonesii	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Typhonium mirabile	0	1	1	2	2	2	2	1	1	1	1	1	3	3	0	2	0	0	2	0	3	1	0	1
Verticordia capillaris	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Verticordia cooloomia	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Verticordia dichroma var. syntoma	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Verticordia dichroma var.dichroma	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Verticordia lepidophylla var. quantula	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Xanthoparmelia microphyllizans	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Xylopia monosperma	0	0	1	2	2	2	2	1	0	1	1	1	1	1	0	0	1	1	1	0	2	1	0	0
Xylosma parvifolium	0	0	1	2	2	2	2	1	0	1	1	0	1	1	0	0	1	1	1	0	2	1	0	0
Yellow Limonium australe	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1
Zygophyllum billardierei	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	2	1	0	1

Appendix G – Maps

Map 1 - 100 Priority Islands

Priority 100 High Conservation Status Offshore Island (>200 ha)

ecosure



Map 2 - Priority Islands in Northern Territory

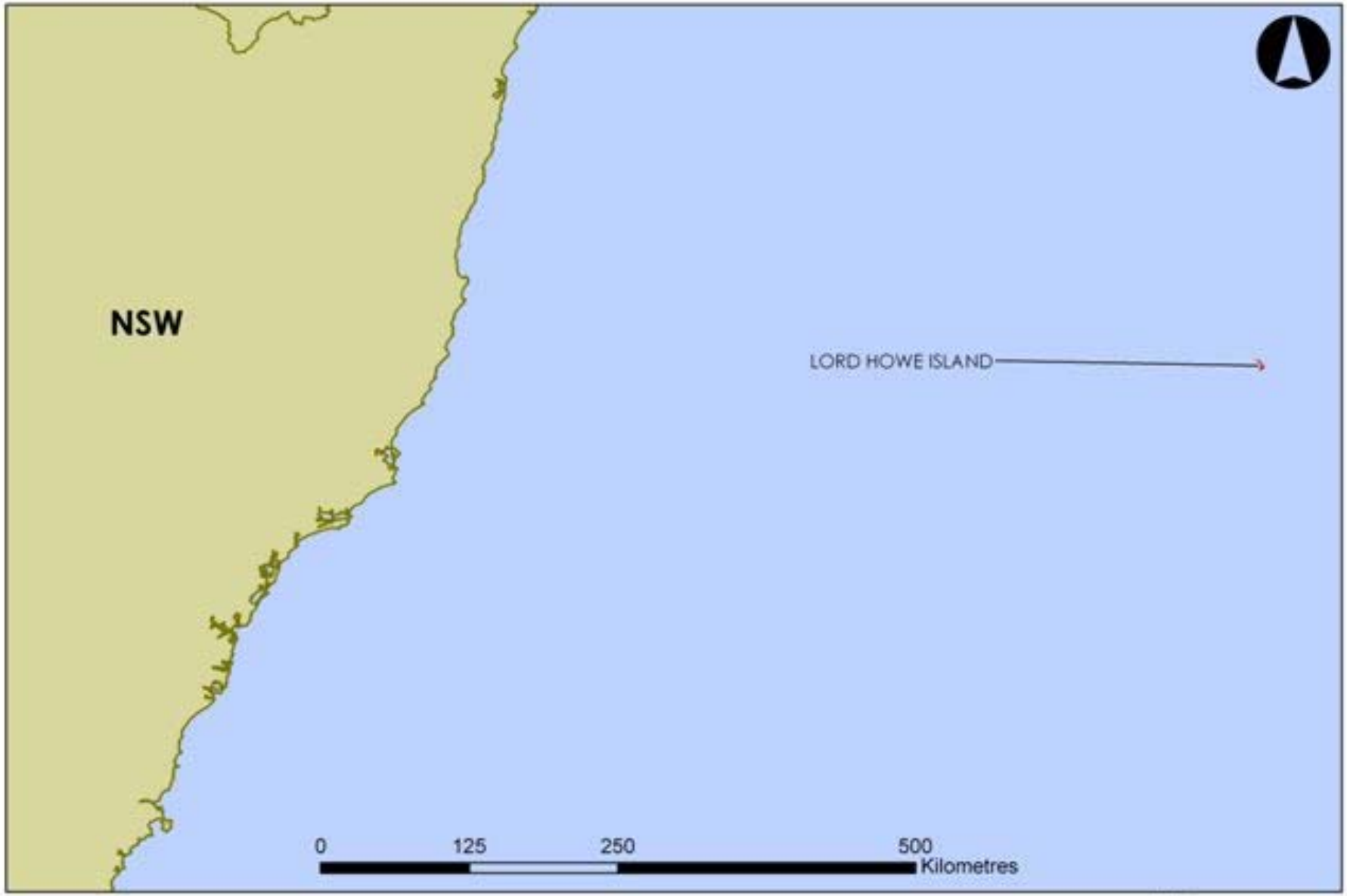
Priority 100 High Conservation Status Offshore Island (>200 ha)

ecosure

Map 3 - Priority Islands in Queensland

Priority 100 High Conservation Status Offshore Island (>200 ha)

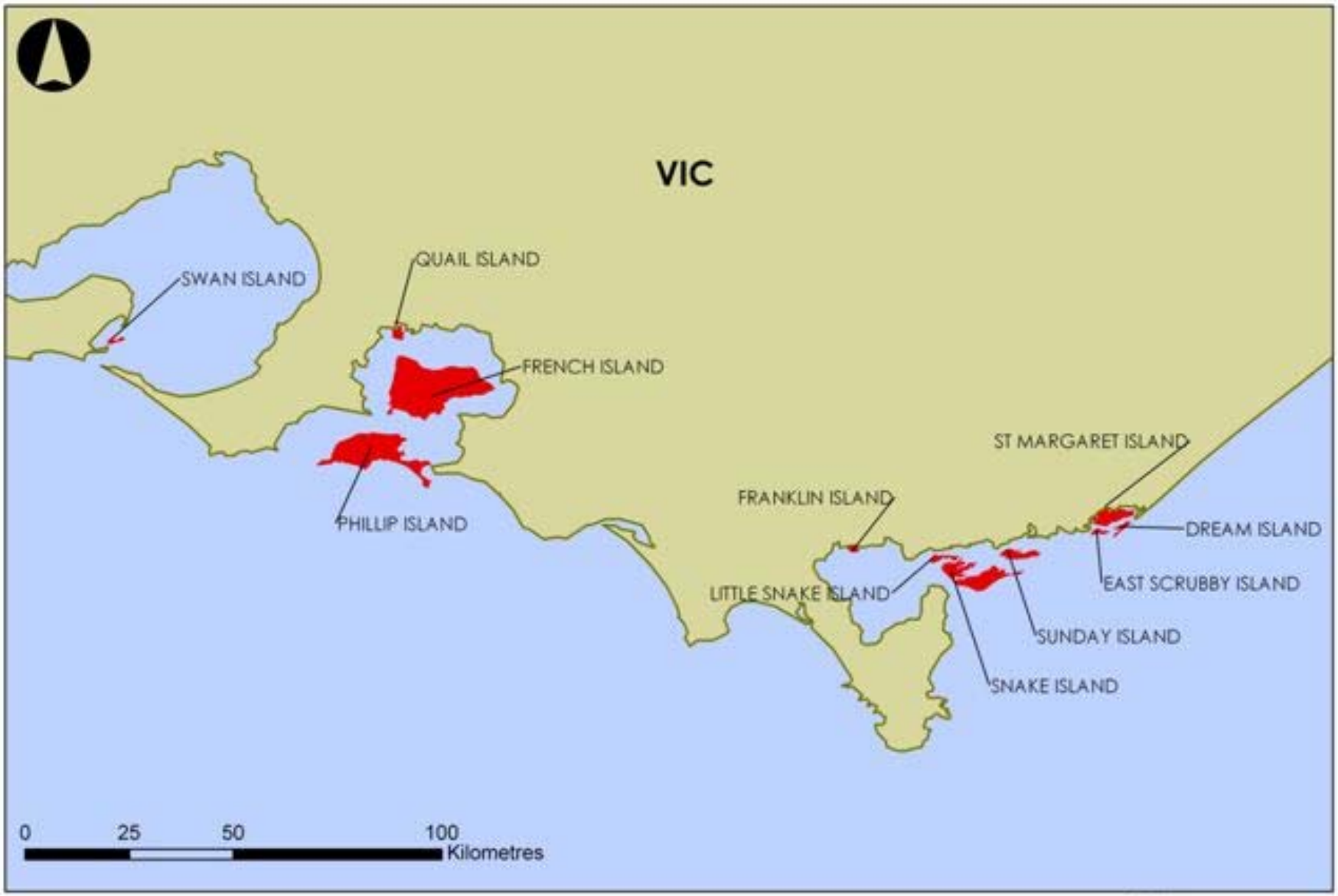
ecosure



Map 4 - Priority Islands in New South Wales

Priority 100 High Conservation Status Offshore Island (>200 ha)

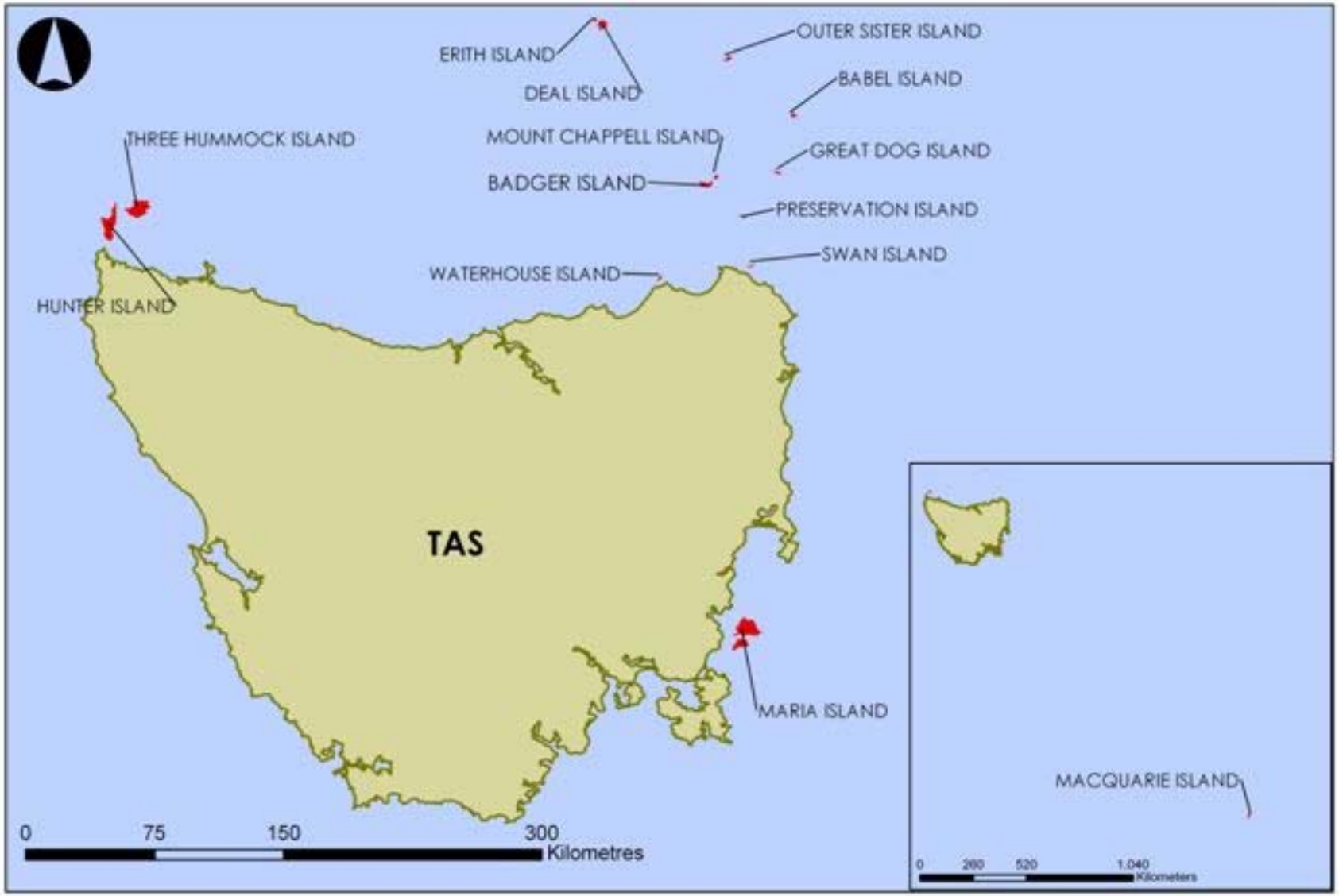
ecosure



Map 5 - Priority Islands in Victoria

Priority 100 High Conservation Status Offshore Island (>200 ha)

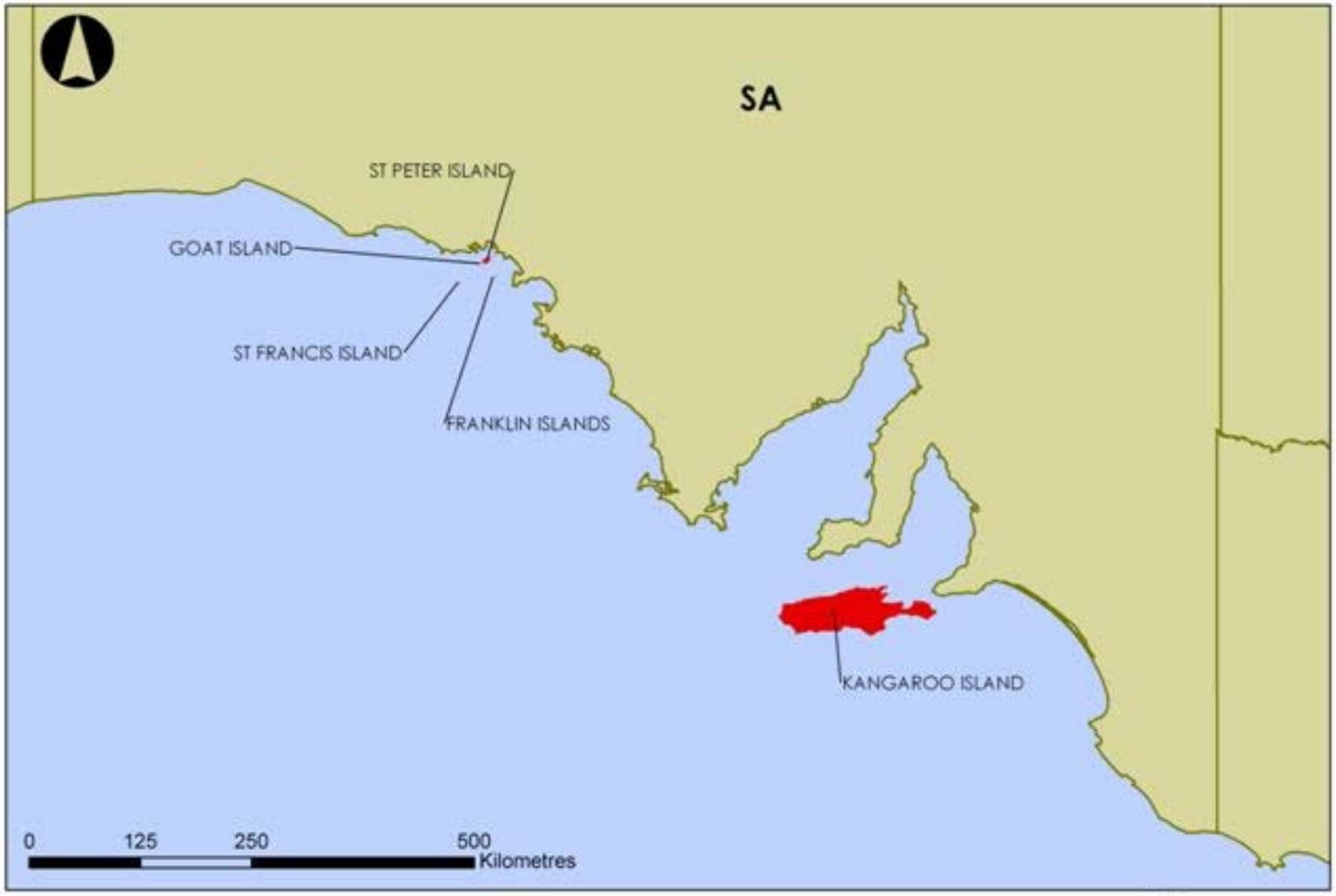
ecosure



Map 6 - Priority Islands in Tasmania

Priority 100 High Conservation Status Offshore Island (>200 ha)

ecosure



Map 7 - Priority Islands in South Australia

Priority 100 High Conservation Status Offshore Island (>200 ha)

ecosure

Map 8 - Priority Islands in Western Australia

Priority 100 High Conservation Status Offshore Island (>200 ha)

ecosure