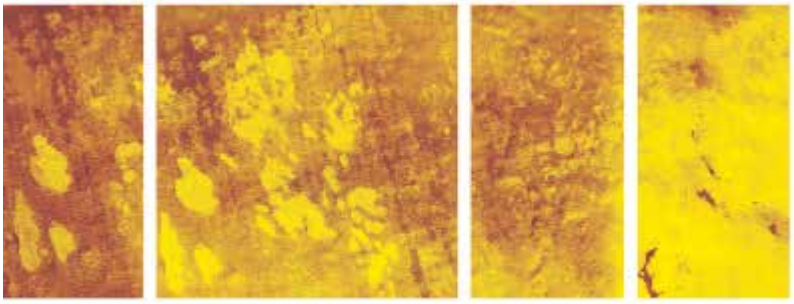

Eradication of feral cats from Western Australian islands: success stories

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There is extensive evidence that the introduction of cats (*Felis catus*) to both offshore and oceanic islands around the world can have deleterious impacts on endemic land vertebrates and breeding bird populations (Bonnaud *et al*. 2010; Ratcliffe *et al*. 2009). Cats have been known to drive numerous extinctions of endemic species on islands and have contributed to at least 14% of all 238 vertebrate extinctions recorded globally by the IUCN (Nogales *et al*. 2013). In addition, predation by feral cats currently threatens 8% of the 464 species listed as critically endangered (Medina *et al*. 2011; Nogales *et al*. 2013). Island faunas that have evolved for long periods in the absence of predators are particularly susceptible to cat predation (Dickman 1992).

In the Australian region, cats have caused or contributed to population declines and extinctions on many offshore islands (Burbidge *et al*. 1997; Burbidge 1999; Dickman 1992; 1996). There are 788 islands, 100 ha or larger in area, off the Australian coastline with feral cats being recorded on 61 of these islands (Abbott and Burbidge 1995). Burbidge *et al*. (1997) and Burbidge (1999) further indicated that introductions of cats to islands should be prevented and the development and application of techniques to control or eradicate cats if present or are introduced onto islands of significance to mammal conservation is essential.

Today, the impact of cats broadly is acknowledged and control of feral cats specifically is recognised as one of the most important fauna conservation issues in Australia. As a consequence of this impact, a national 'Threat Abatement Plan for Predation by Feral Cats' has been developed (DEWHA 2008; EA 1999). Under the Threat Abatement Plan objectives and actions, the first two key objectives, were listed as:-

- *Eradicate feral cats from islands where they are a threat to endangered or vulnerable native animals;*
- *Prevent feral cats occupying new islands in Australia where they may threaten species or ecological communities with extinction.*

Cat eradication programs on islands around the world have usually been conducted using a combination of techniques that include baiting, trapping and hunting (Veitch 1985; Campbell *et al*. 2011). Globally, cat eradications have been attempted on a number of islands with 82 successful campaigns that range in size from 5–29,000 ha

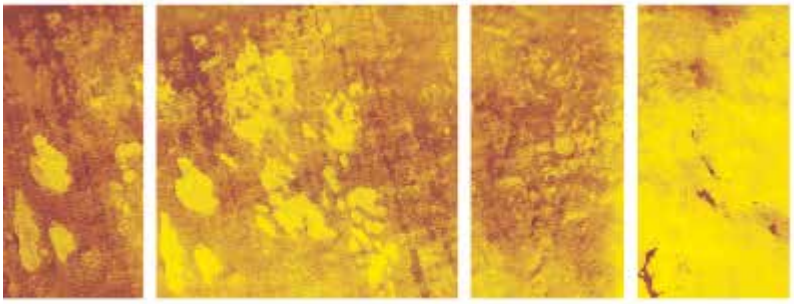
(Campbell *et al*. 2011). There have also been eradication attempts on a further 15 islands that have failed (Ibid.). All successful campaigns on islands > 2,500 ha utilised primary poisoning with toxic baits, with the exception of Santa Catalina (3,020 ha). Interestingly, seven failed campaigns on the five largest islands (all > 400 ha) did not use toxicants (Campbell *et al*. 2011).

Locally, baiting has been the primary technique used to eradicate cats on islands off the Western Australian coastline (Algar *et al*. 2010). Feral cats have been successfully eradicated from four Western Australian offshore islands: Serrurier Island; Hermite Island in the Montebellos; Faure and Rottnest Islands (see Table 1) to enable reconstruction of the original fauna or protection of extant species. Eradication programs are also well advanced on two other, much larger islands, namely Christmas and Dirk Hartog Islands.

Table 1. Cat eradication on Western Australian islands

Island	**Size (km^2)**	**Control technique**	**Reference**
Serrurier	3	Ground baiting	Moro (1997)
Hermite	14	Aerial baiting + trapping	Algar *et al*. (2002)
Faure	58	Aerial + ground baiting	Algar *et al*. (2010)
Rottnest	17	Trapping	Algar *et al*. (2011a)
Christmas	135	Suspension baiting + trapping + urban cat management.	Algar and Johnston (2010); Algar *et al*. (2014)
Dirk Hartog	620	Aerial baiting + trapping	Algar *et al*. (2011b); Algar *et al*. (2011c);

The impact of cats on the biodiversity of Christmas Island has been of significant concern to island land management agencies and the local residents. Four of the five mammal species that were present on the island at settlement in 1888 have since become extinct. While several factors, including disease, habitat destruction (land clearing and natural catastrophes such as cyclones) and the proliferation of invasive invertebrates such as the yellow crazy ant (*Anoplolepsis gracilipes*), are likely to have contributed to the demise of these native animals, the introduction of cats is also a crucial factor. In addition, a number of extant Christmas Island bird and reptile species are listed under the Environment Protection and Biodiversity Conservation Act 1999 as being species likely to be significantly adversely affected by cats and would likely benefit from their eradication.



In 2010, a management plan (Algar and Johnston 2010) was commissioned that sought to mitigate the environmental and social impacts of cats across the island. A strategy was recommended that provided a staged approach to their management and control leading to eradication. Feral cat eradication programs that have failed in the past were usually attributed to lack of institutional and financial support (Campbell *et al*. 2011). In 2014, land management agencies on Christmas Island secured the five year funding required to see the project to its successful conclusion and ensure conservation of biodiversity. In addition, removal of much of the urban stray/feral cat population has been noticed by the community who have commented on the success of the campaign to date. The community at large have an optimistic and constructive view of the program and the enthusiasm with which it is embraced indicates continued support.

Dirk Hartog Island is the largest island off the Western Australian coast (Abbott and Burbidge 1995) where 10 of the 13 species of native terrestrial mammals once present are now locally extinct (Baynes 1990; McKenzie *et al.* 2000) probably due to predation by cats (Burbidge 2001; Burbidge and Manly 2002). The island also contains a number of threatened bird species and a threatened reptile species. Previously a pastoral lease, the island was established as a National Park in 2009, which now provides the opportunity to reconstruct the native mammal fauna (Algar *et al*. 2011b,c). Dirk Hartog Island could potentially support one of the most diverse mammal assemblages in Australia and contribute significantly to the long-term conservation of several threatened species. Successful eradication of feral cats would be a necessary precursor to any reintroductions. Globally, the Dirk Hartog project will become the largest feral cat eradication campaign attempted on an island.

Elsewhere in Australia, successful eradication of cats has been reported on Gabo Island, Victoria (Twyford *et al*. 2000); the subantartic Macquarie Island (Robinson and Copson 2014) and recently Tasman Island, Tasmania (Robinson *et al*. in press).

Commonly, there are additional challenges associated with undertaking management of cats on islands with respect to cultural and biological factors that distinguish these insular programs from mainland sites. However, advances in cat control technologies and management strategies recently developed (e.g. Algar *et al*. and others described in this workshop proceedings) are likely to prove extremely useful in assisting eradication of feral cats from many islands around Australia and elsewhere in the world.

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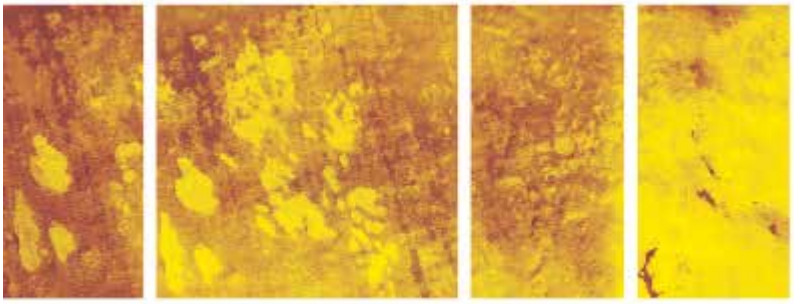

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