MANAGEMENT PLAN FOR CAPE RANGE NATIONAL PARK AND PROPOSED PUBLIC CONSERVATION LAND ADDITIONS

ISSUES PAPER

INTRODUCTION

This paper highlights the values and main management issues of Cape Range National Park and proposed conservation estate additions, and has been prepared to inform and assist the public in participating in the management planning process. These issues have been collected from meetings and workshops within CALM as well as preliminary discussions with key stakeholders. A new management plan for the Ningaloo Marine Park and proposed extensions is also underway—a framework for the review is available from: http://www.naturebase.net/national_parks/previous_parks_month/cape_range.html

BRIEF OVERVIEW

The Cape Range National Park was gazetted as an A-class reserve with a purpose of 'national park' in 1971, and is vested in the Conservation Commission of Western Australia. A management plan for the park was approved in 1987 in accordance with the *Conservation and Land Management Act* (1984). The Conservation Commission of Western Australia, through the agency of the Department of Conservation and Land Management (CALM) is now reviewing the management plan for the national park, as well as proposed future additions identified in (a) the Environmental Protection Authority's *Conservation Reserves for Western Australia Systems* report and subsequent planning documents (e.g. *First Report of the Legislative Council Select Committee on Cape Range National Park and Ningaloo Marine Park 1995*) and (b) the 2015 pastoral exclusion negotiations. The Marine Parks and Reserves Authority are simultaneously conducting a review of the Ningaloo Marine Park management plan, ensuring integrated planning and management of the marine/terrestrial interface. To this end, a community-based advisory committee (the Coral Coast Parks Advisory Committee) has been formed by CALM to provide advice and facilitate community input into both planning processes.

Cape Range National Park encompasses 50 581 ha on the Cape Range peninsula near Exmouth and abuts the northern part of Ningaloo Marine Park (Map 1). The boundary of the national park extends westward to the high water mark (HWM), with the land below that being part of the marine park. South of the national park, the boundary of Ningaloo Marine Park extends to 40 m above HWM except at the two Mauds Landing townsites (one of these is the settlement of Coral Bay) and adjacent to the Learmonth Air Weapons Range and other areas of Defence Force estate abutting the Ningaloo Marine Park.

Cape Range comprises a heavily dissected limestone range and a fringing coastal plain, and supports significant flora and fauna, habitats, and landscapes. These values provide important opportunities for conservation, education, interpretation, scientific research and recreation.

Visitation to Cape Range National Park is directly related to the attraction of the adjacent Ningaloo Reef—surveys by Wood and Hopkins (2001) revealed that 83.6 % of visitors to Exmouth considered Ningaloo Reef as a reason to visit the region, with 57 % considering it the most important reason. Recreational development within the national park is consequently focused on the coastline, although access and limited facilities are also provided to selected points within the range. Provision of access, facilities and services within the national park and

coastal strip will have a major impact on management of the marine park, and integrated planning and management is essential.

The popularity of the parks for recreation has increased markedly over the past decade. Biannual aerial surveys of the coast south of the park have revealed similar increases over the same period, with little improvement in the standard of access or facilities. This has placed considerable pressure on the natural values of the entire peninsula and adjacent reef. Publicity over the proposed Mauds Landing development has raised the profile of the Ningaloo Reef even further, the consequences of which are yet to be realised.

MANAGEMENT PLAN AREA

The planning area for the new terrestrial reserves management plan includes Cape Range National Park as well as several proposed extensions to the public conservation estate. The proposed extensions are listed below:

1. unallocated Crown Land (UCL) to the north of the park[1] (EPA 1975, EPA 1999, WAPC 1996, WAPC 1998);
2. part of Exmouth Gulf Station including the area of land to the east of the park proposed to be reserved under section 5(h) of the *Conservation and Land Management Act 1984* with a purpose of Conservation and Limestone Resource Management(part EPA 1975, part EPA 1999, WAPC 1995, WAPC 1998,);
3. the northern portion of Ningaloo Pastoral Lease (JLW 1993, EPA 1999, WAPC 1996, WAPC 1998); and
4. a two km coastal strip adjoining the existing Ningaloo Marine Park, comprising parts of Ningaloo Station, Warroora Station and Cardabia Station, and a one km strip adjoining the proposed marine park additions comprising parts of Gnaraloo Station and Quobba Station. The State Government has made a commitment for the coastal strip to be managed for conservation and recreation as Crown reserves (part EPA 1975, 2015 pastoral exclusion process, WAPC 2003).

Although consideration of these areas may appear to pre-empt the outcome of West Australian Planning Commission's Carnarvon-Ningaloo Coast Regional Strategy, it is important that their management is considered during the planning process to ensure that any extensions ultimately placed under CALM's management will have been previously considered in an integrated way.

The above proposals are mostly derived from the EPA's 1975 recommendations. More recent proposals to acquire parts of the coastal strip arose through the 2015 pastoral lease reconsideration process, whereby the Government, through CALM, identified pastoral lands that would contribute towards a comprehensive, adequate and representative (CAR) reserve system[2] and provide for future sustainable tourism and recreation use, both terrestrial and marine.

Land use scenarios for the coastal strip from Carnarvon to Exmouth, including possible governance options, have been presented in the government's *Future Directions: Sustainable Tourism and Land Use Scenarios for the Carnarvon – Ningaloo Coast.* The paper identifies five options for the creation of specific new management entities to manage the marine and national parks but noted that the most common model elsewhere in Australia was for national parks and

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[1] Note that the EPA (1999) recommended that the proposed extension to the north of the park be considered during the preparation of a new Cape Range National Park management plan, but that due consideration be given to the proposal of the Shire of Exmouth to create a 'Desert Park' in this area.

[2] (see *Establishment of a Comprehensive, Adequate and Representative Terrestrial Conservation Reserve System in Western Australia* on NatureBase at http://www.naturebase.net/projects/conservation_res_snapshot.html).

areas of national significance to be vested in a parks authority and managed by the relevant parks agency in each state[3]. A *Ningaloo Coast Governance Models Discussion Paper* prepared as background to the *Future Directions* document noted that:

> "*Unless there was a likelihood of a new specific management entity attracting substantial funds for management, there is not a compelling case for a new management agency to be created. A new agency would result in duplication and would divert scarce resources into administrative overheads, which could be utilised better for on-the-ground management.*"

(Errington 2003, *Carnarvon – Ningaloo Coast Governance Models Discussion Paper*, page 5,)

The Conservation Commission concurs with the recommendations of the Discussion Paper and firmly believes that the most efficient management model is to vest the reserves in the existing controlling bodies (marine reserves with the Marine Parks and Reserves Authority, terrestrial reserves with the Conservation Commission), and for on-ground management to be undertaken by CALM. This is also consistent with the Machinery of Government Taskforce Report, which considered the number of statutory authorities in WA to be excessive, and that new authorities should be established only where "*...its proposed functions cannot be performed by a department or it would be inappropriate for them to be performed by a department.*" The Commission believes that this is not the case in this instance.

The Commission views the integration of management for conservation and the development and management of nodal tourism and recreation as critical to the long-term sustainability of the Ningaloo coast. It believes that this is best achieved through the application of existing legislative structures for management and land-use planning in partnership with other agencies but principally delivered through a single management agency, namely CALM. The Commission believes that CALM is best placed to do this due to their expertise and authority in:

- environmental management;
- management of recreation and small-to-medium scale tourism operations (such as those proposed for the Ningaloo coast);
- administration of leases and licences (CALM currently manages 440 leases). CALM has a robust policy and guidelines in place to manage private sector investment in tourism operations; and
- their ability to apply planning scheme mechanisms to ensure orderly and proper planning and development outcomes.

The *Future Directions* paper sought public feedback to inform the preparation of the *Carnarvon – Ningaloo Coast Regional Strategy*. The Western Australian Planning Commission is expected to release a draft for public comment in April 2004, with the final plan being released in July 2004.

Integrated planning and management of the surrounding area

In addition to the preparation of new management plans for the Ningaloo Marine Park and Cape Range National Park and the proposed additions to each, the Department of Planning and Infrastructure is preparing (for the WAPC) a strategic plan for the Carnarvon – Ningaloo region, which, among other things, aims to:

[3] (see http://www.wapc.wa.gov.au/cgi-bin/index.cgi?page=/carnarvon_ningaloo/index.html for the full document)

- co-ordinate with other concurrent planning activities in the study area, including the two afore-mentioned management plans, a possible Ramsar listings for Lake MacLeod and the Cape Range Aquifer, and proposed World Heritage nomination[4]);
- identify and recommend the preferred vesting and management options for the coastal strip;
- identify the most appropriate and sustainable tourism and development options for the coast; and
- prepare environmental and planning guidelines for tourism development on the Carnarvon – Ningaloo coast.

Future Directions: Sustainable Tourism and Land Use Scenarios for the Carnarvon – Ningaloo Coast) was released for a two-month public comment period in July 2003. Feedback from this document will be used in preparing a draft Carnarvon – Ningaloo Coast Regional Strategy, with the final document to be released in 2004. *Future Directions* presents a number of future use scenarios for the Carnarvon – Ningaloo coast, and recommends future tenure and management options for the coastal strip. CALM is assisting the Department of Planning and Infrastructure in the preparation of the strategy

To the north of the Cape Range National Park, the coastal land comprises land vested jointly in the Conservation Commission and the Shire of Exmouth (Jurabi and Bundegi Coastal Parks managed in accordance with the *Jurabi and Bundegi Coastal Parks and Muiron Islands Management Plan 1999.*), Commonwealth land managed by the Department of Defence and areas of unallocated Crown land[5]. Note that this management plan will not include the jointly vested lands or the Department of Defence land, but will consider at least parts of the unallocated Crown Land (see footnote 1 on page 2).

The Commonwealth (Department of Defence) land to the south of the park has been identified as a proposed addition to the national park, but the Commonwealth has indicated that they require the area for defence reasons in the medium to long term. CALM is working with the Department of Defence to prepare a management plan for this area (Map 1).

The pastoralist lessees of Ningaloo, Warroora, Cardabia, and Gnaraloo stations, who have formed the Ningaloo Reef Outback Coast Association (NROCA), produced a rehabilitation plan for the recreational use of the coastal strip through National Heritage Trust funding. CALM has signed a Memorandum of Understanding with NROCA for management of the coastal strip, although the implementation of the MOU is still being developed. Pending the outcome of the negotiations of the coastal strip exclusions, co-operative management will be pursued as a minimum prior to 2015. This may require some amendment to the MOU as it currently stands.

Irrespective of the process or tenure of lands within the planning area, the principal objective is that lands of high conservation value have security of tenure, legislative protection, and be managed primarily for conservation. This could be achieved by vesting in the Conservation Commission, by negotiating agreements under section 16 of the CALM Act[6] with other land managers, or through Indigenous land use agreements with Aboriginal groups. This will be re-iterated throughout the planning process.

[4] The State government is in the process of preparing a nomination for World Heritage status for the Ningaloo Reef and Cape Range Peninsula. It is expected that the nomination will be completed by February 2005.
[5] Responsibility for the onground management of fire, feral animals and weeds on non metropolitan, non townsite Crown land was transferred from DOLA to CALM on July 1 2003.
[6] Section 16 of the CALM Act allows for the Executive Director to enter into agreements with the owner, lessee or licensee of any land for the management of the land by the Department as State forest, timber reserve, national park, conservation park or nature reserve, or as part of a marine reserve, or for some other public purpose.

KEY VALUES OF THE PLANNING AREA

The key values of Cape Range National Park and the proposed additions include:

Conservation

- the presence of both tropical and temperate floras and many taxa at the southern-most or northern-most extent of their range;
- rich variety of habitats available and the occurrence of fauna species at the limits of their geographical range;
- the presence of fauna species thought to have evolved in periods when the peninsula was separated from the mainland such as the unique cave dwelling species;
- the presence of specially protected fauna;
- turtle rookeries on the coastline;
- the rich fossil deposits within the park, including Pleistocene coral reefs which represent several periods of coral reef development;
- extensive karst systems throughout Cape Range; and
- genetic subdivisions of the same species north and south or east and west.

Cultural

- confirmed evidence of the earliest known occupation (Pleistocene) based on a marine economy in Australia. Sites have the potential to reveal a significant insight into regional changes to climate, flora and fauna, and the lifestyles of Aborigines;
- non-indigenous cultural heritage associated with the pastoral and mineral exploration industry;
- potential for 'joint management' between CALM and the Gnulli people, the traditional owners of the area;

Recreation

- terrestrial environments and proximity to marine environments that offer varied nature-based recreational and educational opportunities and experiences;
- outstanding landscapes of great contrast (the deeply dissected, red-coloured range and the vibrant blue of the offshore shallow reef, separated by a flat coastal plain);
- opportunities for viewing a diverse range of native flora and fauna; and
- remote qualities of parts of the park.

Education and Research

- unique opportunities for research of natural and cultural values; and.
- opportunities for interpretation of natural and cultural values, and education of visitors.

INDIGENOUS INVOLVEMENT IN MANAGEMENT

The Government has shown a commitment to joint management arrangements with traditional owners. A consultation paper outlining options for ownership, administration and joint management of conservation lands in Western Australia has been released for public comment (http://www.naturebase.net/projects/aboriginal_involvement.html#consult_paper). The future involvement of Aboriginal people in management of the planning area will be considered in light of the Government determining a policy position. This policy position will lead to amendments to the CALM Act, enabling joint management provisions of the Act to apply to conservation lands and Aboriginal-held lands irrespective of the status of Native Title.

The Yamatji Land and Sea Council is the representative Aboriginal group for the planning area, and the Gnulli (meaning 'all of us') are the traditional owners for this country. The Gnulli

people have indicated an ongoing interest in the management of Cape Range and the coastal strip, and have indicated that caves in the Cape Range, in particular those in the proposed northern extension, are significant to their people. A park council comprising members of the Gnulli Working Group has been established for Ningaloo Marine Park and Cape Range National Park to facilitate involvement in management.

MANAGING THE NATURAL ENVIRONMENT

Biogeography

The park and proposed conservation estate additions are within the Carnarvon 1 subregion of the Carnarvon IBRA[7] bioregion. The coastal part of the national park is adjacent to the Ningaloo IMCRA[8] bioregion.

The area of conservation estate in the Carnarvon 1 subregion is 52 027 ha, or 2.2 %. The projected percentage of the subregion upon completion of the proposed acquisitions is approximately 132 500 ha, or 5.6 %. When added to the proposed pastoral acquisitions in the Carnarvon 2 subregion, the total percentage in the reserve system within the IBRA would rise to 5.9 %. This is still well under the recommended level of reservation for a CAR reserve system using nationally recognised standards, generally acknowledged as 15 % (CALM 2003), and reinforces the need for (a) additional reserves and (b) off reserve conservation measures.

Geology and Hydrogeology

Much of the Cape Range peninsula comprises a sequence of mainly calcareous sedimentary rocks overlain by alluvial, littoral and shallow water marine sediments on the coastal plain (Allen 1993). These sediments were uplifted during the Quaternary period, resulting in the formation of four wave-cut erosional terraces overlain with shallow deposits that form a staircase arrangement along the western margin of the range (van de Graaff *et al.* 1976). Wyroll *et al.* (1993) described these terraces as the 'geomorphological signature' of the region.

A subdued groundwater mound about 10 m above sea level underlies the highest part of the range, and is separated from the regional watertable of the Carnarvon Basin (Allen 1993). The groundwater is thought to be recharged by direct surface infiltration after heavy rainfall events, principally associated with irregular cyclonic rain, and may not occur at all in some years. Wyroll (1993) estimated that 40 % of the mean annual precipitation in the region is derived from tropical cyclones. Groundwater flow occurs radially around the groundwater mound, and may discharge via sub-sea springs or into pools along the lower reaches of Yardie Creek and Qualing Pool (Allen 1993), or by evapotranspiration from vegetation of the coastal plain (Forth 1973). The salinity levels of the groundwater mound vary, with salinities on the coastal plain higher due to tidal oscillations up to 1.3 km inland. Even then, Allen (1993) believes that a thin layer of fresh groundwater (10-20 m thick) may overlie the more brackish water below.

Catchment and Soil Protection

Potable water resources on the western side of the park are limited, and the availability of water is acknowledged as one of the major constraints to the development of the area. Within the Cape Range there is thought to be only a thin lens of fresh groundwater, which is mostly recharged

[7] IBRA stands for Interim Biogeographic Regionalisation of Australia, and is used as a basis for determining additions to the terrestrial reserve system at a national level.

[8] IMCRA stands for Interim Marine and Coastal Regionalisation of Australia, and is used as a basis for determining additions to the marine and coastal reserve system at a national level.

events by direct surface infiltration following heavy rainfall, overlying salt water. Various pastoral wells on the coastal plain (e.g. Milyering and Pilgramunna) are sites of former Aboriginal water supplies, based apparently on sinkholes (Allen 1993, A. Preest pers comm.). In addition to providing an important water resource to terrestrial animals and birds of the area, the freshwater aquifer within the Tulki Limestone is known to be the habitat of endemic species of aquatic fauna. It is imperative that the integrity of the aquifer is maintained—waste disposal and groundwater abstraction will need to be carefully managed. For example, pumping of freshwater overlying saline water can lead to saltwater intrusion in the freshwater aquifer. The implications of supplying water for recreation/tourism development are considered in more detail in the Managing Recreation and Tourism section.

Recreational use of the coast adjacent to the Marine Park but south of the Cape Range National Park has resulted in severe degradation of many dune systems, with a proliferation of vehicle tracks and camping areas. On the Cape Range peninsula, rainfall is low and variable, plant growth is slow, and landforms are highly susceptible to degradation and erosion. Destabilisation of coastal dunes following loss of vegetation results in not only a loss of conservation value but also visual amenity. Rehabilitation in such areas is a protracted, difficult and costly exercise. Rehabilitation of the degraded coastal strip south of the park will be a major resourcing issue.

Native Flora and Vegetation Communities

The Cape Range lies within the overlap zone between summer and winter rainfall and supports populations of flora from temperate, arid and tropical provinces at the limit of their distribution. The peninsula also contains some species not well represented elsewhere.

Vegetation on the Cape Range peninsula is mostly shrub steppe, dominated by wattles and eucalypts with a lower storey of small shrubs and spinifex (Beard 1975). In many areas there are spinifex grasslands, which are extremely important to wildlife, particularly on the coastal plain where there is a mixed association with the introduced buffel grass (*Cenchrus ciliaris*). Although Keighery and Gibson (1993) considered habitat diversity to be low, the flora is particularly rich for an arid limestone environment, with 630 taxa recorded. They ascribe the richness to the ameliorating effect of the sea around the peninsula, the sharp climatic gradient across the range, and the location of the area in the overlap zone between tropical and temperate floras. Many species are at the margins of their ranges, although the composition of the flora is most reflective of the area's aridity. The relatively high number of annual species, a characteristic of arid areas, demonstrates this. Those with tropical affinities are restricted to the cooler, damper, and relatively fire-free western gorges of the range, and include all locally occurring members of the families Acanthaceae, Moraceae, most of the Ascelpiadaceae and species such as *Livistonia alfredii, Acryranthes aspera* and *Olearia dampieri*. Many are only found along the gorges and valleys of the western side of the Cape Range. These areas are well protected as the climate is ameliorated by the sea breeze and the valleys are slightly wetter and fire free. Summer is a major period of growth for tropical species.

The Yardie Creek freshwater wetland has a fringing vegetation of emergent aquatics, predominantly the native bulrush (*Typha domingensis*) and *Schoenoplectus litoralis*. Both species are disjunct from their main ranges by hundreds of kilometres. At the top of the Yardie Creek system is a stand of *Livistonia alfredii* (Priority 4), disjunct from its main area of occurrence in the Millstream area of the Fortescue River.

The endemic and near endemic taxa of the Cape Range peninsula are a mixed assortment, however nearly all appear to be of relatively recent origin. Little is known about the biology or ranges of these species. Endemic and localised flora of the region includes *Acanthocarpus*

rupestris (Priority 2), *Brachychiton obusilobus, Grevillea calcicola* (Priority 3), *Leshenaultia* aff.*lutescens* and *Stackhousia umbellata* (Priority 3). There are at least 12 species of priority flora within the Cape Range, and approximately 33 within the planning area (WAHERB database[9]). Further research is required to confirm the status and distribution of these species.

Native Animals and Habitats

The combination of sandy habitats isolated from those to the north and east by the Giralia Range, the dissected limestone range of the Cape itself, extensive inter-tidal habitats, and the ameliorating effect of the sea have led to the development of a diverse and concentrated suite of vertebrates on the Cape Range peninsula (Kendrick 1993). The occurrence of species at the limits of their geographical range and/or as geographically isolated populations (one mammal, one frog, 11 bird and 21 reptile species) adds to the diversity.

Baynes and Jones (1993) estimated that of the original 38 native ground mammal species thought to be present immediately prior to European settlement, 11 still persist but it is possible that remnant populations of a further eight species may still exist. The level of extinction/extirpation of the vertebrate fauna of the peninsula demonstrates the pattern typical of much of arid or semi-arid Australia (Kendrick 1993), whereby mammals were severely disrupted following European settlement, bird and reptile faunas remain generally intact, and numerous feral species established (Morton 1990). The mammal fauna comprises species typical of arid environments or widespread generalists, while a typically southern element is missing (Baynes and Jones 1993). Apart from the threatened black-footed rock wallaby (*Petrogale lateralis*) and central rock rat (*Zygomys pedunctatus*), which is possibly extinct on Cape Range Peninsular, all other remaining mammal species are widespread and relatively common in the north-west of Western Australia. The black-footed rock wallaby, once widespread in Western Australia, is now restricted to isolated populations scattered through the south-west, north-west coast, Pilbara and southern Kimberley regions. This species has suffered a severe decline in the presence of foxes. Additional threats to the wallaby populations in the park include competition from goats and human disturbance at Yardie Creek.

Eleven species of bat have been identified in the peninsula area, with the distribution of most extending northwards. The exceptions are *Tadarida australis* and *Chalinolobus gouldii*, which have mainly southern ranges (Kendrick 1993).

The avifauna of the Cape Range peninsula is generally representative of the semi-arid north west coasts and hinterlands, although a few species attain their northern limits in the Cape Range including the striated field wren (*Calamanthus fuliginosus*) and the grey-breasted white-eye (*Zosterops lateralis gouldi*). A total of 154 species have been recorded within the Cape Range National Park although this list is thought to be incomplete (Kendrick 1993). Species at their southern-most (western coastal) limit include the beach stone curlew (*Burhinus neglectus*), bar-shouldered dove (*Geopelia humeralis*), rufous-crowned emuwren (*Stipiturus ruficeps*), grey-headed honeyeater (*Lichenostomus keartlandi*), painted firetail (*Emblema picta*) and spotted bowerbird (*Chlamydera maculata*), as well as vagrants such as the redshank (*Tringa totanus*). Some of the species occur further south in inland areas, but not along the coast (Kendrick 1993). Seven species have populations on Cape Range peninsula that are isolated from conspecific populations in adjacent regions. These species all have northern or arid zone distributions, although some extend south of the Ashburton River. They include the spinifex pigeon (*Petrophassa plumifera*), rufous-crowned emuwren, grey-headed honeyeater, painted firetail, little woodswallow (*Artamus minor*) and spotted bowerbird. The isolation of Cape Range

[9] Database maintained by the Western Australian Herbarium

populations of the grey shrike-thrush (*Colluricincla harmonica rufiventris*) and the spinifex pigeon has led to morphological changes from populations elsewhere, providing an example of speciation of isolated populations (Storr 1984).

Kendrick (1993) provided a summary of the herpetofauna of the Cape Range. The biogeography follows a similar pattern to that of the avifauna—it is made up of common widespread species, elements of adjacent regional faunas that extend into the area, and local endemics. The amphibian fauna of the Cape Range peninsula is small and composed largely of species with northern or central desert distributions. Among the 84 species of terrestrial reptile recorded from the area, the Cape Range peninsula is the northern geographic limit of seven species. All of these species occur on the western coastal dunes and are largely restricted to the coastal corridor. Many northern or inland reptiles are found on the Cape Range peninsula on the red sand ridges near Vlaming Head. Five are primarily of the central and northern coastal sandy deserts, two are widespread Pilbara or sandy desert species, and only one reptile species has a mainly northern distribution. Five reptile species exist as isolated populations disjunct from conspecific populations in adjacent regions, and a further five are endemic, or nearly so, to the Cape Range peninsula. Three reptile species recorded in the planning area are listed as threatened—the green turtles (*Chelonia mydas*), hawksbill turtles (*Eretmochelys imbricata*), and loggerhead turtles (*Caretta caretta*).

The karst systems of the Cape Range support many relictual taxa of international conservation significance. The closest relatives of these taxa indicate that the ancestry of the Cape Range stygofauna is linked to northern Gondwana and the Tethys Sea, which once separated the landmasses of the southern and northern continents. These species including troglobitic fish (*Ophisternon candidum* and *Milyeringa veritas*), shrimps (*Stygiocaris* spp., ostracods (*Danielopolona* spp.), amphipods (*Liagoceradocus* spp., *Halosbaena* spp.), remipedes (*Lasionectes* spp.), plus many other families and orders of terrestrial and aquatic species. Threatening processes include pollution (townsite, chemical, sedimentation), mining (direct impacts and pollution) and feral animals (feral fish have been found in cave systems near Exmouth). Knowledge of subterranean fauna of the Cape Range is based on limited surveys—few of the 700+ caves have been surveyed for fauna or fossil deposits (W. Humphreys pers comm.). The biological knowledge of subterranean systems of the Cape Range is very poor, but given the high level of endemism and lack of research, it is highly likely that as yet undiscovered taxa exist.

The Cape Range is also a 'hotspot' for non-marine mollusc endemism, with the molluscan fauna demonstrating mostly tropical affinities (Slack-Smith 1993). Of 18 species of non-marine molluscs found on the Cape Range peninsula, 10 are endemic, with seven found only on the plateau and range itself. Another four are at the southern extent of their ranges.

Threatened Ecological Communities

There are two Threatened Ecological Communities found on the Cape Range peninsula: the Cape Range Remipede Community of Bundera Sinkhole, and Cameron's Cave Troglobytic Community. The Bundera Sinkhole is situated within the Department of Defence military exercise area to the south of Cape Range National Park, and comprises a rich stygobitic fauna assemblage composed primarily of crustaceans but including a blind fish. Camerons Cave Troglobitic Community is known only from Camerons Cave within the Exmouth townsite, and is recognisable by its unique composition of species, of which at least eight are known only from this location.

Environmental Weeds

Thirty weed species have been recorded from the Cape Range peninsula area. The establishment of weed species is inhibited by the arid nature of the peninsula, lack of sandy riverine areas, major towns, intensive agriculture or alluvial flats. Significant weed invasion has occurred in the lower Yardie Creek gorge by such species as *Asphodelus fistulosus* and *Emex australis*. The most widespread and serious weed is buffel grass (*Cenchrus ciliaris*), a tough perennial bunch grass that has largely replaced *Triodia* grasslands on the western coastal plain due to continued disturbance, including heavy grazing pressure (initially by stock and now by kangaroos) and fire. Buffel grass, which has allelopathic effects upon native species and can rapidly establish a monoculture (or nearly so), was actively spread by the pastoral industry. The impact of fire as a management tool requires investigation.

Introduced and Other Problem Animals

Several introduced mammal species are present on the peninsula.

Wild dogs, as distinct from dingoes, are occasionally present in the park, probably originating from the settlements of Exmouth and Learmonth. Rabbits (*Oryctolagus cuniculus*) and foxes (*Vulpes vulpes*) appear to have dispersed to the north-west of Western Australia without the deliberate assistance of people (Morton 1990). Rabbits are currently only present in small numbers at a few localities on the peninsula. Foxes, however, are common in the area and are subject to control by 1080 baiting throughout the national park and adjacent areas. Predation of turtle eggs by foxes can account for 70 % mortality on some mainland beaches (R Mau, pers comm.). To maximise baiting effort, CALM works co-operatively with Cardabia Station and the Department of Defence to bait strategic areas adjacent to the marine park. Warroora Station currently undertakes its own baiting program.

Feral cats are found throughout the area with higher concentrations associated with areas of human habitation and use. The use of 1080 dried meat baits for cat control has proven largely ineffective, although CALM is currently developing 'cat specific' baits for trials in areas of conservation estate.

Sheep, goats, horses and cattle were introduced to the area as domestic stock prior to establishment of the park and are still part of pastoral activities in areas surrounding the park. To the south of the park, stock have created tracks through fragile dune systems and have increased the potential for erosion and the continued dominance of weed species.

Goats have established viable feral populations in the park due to their ability to survive in arid environments. Goats, with foxes, are probably the major feral animal issue within the park due to their vigorous grazing habits and the impact of their tracks on the landscape. Goat control comprises ad hoc shooting and an annual intensive shoot around Yardie Creek. Future possibilities include contract mustering for commercial sale.

The number of euros (*Macropos robustus*) in the park is thought to be at a level causing significant environmental degradation. This is primarily due to lack of predators—the dingo is locally extinct on Cape Range peninsula as a result of baiting by pastoralists. High euro density has led to intense grazing pressure, and any attempts at rehabilitation will be difficult unless grazing pressure can be reduced. CALM does not monitor euro numbers in the national park at present, but conducts periodic surveys on the pastoral leases immediately to the south. The next survey is scheduled for 2004, and an extension of the survey into the park is proposed to establish a baseline population. However, the margin of error in estimating euro numbers is high—this must be considered when proposing euro management strategies.

Fire

Prior to European settlement, fire was an integral part of land use practiced by Aboriginal people. A number of studies document the use of fire by Aboriginal people in similar arid environments (Burrows and Christensen 1981, Haynes 1991, Pyne 1991, Burrows *et. al.* 2000). Such studies suggest that fire was used regularly and purposefully across the landscape to improve hunting and foraging opportunities. The ecological effects and patterns resulting from traditional Aboriginal burning have not been documented for the Cape Range area, but studies in other spinifex-dominated communities (Burrows *et al.*1991, Burbidge 1985, Griffin *et al.* 1983) have revealed a mosaic of frequent small fires in differing stages of succession are important for providing a range of habitat types for flora and fauna. Evidence suggests that change from traditional burning has created substantial changes across the landscape, particularly to the range and structure of vegetation types across all of Australia. However, much of this evidence is circumstantial and based on observations following the ending of Aboriginal burning after European colonisation. Limited experimental information on the ecological impacts of traditional burning is available (Tropical Savanas CRC, 1997).

The arrival of Europeans brought considerable changes to the burning patterns of the land. Fire was used by pastoralists to encourage the regrowth of grasses for stock, to assist in mustering and to protect their pastoral leases against the devastation of large wildfires (Pyne 1991, Bushfires Council of the Northern Territory 1997). Pastoralists employed Aboriginal people, so it is likely that traditional burning techniques were incorporated into pastoral burning to some extent. The advent of pastoralism, together with the removal of Aboriginal people from their lands and the subsequent changes to fire regimes in arid areas had an impact upon the biodiversity of these areas.

Vegetation abundance and hence fire fuel loads, are highly variable across Cape Range. The variety of fire fuel loads means that fire behaviour can vary significantly. Fires from lightning strikes occur frequently in the Cape Range but do not often spread to the plain as result of the sea breeze and steep slopes. Grazing by kangaroos and feral goats has significantly influenced fuel loads in the park. An increased feral animal management program or changes to kangaroo populations will lead to further impacts on fuel loads.

Although the existing management plan does not prescribe planned burning within the park, future fire management will aim primarily to deliver biodiversity outcomes and prevent large, damaging wildfires. Setting clear fire management objectives for the protection of life, property and biodiversity is fundamental in the development of fire management plans and standards, and in determining management strategies. In order to protect biodiversity, CALM will aim to implement fire regimes that result in a fire mosaic at a variety of spatial scales.

Research

Although the North West Cape is recognised as being of international significance, it is apparent that there is still much to be discovered about the area. To this end, a number of proposals have been put forward in recent years to develop better research facilities within the area. These include proposals at Coral Bay (associated with Murdoch University) and Exmouth ('Ocean and Earth Research Centre' proposed by the Shire of Exmouth and Gascoyne Development Commissions). In general, CALM supports the development of better research facilities in the knowledge that it will assist in the long-term management of the Ningaloo Reef and Cape Range.

MANAGING OUR CULTURAL HERITAGE

Indigenous Heritage

The archaeological record of the Cape Range peninsula is significant in that it provides the earliest confirmed evidence of Pleistocene marine resource use in Australia. The close proximity of the continental shelf, the minimal shoreline movements across the sharp gradient of the shelf during fluctuating sea levels, and the steep local topography of the range itself, have prevented the loss of material caused by rising sea levels (Morse 1993). From the limited number of surveys conducted by the Western Australian Museum and others, sites are concentrated on the coastal margins of open terrain with easy access to food and water supplies. These comprise shell middens in coastal dunes (radiocarbon dated to 6-7000 years BP), and charcoal, food remains, and stone artefacts beneath rock overhangs and in caves located in the foothills. Material in the Mandu Mandu rock shelter is thought to be approximately 32 000 BP (A. Hogg, in Morse 1993). Evidence of occupation between 20 000 and 5000 BP is missing, and it is thought that the site was abandoned during the extreme aridity of the last interglacial period but re-occupied again as climate conditions became more favourable.

The Gnulli people have indicated an ongoing interest in the management of Cape Range and the coastal strip, and have indicated that caves in the Cape Range, in particular those in the proposed northern extension, are significant to their people. Pastoral areas along the coastal strip are also significant, as watering points such as windmills and watering troughs were often based on natural waterholes which are important to the Gnulli. Representatives of the Gnulli have indicated that some elders are concerned about the closure or drying up of these points due to their cultural significance and the impact on animals and birds (A. Preest, pers comm.).

Non-Indigenous Heritage

European settlement has had an impact on the park through pastoral use from the late 1880s to the mid 1900s. This led to the introduction of stock and weeds, the construction of fences, windmills and buildings, the establishment of vehicle tracks and the use of fire as a management tool to promote grass growth. These management practices have led to buffel grass replacing native spinifex in many parts of the coastal plain, the erosion of susceptible soils, and altered landscape characteristics. Yardie Creek Station, which covered most of the park area, was surrendered to the Crown in 1959. Physical remnants of the pastoral history of the area (e.g. fences, water points and wells) remain throughout the park and require further research and documentation.

Petroleum exploration and associated road construction was undertaken in the Cape Range in the late 1950s, and again further research is required to document this heritage.

MANAGING RECREATION AND TOURISM

Cape Range National Park abuts Ningaloo Marine Park, which is the major focus for recreational activities for most visitors to the area. Surveys by Wood and Hopkins (2001) revealed that 83.6 % of visitors to Exmouth considered Ningaloo Reef as a reason to visit the region, with 57 % considering it the most important reason. In contrast, 59.9 % considered Cape Range National Park as a reason for visiting but only 12.6 % considered it the most important reason. Recreational development within the national park is consequently focused on the coastline, although access and limited facilities are also provided to selected points within the range.

Visitor numbers to the national park have increased from approximately 87 000 to 137 000 per year over the past 10 years (CALM unpubl.). Over the same period, use of the coast south of the

park has probably increased similarly, without any improvement in the standard of access or facilities. For example, the number of campsites during April and July school holidays reached 379 in 2003, compared to 150 in July 1995 (CALM unpubl.). It is estimated that the coast between Coral Bay and Yardie Creek could be supporting 220 000 – 426 000 visitor nights per annum by 2010. This will further extend the pressure on CALM's resources and the natural values of the entire peninsula. Conversely, a well-managed, sustainable tourism industry can offer positive social and economic benefits.

A survey by Wood (2003) in April 2001 found that 40.6 % of visitors to Exmouth were from overseas (up from 33 % in 1997), 14 % from interstate and 45 % from other parts of Western Australia. At present, tourists contribute $85 million to the Exmouth economy through direct expenditure alone, based on an expenditure of $850 per person per visit. However, with increasing visitation and length of stay, the contribution of tourism to the local economy will continue to rise (Wood 2003).

Visitor Access

Vehicle Access

Vehicle access is one of the key issues affecting management of the park and proposed additions. Recreational use of the coast and adjacent waters has increased rapidly over the past decade as awareness of the reef and its accessibility has grown. Quality of access has steadily improved with the construction of better roads and the establishment of a new sealed road from the northern park boundary to Yardie Creek in the south of the Park. South of the park, access to the coast is on sandy, unformed 4WD tracks. Issues associated with the existing access to the coastal strip of land south of the national park include:

- erosion of dunes due to poorly located access or recreational vehicles leaving tracks and driving over dune formations;
- social conflict between 4WD vehicles/motorbikes and passive users of beaches;
- impacts on nesting turtles and hatchlings;

The need to improve access along the coast between Quobba and Exmouth has long been an issue, and has been identified in many planning documents (Appendix 1). Issues related to improved access include:

- increased visitation and subsequent impacts on Ningaloo Reef;
- possible loss of 'wilderness' qualities of parts of the coast, in particular the sections between Gnaraloo Bay and Warroora, and Bruboodjoo and Jane Bay;
- the location of Department of Defence land south of Yardie Creek, and its use as a bombing range;
- construction and maintenance costs;
- loss of ecological, cultural, recreation and aesthetic values associated with the construction of a permanent crossing over Yardie Creek.

Yardie Creek forms a natural barrier preventing two-wheel traffic between the north and south coastal parts of the park. Four-wheel drive vehicles may cross the sandbar at the creek mouth when conditions permit (i.e. when the river level is low). The possibility of providing a hardened crossing over Yardie Creek and an upgraded road linking the national park to Ningaloo Station has been identified in previous studies (see Appendix 1). Conversely, concerns have been raised about keeping the crossing and coast natural to provide a four-wheel driving experience and to minimise visitor numbers. Most of the 1200 submissions to the Draft

Carnarvon Coastal Strategy (the precursor to the *Future Directions* document) did not support upgrading the scale of the road from Coral Bay to Yardie Creek. A survey of approximately 500 visitors by Polley (2002) revealed that 63% of visitors supported the retention of 4WD access over Yardie Creek. The Conservation Commission believe that any upgrade to the crossing at Yardie Creek should comprise, at most, a low level crossing/ford at the mouth of the creek, and that any construction leading to greater visitor numbers accessing the coastline south of the park should be conditional upon additional management resources. Any such approval and construction would necessarily follow a proper environmental impact assessment.

The main road through the park is Yardie Creek Road, which is sealed from the Park entrance to Yardie Creek. Spur roads from it provide for two-wheel drive access to camping areas and places of interest along that section of the coast. However, there has been some public criticism of the sealing of the road as there is a perception that it has contributed to the increased numbers of animal road kills, particularly euros. This may be due to animals crossing the road each dawn and dusk to reach natural freshwater holes to the west of the road, and increased traffic speed. Research by Polley (2002) found that 29 % of visitors rated the presence of roadkills as very important or extremely important in modifying their experience, and that 61% supported reducing the speed limit. The speed limit on Yardie Creek Road (a public gazetted road) is currently 80 km/hr. .

Two unsealed two-wheel drive roads (Shothole and Charles Knife roads) provide access into the park from Murat Road on the eastern side of the range. Charles Knife Road had a spur road leading to the Thomas Carter Lookout, where a walk trail (currently closed) leads north to link up with the terminus of Shothole Road. Both roads are expensive to maintain and are a visitor risk issue—Charles Knife Road in particular is narrow and cut into the cliff face in many places and is quite precarious. The majority of the length of these roads (and most dramatic scenery) is within that part of Exmouth Gulf Station that is proposed to be added to the national park.

The concept of improving access over Cape Range has been identified in a number of planning documents, and two main options identified (see Appendix 1). These are extending Shothole Canyon Road (or, less preferably, Charles Knife Road) across the range to Milyering, and constructing a formed road from south of Yardie Creek to Learmonth. Investigation of the former option was recommended in the existing management plan but as yet no detailed studies as to environmental and cultural impacts or costs have been undertaken. A survey of visitors to Cape Range National Park by Polley (2002) found that 51% of respondents supported the provision of a road from the coast to the eastern side of the Cape Range. However, there are several major concerns with this proposal, including:

- potential environmental impacts on karst systems and subterranean fauna;
- damage to cultural sites;
- impacts on viewsheds from the coastal plain; and
- loss of 'wilderness' recreation opportunities. Conversely, road access over Cape Range will also make it more accessible and provide opportunities for day walking/hiking.

For these reasons the Conservation Commission would only support the construction of a road across the Cape Range if these issues can be resolved. The Commission does, however, support the provision of some access on to the top of the range from the eastern side to provide greater recreation opportunities.

The only current access across the range within the existing national park is the Learmonth to Sandy Bay four-wheel drive track, and permission is required from the managers of Exmouth

Gulf Station to gain access to part of the track. Track conditions are poor. Further investigation of this option is required.

Boat Access

It is possible to launch small boats across the beach in 4-5 places within the national park. Larger vessels launch from formal boat ramps north of the park, although the Environmental Protection Authority has recently approved the construction of a boat ramp at Monks Head near Coral Bay.

Further discussion of boating is provided in the section on Boating and Kayaking.

Recreational Use and Opportunities

Within the national park it is possible to pass from high plateau shrubland overlooking rocky gorges to sandy beaches and fringing coral reef within a distance of only a few kilometres. Although this provides many opportunities, the focus for recreation is still very much marine-based. This is supported by the study of Woods and Hopkins (2001) who found that visitors to Exmouth participated almost exclusively in marine-based activities. The only land-based activity that over 50 % of visitors participated in was sightseeing (53.9 %), although camping was not listed as an activity.

There is scope to shift some of the recreation and development pressure away from the western coastal plain to other areas of the national park if:

- infrastructure can be economically provided;
- the values of the Cape Range are sufficiently promoted; and
- visitor risk issues can be adequately dealt with.

Due to the climate, and lack of water and shade in the park, most visitation occurs in the cooler winter months, although increasing use is being recorded during the hotter months especially by European visitors (CALM unpubl.).

Camping

A majority of visitors to Cape Range National Park are accommodated in Exmouth.

There are 13 camping areas providing approximately 110 sites along the coast within the park, most of which are located in a narrow belt of coastal dunes or next to creek beds. There is also one semi-permanent 'safari camp' operated under license by a commercial tour operator within the park. The number of visitor nights spent in the park is approximately 40 000 per year.

There are no campsites within the range itself, but opportunities for inland camping will be investigated as part of the planning process. Camping facilities within the park are minimal, with only the most basic facilities provided. All sites have toilets and are serviced with rubbish bins. Fires are prohibited, and campers need to provide their own gas cooking equipment. The major issues with existing campsites include:

- the need to cater for a wide range of camper expectations in terms of their 'experience' (eg. remote camping experience versus socially interactive campsites, or formally developed and defined campsites versus minimal development and naturally defined campsites);
- poor definition of sites in some areas;
- the need to cater for a wide range of camper styles (i.e. group tours, caravans, tents and swags)

- the disproportionate area of accessible parts of the coastline occupied by camping;
- the availability of alternative accommodation at Lighthouse and Yardie Creek Caravan parks to the north of Cape Range National Park;
- the lack of shade or shelter;
- the mixing of day use and camping at five sites;
- proximity to sites of archaeological and/or geological importance;
- proximity to features of high conservation significance in the adjacent marine park
- visual amenity; and
- the high demand for sites during peak periods exceeding capacity. The possibility of reducing the maximum length of stay to two weeks during peak periods, and of introducing a booking system during particularly busy periods, should be considered; and
- the possible introduction of a campsite booking system. This is likely to be trialled by CALM in selected locations throughout the State within the next 12-18 months.

The smaller campsites within the park are popular with those visitors seeking relative isolation and solitude as well as direct access to the resources of adjacent reef and waters. It is expected that competition for these sites will intensify as visitor numbers increase.

The previous management plan proposed the development of a 'large scale' campground in the Milyering precinct of Cape Range National Park. Although never implemented, the rational behind the proposal was to concentrate campers into an extensive campground in close proximity to the Milyering Visitors Centre. This would allow the closure of several campsites allowing the areas to be modified and managed to cater for the increasing day visitation, or rehabilitated where necessary.

The provision of camping facilities inland from the coast and facilities specifically for tour operators also needs consideration. At present there are no formal camping areas inland of the coast, and it is possible that small areas could be developed at the foothills of the Cape Range, or indeed within the range for long distance hikers. Camping areas are provided specifically for commercial tour operators at other national parks (eg. Purnululu National Park), in recognition of the particular needs of large dependent groups. These areas often include semi-permanent tents and structures such as camp kitchens.

South of the park, unserviced and ad hoc camping is commonplace. The number of campsites on pastoral lands adjacent to Ningaloo Marine Park during April and July school holidays reached 379 in July 2003, up from 150 in July 1995 (CALM unpubl.). Many of these campsites are situated within the Ningaloo Marine Park, which extends to 40 m above the high water mark. The ability to launch small boats across the beach at many of these campsites further, increases their attractiveness. Remote Research (2002) estimated the average length of stay of these campers to be 47 days, with 45 % of campers staying longer than 22 days.

Many campers prefer the relative isolation of these sites to the crowding and regulation of the commercial camping areas, both within the national park and in Exmouth and Coral Bay. However, as the popularity of the Ningaloo Reef has increased, so too has the use of informal camping sites south of the park to the point where people are camping in previously undisturbed area creating further damage. This places additional pressure on the environment as visitors attempt to forge new sites, leading to environmental degradation. One of the presumptions in all the scenarios within the *Future Directions* document is that all camping is formalised into managed camping within remote and semi-remote settings. This could include the delineation of campsites (single or multiple) or small commercial operations with permanent or semi-permanent eco-camps. Possible campsites are detailed in Appendix 2.

The future of all camping sites within the planning area will be assessed as part of the Carnarvon Ningaloo Coastal Strategy and this management planning process. Camping will be rationalised based on:

- the recommendations of the proposed Carnarvon – Ningaloo Coast Regional Strategy;
- maintenance of a range of opportunities, including those provided within the proposed acquisitions;
- increasing visitation demands;
- ease of providing access;
- proximity to service centres;
- proximity to features of significance; and
- efficient use of resources

Built Accommodation

Although there is no permanent built accommodation within the national park, one commercial tour operator operates a semi-permanent 'safari camp' under license within the park. The *Future Directions* document details possible options for the location of tourism nodes within the Carnarvon – Ningaloo coastal strip. Three accommodation types are identified—Primary Coastal Tourism Nodes, Secondary Coastal Tourism Nodes and Coastal Camping Nodes. Primary Coastal Tourism Nodes are described as centres catering for up to 500 people, providing a range of visitor services and amenities and accommodation, camping utilities limited food and grocery facilities and, possibly, fuel. Secondary Coastal Tourism Nodes cater for up to 200 people and generally provide camping, including the option for some covered accommodation (i.e. any form of accommodation under a permanent roof) with a local focus and character. Provision of supplies and services are limited. Coastal Camping Nodes are formalised camping areas, and may include delineated sites single use or multiple use sites, and small commercial operations such as ecolodges/eco-camps[10] or safari tents[11]. Potential nodes are detailed in Appendix 2.

A major constraint to development of tourist nodes is the lack of potable water. Fresh, unconfined groundwater resources along the coast occur sporadically, are thin and of varying quality, and consequently the provision of water suitable for ablution is costly. Confined, or artesian, groundwater occurs throughout most of the region. Artesian water is generally of poor quality and requires treatment before it is suitable for use, including desalination, cooling, removal of iron and other minerals. Treatment costs are usually cost prohibitive for small-scale facilities like those currently provided within Cape Range National Park.

Any extraction of groundwater is subject to licensing by the Waters and Rivers Commission.

Day Use

There are 12 day use sites within the park, providing parking for between 2-72 cars. Five of the sites are joint day use/camping areas, which has caused some conflict between user groups. The major day use sites are Turquoise Bay, Yardie Creek, and the Milyering Centre at the northern end of the park. Milyering provides visitor orientation, toilets and a tourist shop for visitors. Turquoise Bay is the largest day use site, providing access for 72 cars. It was upgraded during 2003 in order to cope with the increased visitation to one of the prime snorkelling sites in the marine park.

[10] An ecolodge/camp adheres to ecotourism principles, and should use sustainable energy, incorporate energy-efficient design principles and waste management systems, and be water efficient.
[11] Permanent or semi-permanent tented camp with bathroom facilities and hot and cold running water.

The provision of day visitor sites needs to be considered in light of future options provided by the coastal strip acquisitions. Approximately 10 areas along the coastal strip south of the park have been identified in the *Future Directions* document (see Appendix 2).

Boating and Kayaking

There is no formal boat launching facilities within the park, although small boats can be launched from the beach at 4-5 sites within the national park, and several sites to the south along the coastal strip. Tantabiddi boat ramp, just north of the park, is the closest facility suitable for large vessels. The EPA has also recently approved the construction of a boat ramp at Monks Head near Coral Bay.

Kayaking is a low impact form of boating use of the marine park that does not require boat-launching facilities and allows access to remote areas of the coast. Areas identified as meeting remote criteria were identified in the *Future Directions* document, and include the following areas:

- Jane Bay to Bruboodjoo:
- south Warroora to Gnaraloo Bay;
- Red Bluff to Cape Cuvier Lookout; and
- south of the Blowholes settlement to Miaboolya Beach.

The provision of campsites specifically for kayakers will need consideration during the planning process. This includes both tours led by commercial tour operators (ie. possibly requiring larger group campsites) and smaller campsites for individual campers that are consistent with the provision of a 'remote' experience.

One of the major issues in relation to boating that will need to be addressed during the planning process is continued access to Yardie Creek. A study of the impacts of commercial tour boats on rock wallabies in Yardie Creek revealed that rock wallabies did not appear to be affected by differing levels of boat use in the gorge (Biota Environmental Sciences 2002). At present, seven trips per day are permitted, but this will be reviewed when licences expire in December 2004. Existing licence conditions also aim to protect birds nesting along the cliff faces during the breeding season.

Walking

There is a demand for more walk trails and improved walk trail conditions in the park (Polley 2002, CALM unpubl., A. Hogstrom pers comm.). In particular, Polley (2002) found that 84% of visitors supported the provision of walk trail across the top of the Cape Range. The attractive gorges and opportunities to experience Indigenous cultural heritage add to the potential of such proposals.

The walk between Charles Knife and Shothole canyons has been closed due to visitor risk issues such as unstable and unguarded cliffs. These issues must be considered in the provision of any walking opportunities within the range country.

Adventure Sports

There is a demand for caving, abseiling and climbing in the Cape Range. The most popular site for rock climbing and abseiling is Charles Knife. Although the Pilbara Region has developed regional guidelines for these adventure activities, visitor risk issues remain. Other issues that need to be considered during the planning process are provision of access to sites, tour operator accreditation, and protection of cultural heritage and biological values.

Caving within the park is a high-risk activity. Specialist caving groups or individuals sometimes visit the park, but no commercial operations are undertaken at present. A cave/karst management system will be considered during the management planning process, including the possibility of introducing a permit system to protect areas of high conservation and cultural significance.

Tourism and Commercial Operations

There are currently 153 commercial tour operator (CTO) licences issued for Cape Range National Park and Ningaloo Marine Park. Of these, 29 are E class licences for commercial activities in Ningaloo Marine Park.. E class licences are issued where there are safety, environmental or management concerns, and the number of licences needs to be restricted. This will most likely apply to boat tours on Yardie Creek when licences are offered for renewal in December 2004. At present, one operator conducts one tour per day as a component of an extended safari tour under a T class licence. CALM also conducts tours at present but may offer this opportunity to private enterprise under an Expression of Interest.

Management of kayaking tours will also need to be considered during the planning process. One of the main issues to be resolved is the requirement for camping areas on remote parts of the coast, and the provision and servicing of facilities.

Visitor Safety

Visitor safety is a major issue within Cape Range National Park. Issues include:

- extreme temperatures in summer leading to dehydration of visitors.
- unstable rock formations in the canyons;
- emergency evacuation procedures during wildfires or cyclones;
- snakes and biting insects; and
- visitors getting lost.

The safety of visitors recreating in the adjacent marine park is also a concern. For example, there is a strong rip south of the point at Turquoise Bay. Various management options have been suggested including more interpretation on the beach indicating the dangers, life preservers on the beach, marker buoys indicating a safe zone, lifeguards during peak periods, and a safety rope in the water. These issues apply along the coast, and will be considered during the management planning process.

MANAGING SUSTAINABLE RESOURCE USE

Mining

The most significant mining issue within the planning area is the proposal for the Learmonth Limestone Quarry within the proposed 5(h) reserve to the east of the existing national park boundary. Even though the reserve is proposed to have a purpose of Conservation and Limestone Resource Management, CALM has recognised major issues with the Environmental Review and Management Program (ERMP). These include:

- the presence of unidentified species of subterranean fauna. The proposed quarry site could significantly impact upon these species by removing the food source relying on roots, altering water levels and quality, and destroying karst formations through blasting and mining;

- an inadequate consideration of alternative sites; and
- the presence of localised populations of black footed rock wallabies, and the requirement for a rock wallaby management plan.

CALM's submission to the ERMP made 23 recommendations, including recommendations on:

- subterranean fauna;
- land use planning;
- conservation of the black footed rock wallaby
- flora and vegetation;
- rehabilitation artificial water sources;
- groundwater use from the adjacent RAAF borefield; and
- hazardous materials.

INVOLVING THE COMMUNITY

Information, Education and Interpretation

CALM provides information and interpretation to visitors through a variety of means. These include:

- printed material for Cape Range National Park and Ningaloo Marine Park. These are distributed from the Milyering Visitor Centre, Exmouth office and other Departmental offices;
- information on the NatureBase webpage, including information on CTOs;
- displays at Milyering Visitor Centre;
- interpretation through CTOs;
- guided programs during school holiday periods; and
- personal contact with rangers or other staff.

Further, CALM is in the process of constructing a turtle interpretation facility within Jurabi Coastal Park, just north of Cape Range National Park. This will be used as a base for future turtle interpretation on the Cape range peninsula.

Groups targeted for education will include school groups or community groups engaging in nature-based educational activities in the management area. For example, even though there is no Bushranger Unit in the Exmouth District, several units from the south-west have visited the national parks and undertaken conservation activities during their stays.

The displays within Milyering Visitor Centre are now 15 years old and need to be reviewed. Additional considerations that need to be taken into account include:

- proposed extensions to both the marine and terrestrial reserve system;
- greater knowledge of the marine environment, particularly whalesharks;
- provision of a dedicated turtle interpretation centre at Jurabi; and
- potential World Heritage nomination.

The Exmouth Visitor Centre is considering providing information for visitors at Learmonth Airport. CALM should also consider options for provision of off-park information, including the airport and at the lighthouse north of the park in conjunction with the lighthouse operator.

Working with the Community

Community involvement is an integral component of CALM's operations. The community, as individuals or groups, is encouraged to be involved in both planning and management. An example of this is the role of the Coral Coast parks Advisory Committee, who will be responsible for providing advice to CALM during the preparation of this management plan and that for Ningaloo Marine Park and proposed extensions.

Exmouth District staff have an active volunteer program, with campground hosts used extensively in Cape Range National Park and volunteers contributing 1800 hours to the turtle monitoring program alone last year.

Cross training of the volunteers with the Exmouth Tourist Centre has also been suggested as a way of improving the information provided by both organisations.

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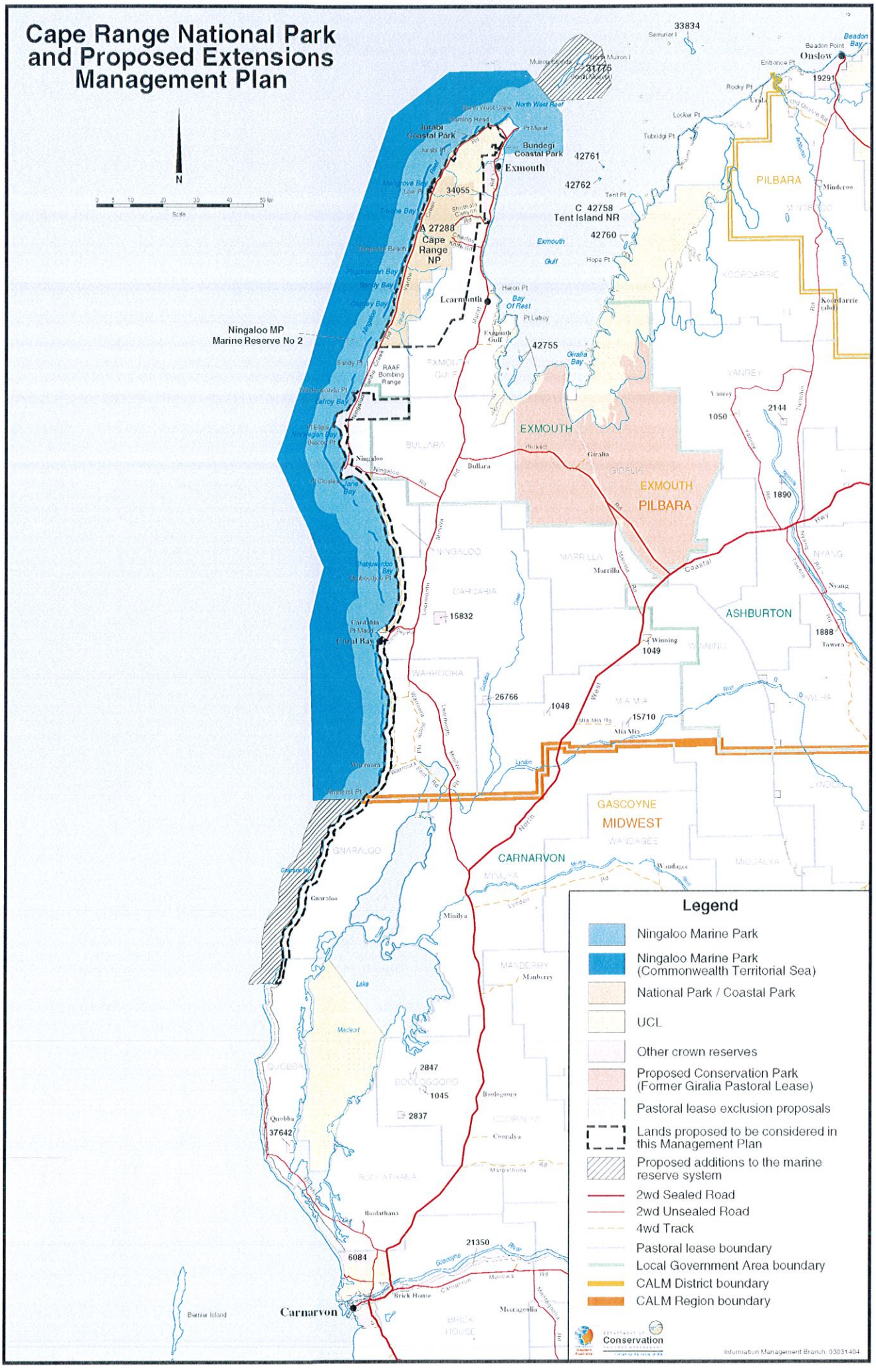
Map 1 Locality of Cape Range National Park

Cape Range National Park and Proposed Extensions Management Plan



Appendix 1. Summary of publications – Access within Cape Range National Park and along the coastal strip

	Road over Cape Range		Coastal Road	
Document name	South of Yardie Creek	North of Yardie Creek	South of Gnaraloo Bay	North of Gnaraloo Bay
Cape Range Management Plan (1987 – 1997)		A new road linking Milyering to Shothole Canyon has been planned along a ridgeline. This road could be linked to Charles Knife instead if former not possible. A detailed investigation will occur during the life of the management plan.	N/A	The track south of Yardie Creek will not be upgraded nor is there any intent to bridge Yardie Creek. Future road development, if any, south of Yardie Creek will hinge to a large extent on proposals in the Ningaloo Marine Park
Ningaloo Marine Park Management Plan (1989 – 1999)				Review track system in consultation with lessees.
Gascoyne Coast Regional Strategy (1996)	There may be demand in the future to provide a tourist link over the range connecting Charles Knife Road to Milyering Visitor Centre. There may be pressure to provide a crossing at Yardie Creek to allow 2WD access to the southern portion of Cape Range National Park. Two possible options include an at-grade crossing across the Yardie Creek sandbar and the Yardie Creek – Cape Range link utilising a southern spur off the Learmonth – Sandy Bay track. These proposals are unlikely to be required within the 20 year time frame of this study, although it is recommended that further investigation on roads be undertaken within this period.			(1) Gnaraloo Homestead to Warroora Homestead should not be improved unless an extension to Coral Bay is planned, as its limited use would not justify the improvement (2) Learmonth – Minilya Rd to Warroora Homestead should not be improved (3) Warroora Homestead to Coral Bay should not be improved (4) Coral Bay to Ningaloo Homestead needs to be upgraded if Mauds Landing proposal goes ahead (5) A type 2 coastal road from Point Quobba to Coral Bay is required (*see 3 above – this is in direct contrast*) (6) Ningaloo Homestead to Yardie Creek will be subject to bridging Yardie Creek to connect with Exmouth in 10-20 years.
Exmouth – Learmonth (North West Cape) Structure Plan (1998)		Investigate the environmental and economic feasibility of upgrading and extending Charles Knife Road, and carefully design and manage the road. (*Makes no further reference to what 'extending' means*).		(1) Investigate the alignment and construct the Ningaloo access road to Type 3 formed gravel standard. (2) Investigate the construction of the Ningaloo to Yardie Creek track to a Type 2 formed road. (3) Investigate the construction of the Coral Bay to Ningaloo track to Type 2 formed road.
Environmental and Planning Guidelines for Tourism Development on the North West Cape (1999)	The provision of a formed road from Coral Bay towards Yardie Creek and linking to Learmonth would provide the opportunity for traffic to avoid traversing the national park, thus reducing the number if road kills of native animals. The proposed tourism nodes should be sited well away from the coast with formed spur roads from the main north-south coastal road providing access to appropriate destinations. The provision of a Learmonth/Yardie Creek/Coral Bay road linkage would reduce the pressure for a permanent bridge, which would detract significantly from the amenity of the area and current visitor experience of the naturalness, quietness and solitude of Yardie Creek. On balance, the construction of a flexible sacrificial crossing near the mouth of the creek would be far more aesthetically and environmentally acceptable.			Access to and from tourism developments between Vlaming Head and Coral Bay should be via a formed road. Tourism nodes should be sited well away from the coast with formed spur roads from the main north-south coastal road providing access to appropriate destinations.

	Road over Cape Range		Coastal Road	
Document name	South of Yardie Creek	North of Yardie Creek	South of Gnaraloo Bay	North of Gnaraloo Bay
Gascoyne Regional Transport Strategy			Recognised that demand is increasing for improved access to the coast between Carnarvon and North West Cape via Coral Bay top facilitate access to sightseeing and fishing locations for the region's residents and tourists. Works recognised include construction and gravelling of Quobba to Gnaraloo Bay, but the Strategy also suggests that the Shire of Carnarvon examine reopening the Gnaraloo Warroora Road, and that subject to the provision of a crossing at Yardie Creek to connect Exmouth, this may become suitable for for two wheel drive access, providing a tourist loop road from the Carnarvon coast to the North West Cape and Exmouth. The construction of suitable access roads in defined road reserves will assist in controlling the current ad hoc camping and movement of vehicles along the coast. Prior to any commitment to construction, the demand for these roads must be assessed, and environmental concerns addressed.	
Roads 2020 Regional Road Development Strategy Gascoyne	The development of a sealed circuit road on the North West Cape needs further investigation. CALM's management plan signals the development of a link road between Shothole Canyon and Yardie Creek Road, emerging at Milyering. Preliminary studies by CALM indicate that a road out of Shothole Canyon would be difficult to achieve from an engineering and environmental perspective. Upgrading and extension of Charles Knife Road is considered more achievable and environmentally acceptable. Such a road would be a valuable tourism asset for the Exmouth area. In addition, the construction of a road over Cape Range from the Ningaloo coast to Murat Road suitable for standard passenger vehicles would significantly improve access to the coastal area as well as create a smaller ring road through the national park.		A need exists for road access to extend along the coast between Point Quobba, Ningaloo and Exmouth to assist tourism and service industry development planned for towns along the coast. Given the location of Lake MacLeod, the only option for developing better coastal access is the development of a good standard road near the coast linking the various facilities and places of interest. Proposes to develop sealed access from Point Quobba to Gnaraloo by initially constructing a formed gravel road (high), and then sealing (medium)	From Warroora, the road should link into the old Minilya Exmouth Road. The section from Warroora to Ningaloo is much closer to the North West Coastal Highway and the need for a road close to the coast in this are is less of a requirement. In particular, the route from Coral Bay to Ningaloo requires further investigation. From Ningaloo north, the coast is again separated from the North West Coastal Highway by a considerable distance, with the barrier of Cape Range in between. Development of the coastal road from Ningaloo north is the logical option for providing access into this area, as well as providing a loop for tourists travelling to Exmouth.
Future Directions (2003)			Access to coastal areas will be through the rationalisation of existing network of access and the realignment/formation of certain tracks where action is required to address prevent long-term environmental damage. Any new proposals would require detailed environmental assessment and would be supported only upon finalisation of the vesting and management of relevant coastal areas. The principle of remote and natural areas discourages sheeted or sealed roads (these areas were identified on the Consolidated Scenarios map)	

Appendix 2. Accommodation, camping and day visitor options north and south of Cape Range National Park (from *Future Directions: Sustainable Tourism and Land Use Scenarios for the Carnarvon – Ningaloo Coast*, WAPC 2003).

Site name	Day visitor	Camping	Secondary tourist node *	Primary tourist node#
Lighthouse Caravan park				√
Yardie Caravan park				√
Boat Harbour		√		
Doody's Camp/Sandy Point		√		
Winderabandi Point		√		
Lefroy Bay		√		
Point Billie	√			
Ningaloo			√	
Point Cloates/Jane Bay		√		
Bruboodjoo		√		
Lagoon/Dog Rock	√			
Oyster Bridge	√			
Cardabia			√	
14 Mile Camp		√		
Maggies		√		
Elles Camp		√		
Stevens Camp		√		
Warroora			√	
The Lagoon		√		
The Cove	√			
Gnaraloo Bay	√			
Gnaraloo			√	√
3 Mile			√	
Red Bluff			√	
Cape Cuvier Lookout	√			
Cape Cuvier	√			
Quobba			√	
The Blowholes	√			
Blowholes Settlement			√	√

*** Secondary tourist node:** Tourist centres catering for up to 200 visitors. These sites generally provide camping and may include some covered accommodation (covered accommodation is any form of accommodation under a permanent roof) with a local focus and character. Provision of supplies and services are limited.

 # Primary tourism node: Centres catering for up to 500 people, providing a range of visitor services and amenities and accommodation, camping utilities limited food and grocery facilities and, possibly, fuel.

WHAT FOLLOW-UP WOULD YOU LIKE?

(postal address or email only)

- ☐ Notification of details regarding community workshops, information nights and/or other specific opportunities to contribute.
- ☐ Notification of when the Cape Range Issues Paper has been prepared.
- ☐ A copy of the Framework Paper for Ningaloo Marine Park.
- ☐ Updates on management planning for the Department, including copies of the *Planning Diary* or *Marine Matters*.
- ☐ Notification of when the Draft Management Plan for Cape Range National Park is published.
- ☐ Notification of when the Draft Management Plan for Ningaloo Marine Park is published.
- ☐ Other (please specify including any other plans you may be interested in).

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If you would like to know more about the preparation of either plan, please contact Aberline Nix (Cape Range Planner) on 9334 0417 or by email (aberlinen@calm.wa.gov.au) or Stuart Field (Ningaloo Marine Park Planner) on 9336 0103 or by email (stuartf@calm.wa.gov.au).

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Management plans for Cape Range National Park, Ningaloo Marine Park and proposed conservation estate additions.

Have your say

Government of Western Australia

Conservation Commission WESTERN AUSTRALIA

Department of Conservation and Land Management — Conserving the nature of WA

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HAVE YOUR SAY

on the management plans for Cape Range National Park, Ningaloo Marine Park and proposed conservation estate additions

The Department of Conservation and Land Management, on behalf of the Conservation Commission of Western Australia and the Marine Parks and Reserves Authority, are in the process of preparing new management plans for Cape Range National Park, Ningaloo Marine Park and proposed conservation estate additions (Map 1).
The management plans will detail the purposes of the parks and how the Department will manage them in the long term.

Have Your Say
Public involvement in how these parks should be managed is an important part of the planning process and numerous opportunities will be provided for this to occur. You are invited to register your interest in the development of the management plans. In doing so, the Department can notify you of opportunities to contribute. All contributions are carefully considered and taken into account.

Although the details of the public participation process are yet to be finalised it may, for example, include community information sessions, workshops, public displays as well as submissions to the draft management plans. By providing your contact details we can inform you of events/opportunities as they arise and keep you up to date with our progress.

Progress can also be tracked by viewing our NatureBase website. Once completed, a copy of the issues paper for the area will be posted on the website, allowing you to to comment online. To do this visit: www.calm.wa.gov.au/national_ parks/ management/ index.html#management_plans

If you wish to register your interest, or register on behalf of a group or organisation, please complete the form on this brochure and post it to the address shown.

REGISTRATION OF INTEREST

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Organisation you represent (if any): .....

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..... Postcode: .....

Telephone: work: ..... home: .....

mobile: .....

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Any particular issues of interest or concern:

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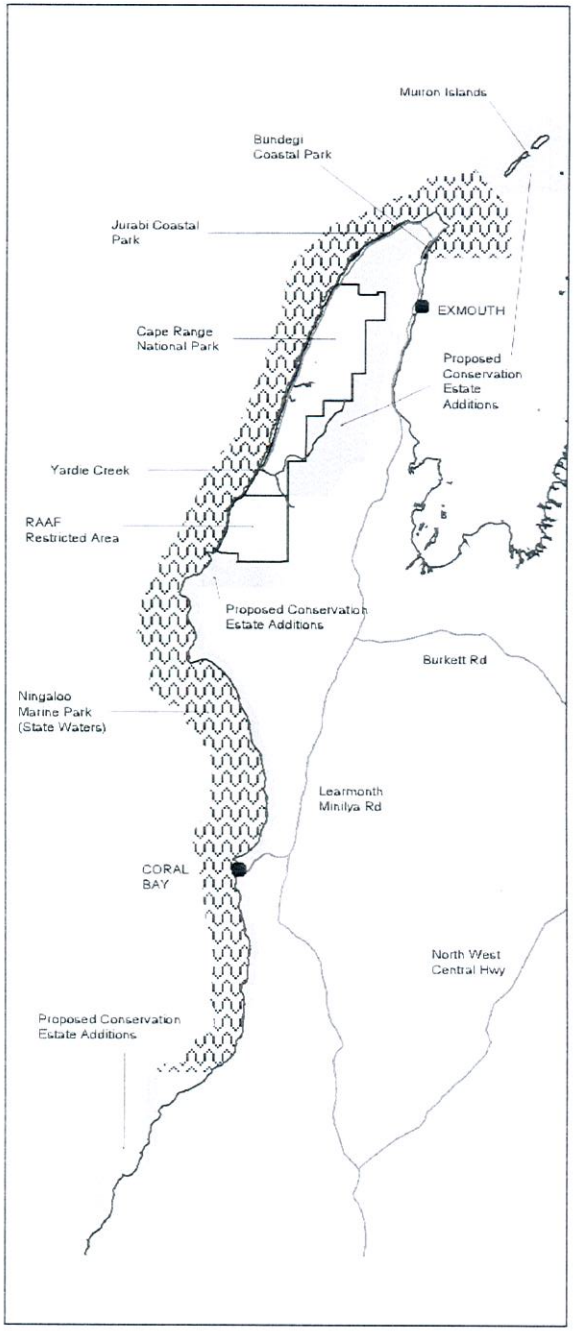
Map 1. Cape Range and Ningaloo planning areas



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Home: National Parks: Cape Range National Park

Cape Range National Park

If you want to enjoy spectacular rocky gorges, carved by ancient rivers, adjoining one of the most pristine and beautiful coastlines in the world, come to Cape Range. The area is well known for the striking contrast between the clear blue seas, coral reefs and sandy beaches of Ningaloo Marine Park, and the rugged scenery of Cape Range.
(See 'Range to Reef' feature.)

The Cape Range is the only elevated limestone range on the north-western coast of WA. The impressive weathered limestone range has plateaus of up to 314 metres high. It forms the spine of the peninsula that stretches up towards North West Cape in the Gascoyne region of Western Australia.

You can climb up deep rocky gorges to enjoy breathtaking scenery. One of many popular walks is a three-kilometre ramble through Mandu Mandu Gorge along the bed of an ancient river. As the summer heat is intense, walks should only be attempted between April and September. You can also view rock wallabies at Yardie Creek.

Beneath the rocky plateaus and canyons of the Cape Range National Park lies a network of hidden caves and tunnels. They harbour a unique collection of bizarre cave-dwelling animals: an ancient treasure trove of immense value to both science and nature conservation.

Mangrove Bay

The turn-off to Mangrove Bay is 8 kilometres north of the Milyering Visitor Centre on the Yardie Creek Road. A bird hide overlooks a shallow lagoon, just 100 metres along a boardwalk from the Mangrove Bay car park. Here you can take advantage of the shaded seating and spend as much time as you like studying the variety of birds, including seabirds and waders. Take

binoculars and a bird book with you and take precautions against mosquitoes.

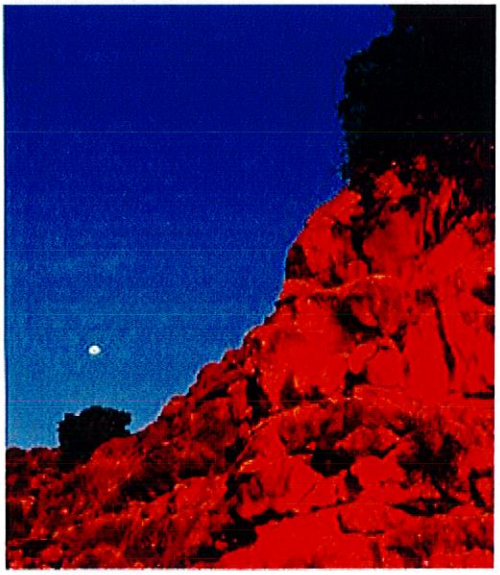
At Mangrove Bay there is also a fauna hide, 500 metres from the car park (20 minutes return). If you are quiet there is a good chance you may see kangaroos, galahs, emus, cockatoos and corellas at close quarters. The best times are early morning and late afternoon.

Yardie Creek

Yardie Creek is about 38 kilometres south of the Milyering Visitor Centre along the Yardie Creek Road. A 500 metre (½ hour return) walk meanders above the gorge's vertical red rock walls, overlooking Yardie Creek. It is initially an easy walk but becomes more difficult as you ascend the Range.

If you wish to add a further 1.5 kilometres (1½ hours return) to this walk, follow the track that leads from the end of the Yardie Creek walk. Remain on the northern side of the gorge so as not to disturb the black-footed rock-wallabies. Look closely and you may be able to spot these animals as they seek shelter on ledges along the southern cliff face, where they await evening before coming out to feed.

Mandu Mandu Gorge



The track to Mandu Mandu Gorge is 15 kilometres south of the Milyering Visitor Centre along the Yardie Creek Road. This trail is a 3 kilometre 2 hour return walk. It starts from the end of the Mandu Mandu track and follows the northern ridge of Mandu Mandu Gorge, offering splendid panoramic views of the gorge carved by an ancient river. Near the start of this route, the trail crosses a steep-sided creek, so please take care.

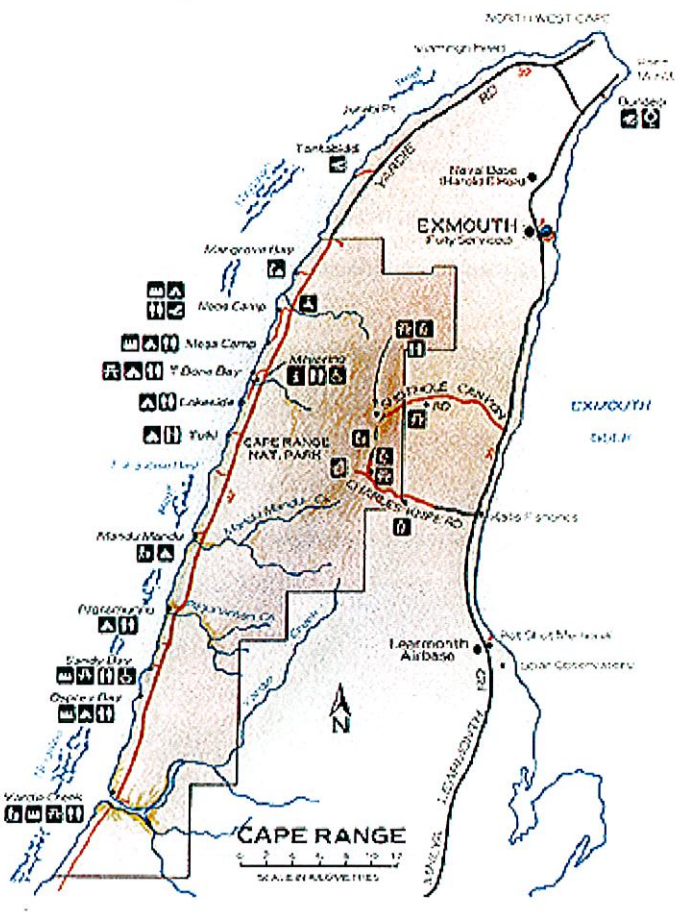
A variety of birds can be seen from the trail, which is marked by numbered metal posts with arrows on top, the last finishing in the gorge bed. From here, make your way along the base of the gorge through shady clumps of bloodwood trees back to the car park.

THINGS YOU NEED TO KNOW

Where is it?:
Lying

predominantly on the western side of North-West Cape Peninsula, Cape Range National Park protects an area of 50 581 hectares. The northern boundary of the park is 39 kilometres from Exmouth by road, and the southern boundary is 70 kilometres north of Coral Bay.

Travelling time:
The northern park boundary is 40 minutes from Exmouth, while the southern boundary is two hours along the coast from Coral Bay.



Click here to view large map.

Access:
The coastal attractions of the park can only be reached along the Yardie Road. Features on the eastern side of the Range can be reached via the Charles Knife and Shothole Canyon Road, which are south of Exmouth on the Minilya Learmonth Road.

Facilities:
There are a number of camping areas all along the stunning, white sandy coast, from Boat Harbour to Ned's Camp. Entry fees apply. Some areas are for day use only (see map). There are also picnic facilities and toilets at many sites. No campfires are allowed in the park - gas barbecues only. Exmouth and Coral Bay are fully serviced.

Best season:
April to September.

What to see and do:
Walking, photography, nature observation, birdwatching, picnicking, camping, canoeing, wildlife watching, swimming, snorkelling and diving.

Walking - When walking in the park wear a wide-brimmed hat, sunscreen

with a sun protection factor of 15+ and sturdy walking shoes and take plenty of drinking water with you (4 litres per person per day) as there is no water available in the range. Temperatures may be deceptively high, especially in the canyons. We advise you not to undertake the walks in summer. For your own safety please remain on existing tracks.

- **Badjirrajirra Route to Shothole Canyon**
  A 4 km one-way (1 hour) walk between Thomas Carter Lookout and ShotholeCanyon. You will need to organise a vehicle to meet you at the Shothole Canyon car park.
- **Shothole Canyon Route**
  A 250 metre (one hour) walk takes you from the Shothole Canyon car park to the lip of the canyon, returning along the same route. The trail up the side of the canyon is extremely steep and very narrow in some places, climbing 120 metres along the ridge.

Nearest CALM office:
The CALM District Office is located in Payne Street, Exmouth. Information Officers are situated at Milyering Visitor Centre, a useful source of information.

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