



by Sarah Comer and Emma Adams

The Recherche Archipelago

▪ a southern jewel



A recent terrestrial survey trip to this 250-kilometre-long collection of islands on the south coast uncovered some interesting finds.

Comprising 105 islands and more than 1,500 islets and 'obstacles to shipping', the Recherche Archipelago is a captivating feature of Western Australia's south coast marine environment. It stretches more than 250 kilometres from east to west and covers an area of about 9,700 hectares. The islands represent the eastern extent of the Albany Fraser Orogen—the granite-gneiss system of Archaean origin which extends along the south coast to the west of Albany—with some overlain by the younger Pleistocene calcareous eoliantie, or coastal limestone.

These islands have been isolated from the mainland for between 11,000 and 13,000 years, depending on their distance from the mainland and the characteristics of the surrounding ocean. As a result, each island is, in essence, its own natural laboratory, with the fauna and flora trapped as sea levels rose and then shaped by thousands of years of isolation.

Early exploration

Although first sighted by the Dutch explorer Pieter Nuyts in 1627, the Recherche Archipelago was not named by Europeans until 1792. It is named after *La Recherche*, one of the two

ships in the French expedition led by Rear-Admiral Bruny D'Entrecasteaux. Collections of plants made on this expedition by the botanist Jacques Julien Houton de Labillardière provided material for the first published descriptions of many Western Australian plants. In addition, the sighting of 'seals' by Labillardière was the first record of a mammal from the Recherche Archipelago, although the species of seal (or sea lion) and location of these records was not clear. In his journal, Labillardière also records several birds, thought to have been Cape Barren geese (*Cereopsis novaehollandiae grisea*), brush bronzewings (*Phaps elegans*), little penguins (*Endyptula minor*) and Pacific gulls (*Larus pacificus*).

The islands were surveyed in more detail in 1802 by Captain Matthew Flinders in the *Investigator*, with botanist Robert Brown adding to the flora

collections. Flinders also added to the records of mammals in the archipelago with his sightings of wallabies on Mondrain Island and Middle Island; the former are now known to be the endemic Recherche rock wallaby (*Petrogale lateralis hacketti*) and the latter tamar wallabies (*Macropus eugenii derbianus*).

In the ensuing years, the Recherche Archipelago attracted a large number of comprehensive surveys focused on documenting both terrestrial and marine species. These include the 1950 Australian Geographical Society survey which visited 20 of the islands and documented flora, fauna and invertebrates. Over the years, understanding of the outstanding biological and conservation values of the Recherche Archipelago has grown through the efforts of this and many other surveys (see 'Researching the Recherche', *LANDSCOPE*, Winter 2003).

Threatened species galore

The islands provide an important refuge for threatened species such as the Recherche rock wallaby, the black-flanked rock wallaby (*Petrogale lateralis lateralis*), the Recherche pygmy dugite (*Pseudonaja affinis tanneri*) and the Recherche Cape Barren goose. For the Cape Barren goose, the archipelago is the stronghold of the Western Australian subspecies. Island populations of species such as the quenda (*Isoodon obesulus fusciventer*), carpet python (*Morelia spilotes imbricata*), southern death adder (*Acanthopsis antarcticus*) and tamar wallaby are of enormous value for their genetic diversity, and the native rat (*Rattus fuscipes*) from Salisbury Island has been shown to be genetically distinct from individuals found elsewhere in the Recherche.



● Recherche Archipelago



Previous page

Main Sheltered Bay on Wickham Island.

Left View of the archipelago islands from North Twin Peak.

Photos – Sarah Comer/DEC



Many of the islands provide important breeding grounds for nesting seabirds, with at least 12 species recorded breeding in the archipelago. This includes the little penguin, great-winged petrel (*Pterodroma macroptera*), fleshy-footed shearwater (*Puffinus carneipes*), short-tailed shearwater (*P. tenuirostris*), little shearwater (*P. assimilis*), white-faced storm petrel (*Pelagodroma marina*) and black-faced shag (*Phalacrocorax fuscescens*). Shorebirds are also frequently seen on the islands, including many of the species listed under migratory agreements such as the Japan–Australia Migratory Bird Agreement (JAMBA) and China–Australia Migratory Bird Agreement (CAMBA). With the exception of fire, usually the result of lightning strikes, many of the threats facing mainland populations of these species are not present on the islands (see ‘Fire in the Arc’, *LANDSCOPE*, Spring 2004).

Inviting opportunities

Despite the long history of biological survey and exploration, there are still many opportunities for new discoveries in the Recherche Archipelago, with inventories of flora and fauna not compiled for many of the

Above Australian sea lions were one species monitored as part of the expeditions.

Photo – Sarah Comer/DEC

Above right DEC regional ecologist Sarah Comer with a little penguin.

Right The islands of the Recherche Archipelago are important habitats for the Recherche rock wallaby.

Photos – Emma Adams/DEC



islands. Opportunities to increase our knowledge are challenging, however; accessing islands from the water can be difficult, and the southern ocean often has hostile conditions.

In February 2011, a research expedition sailed from Esperance with the aim of continuing to document the biodiversity values of the islands in order to better understand their significance. This survey was made possible by a collaboration between the Department of Environment and Conservation (DEC) and Edith Cowan University, and included a terrestrial and marine (pinniped) survey team. The alliance therefore enabled further documentation of terrestrial flora and fauna, and provided an opportunity to

monitor breeding success in colonies of New Zealand fur seals (*Arctocephalus forsteri*) and Australian sea lions (*Neophoca cinerea*) (see ‘The long road to recovery’, *LANDSCOPE*, Summer 2011–12). The terrestrial, or land-based, team comprised the authors, volunteer Andy Chapman, DEC threatened flora officer Sarah Barrett, DEC regional leader nature conservation Deon Utber and DEC threatened species conservation officer Cameron Tiller. The team’s boat, the *Southern Conquest*, was skippered by Peter Hudson and his first mate Rayden Chambers.



The terrestrial team surveyed nine islands. One of the key projects was to compile flora inventories and collect and voucher specimens for the WA Herbarium, as most of the islands had few or no collections. Nearly 100 specimens from Daw, New Year, Cooper, Salisbury, Cranny, Taylor, Wickham, Glennie and North Twin Peak islands were collected, and these have been provided to the WA Herbarium to be included in the state's collection.

Daw Island, which covers 214 hectares, and New Year Island (21 hectares) were the first stops for the survey, with the team glad to have escaped the rolling seas for some harder ground. Daw Island is home to the only island population of the quenda, although only skeletons were seen on this trip. Cape Barren geese were found across the island and a number of invertebrates were collected including scorpions, spiders, pseudoscorpions

Top The Mart Island group consists of five islands up to 34 hectares in size.

Centre Recherche Cape Barren geese on Goose Island.

Photos – Emma Adams/DEC

Left Daw Island has the most significant island quenda population.

Photo – Jiri Lochman

Right South-western crevice skink.
Photo – Jiri Lochman

Below right Many islands in the Recherche Archipelago provide ideal breeding sites for the white-bellied sea eagle (*Haliaeetus leucogaster*).
Photo – Sarah Comer/DEC



and land snails. An oriental plover (*Charadrius veredus*) seen on New Year Island was an exciting find, and a new record for the island.

Despite being reasonably large, just less than 60 hectares, Cooper Island has no historical records of plants or vertebrates, except for being recognised as providing habitat for New Zealand fur seals and Australian sea lions. The terrestrial team was particularly excited by the opportunity to visit a previously unsurveyed island, and added a number of reptiles including the crowned snake (*Elapognathus coronatus*), the cream-striped fence skink (*Cryptoblepharus virgatus clarus*) and south-western crevice skink (*Egernia napoleonis*) and marbled gecko (*Christinus mamoratus*) to the inventory of reptiles for the islands. Large numbers of the migratory ruddy turnstone (*Arenaria interpres*) were seen, and Cape Barren geese were also observed in the low heath and herb fields that dominate the island.

Salisbury Island

To the south of Cooper Island lies Salisbury, a 350-hectare island lying more than 50 kilometres offshore, south of Cape Arid. While the vegetation communities on this island have been studied previously, no collections have been made from it. The island is home to large populations of New Zealand fur seals and black-flanked rock wallabies, and is an awe-inspiring site. Except for the northern peninsula and the southern peak, the island consists of a limestone plateau with steep cliffs. The remaining areas are composed of granitic rock, the southern peak reaching an elevation of 100 metres above sea level.

On limestone areas, the vegetation is low heath and dwarf scrub with dense mats of succulent plants occurring



throughout. On granite areas, the vegetation is dense heath dominated by coastal wattle (*Acacia cyclops*), *Leucopogon obovatus*, *Pimelea clavata*, common fringe-myrtle (*Calytrix tetragona*) and stands of wind-pruned dwarf albizia (*Paraserianthes lophantha*).

The island was last burnt in 1992 as the southernmost end is thought to have remained unburnt for more than 60 years. While no threatened flora species were recorded on Salisbury, information collected during the survey will provide important baseline data for monitoring the long-term recovery of flora cycles should another bushfire occur. The rock wallaby population counts on Salisbury from the recent trip are also important for monitoring, as this is the only island population of the mainland subspecies *Petrogale lateralis lateralis*. Recent work in the wheatbelt has

found that mainland populations of this rock wallaby are suffering a significant decline, highlighting the importance of the Salisbury Island refuge (see 'A new threat posed by foxes' on page 26).

Smelling a rat

Middle Island is the largest island in the archipelago, covering some 1,000 hectares. It also has the most colourful history, having been the base for the rogue sealer 'Black Jack' Anderson in the 1800s. Largely due to its accessibility and size, there have been numerous surveys of the fauna and flora (see 'A visit to Middle Island', *LANDSCOPE*, Spring 2006) as well as studies of the vegetation and the effects of fire, but there are still grey areas in our knowledge.

For example, there are historical records of both the native rat and the introduced black rat (*Rattus rattus*) on



Above The pink and hypersaline Lake Hillier on Middle Island.

*Photo - Col Roberts/Lochman
Transparencies*



Left Death adders blend into leaf litter and shelter under granite rocks so are often difficult to find.

Photo - Sarah Comer/DEC

the island. Clarifying which species is extant on the island has been an important question to resolve for management, with support for exotic rat eradication a focus for offshore island refuges. In 2008, a DEC *LANDSCOPE* Expeditions trip did not detect either native or black rats on Middle Island, despite extensive trapping. Interestingly, the native rat was recorded in high numbers on the

adjacent Goose, Wickham and Glennie islands for the first time.

During the February 2011 survey, the terrestrial team set hair traps on transects running across Middle Island in an attempt to solve the mystery of which rat was present on the island. Analysis of hairs collected some months later confirmed that there are no rats of either species present on Middle Island, supporting the trapping and searching

efforts of earlier trips. Searching back through the records, it was found that the record of native rats on the island was based on a single skull found in the 1970s and in a location frequented by birds of prey, and therefore there is a strong likelihood that this was carried from nearby Goose Island. Although the recent survey confirmed there are no rodents on the island, the reasons for their absence remains a mystery, especially given their presence on much smaller islands nearby.

Exciting finds

From Middle Island, the group headed west towards the small Taylor Island in Duke of Orléans Bay. This 22-hectare island also had previous records of the death adder, but the team was not fortunate enough to find one. They did observe two previously unrecorded reptiles, the crown snake and a skink, the common south-west



Above Spotted-thighed frog (*Litoria cyclorhyncha*) which is found in gnamma holes on Middle Island.
Photo - Sarah Comer/DEC

Above right Succulent steppe on Cooper Island.
Photo - Emma Adams/DEC

Right Common fringe-myrtle.
Photo - Jiri Lochman

ctenotus (*Ctenotus labillardieri*). Cape Barren geese were also seen on the western end of the island.

North Twin Peak Island is located about 10 kilometres offshore and is predominantly granite. Specimens had not been collected from the majority of the island since the 1970s except for a known population of a rare eucalypt which was the only known threatened species on the island before this trip. However, the poorly known *Acacia nitidula* was located on the southern end of the island. Known only from a few locations on the mainland and on one other island, this was a great find.

From North Twin Peak the group separated, pressured by deteriorating weather. Opportunities for the terrestrial group to access islands were diminishing and one half of the team

elected to depart the expedition at Duke of Orléans Bay. This early end to the trip highlighted the challenges of surveying this unique area; challenges that have been experienced and noted by many before.

Building knowledge

The recent expedition to the Archipelago of the Recherche certainly increased our knowledge and understanding of some of the islands, adding to the valuable inventory started by French explorers some 300 years ago. Populations of conservation-dependent fauna such as the black-flanked rock wallaby and Recherche Cape Barren goose appeared healthy, and a number of new records of flora and vertebrate fauna were made. In addition, a number of short-range endemic invertebrates were collected for identification by WA Museum staff.

Every time an expedition such as this takes place we also increase our awareness of the importance of maintaining these island laboratories for future generations. Management can remain relatively simple, with biosecurity a key to ensuring island ecological processes are maintained. For the Recherche—where the terrestrial flora and fauna remain relatively



intact—it is important to encourage hygiene protocols that minimise the chance of non-native flora and fauna being introduced, as these would most certainly damage the fragile habitats. Through these efforts, we can maintain this unique system of islands that is one of the outstanding nature reserves of the south coast.



Sarah Comer is the Department of Environment and Conservation's (DEC's) south coast regional ecologist. She can be contacted on (08) 9842 4513 or by email (sarah.comer@dec.wa.gov.au).

Emma Adams is DEC's flora conservation officer for the south coast region. She can be contacted on (08) 9083 2113 or by email (emma.adams@dec.wa.gov.au).

- 44 Looking after country
The landscape-scale Kimberley Science and Conservation Strategy is being implemented thanks to a number of important partnerships.
- 52 Life on the edge: intertidal reefs of the Marmion and Shoalwater Islands marine parks
A study is being carried out into algae and invertebrate communities on intertidal reefs in two important Perth marine parks.
- 58 What's in a name?
Aboriginal names feature commonly in the names of south-west plants and animals but that's not the case for south-west birds.

Regulars

- 3 Contributors and Editor's letter
- 15 Bookmarks
The Michael Morcombe eGuide to Australian birds
Australasian nature photography
Deepsea Whale Rescue
- 24 Feature park
Nambung National Park
- 51 Endangered
Rare banksia and eucalypt woodlands of the Swan Coastal Plain
- 62 Urban Antics
Life's a beach

Publishing credits

Executive editor Madeleine Clews.

Editors Rhianna King, Joanna Moore.

Scientific/technical advice Alan Kendrick, Lachie McCaw, Keith Morris, Shaun Wilson, Kevin Thiele.

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Illustration Gooitzen van der Meer.

Cartography Promaco Geodraft.

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Phone (08) 9334 0296 or fax (08) 9334 0432.

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