Faure Island: a shorebird haven

by Suzanne Mather

Members of Birds Australia recently took a trip to Faure Island in the Shark Bay World Heritage Area. It was their third such visit to the Australian Wildlife Conservancy sanctuary, to conduct surveys of shorebird species presence and abundance.

On our first trip to Faure Island in 2008, we realised it was going to be a great week when we were greeted at the Denham airport by a southern scrub-robin (*Drymodes brunneopygia*). Seven members of Birds Australia (BA) had gathered *en route* to Faure Island, an Australian Wildlife Conservancy (AWC) sanctuary. We had a triple purpose for our initial survey of the island's avian species: to contribute valuable data from a little-known island to the BA Shorebird 2020 project; to confirm shorebird species presence and abundance for AWC; and to conduct BA Atlas surveys. BA Western Australia and AWC have an agreement to undertake surveys at the organisation's four south-west sanctuaries: Faure Island, Paruna, Karakamia and Mount Gibson. Consequently, the Faure Island survey was carried out in November 2008, September 2009 and October 2010.

Flying in a six-seater Cessna over Disappointment Reach in Shark Bay, we were transfixed by the turquoise blue sea, white sand, red sand dunes and cliffs climbing out of this shallow channel-streaked body of water. The wedge-tailed eagle (*Aquila audax*) cruising along beneath the plane added to the excitement.

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Main Pied cormorants in the mangrove rookery.

Left The Tadpole, a tidal creek with mudflats—an ideal foraging ground for shorebirds.

Below Pied cormorants in the mangrove rookery at the Tadpole, with samphire along the creek line.
Photos – Wayne Lawler/AWC

Shark Bay is more than 250 kilometres long and, in parts, more than 110 kilometres wide. The north-facing bay is marked by low elongated prongs extending into the mostly shallow water, with tidal flats often exposed at low tide. The 6,000-hectare Faure Island, within the Shark Bay World Heritage Area and surrounded by Shark Bay Marine Park, is only 26 metres above sea level at its highest point.

The vegetation of low acacia shrubland is dominated by *Acacia ramulosa* and *A. tetragonophylla* on undulating red sand plains interspersed with birridas (claypans) surrounded by low succulent shrublands in the lower areas. Coastal white and red sand dunes are dominated by *Spinifex longifolius* grasslands and mangrove communities of *Avicennia marina* are found scattered along the east, west and north coasts. Apart from small stands in the Houtman Abroholos Islands and Bunbury, these are the southernmost mangroves in WA. Unfortunately, buffel grass (*Cenchrus ciliaris*)—introduced during the island's pastoral history—

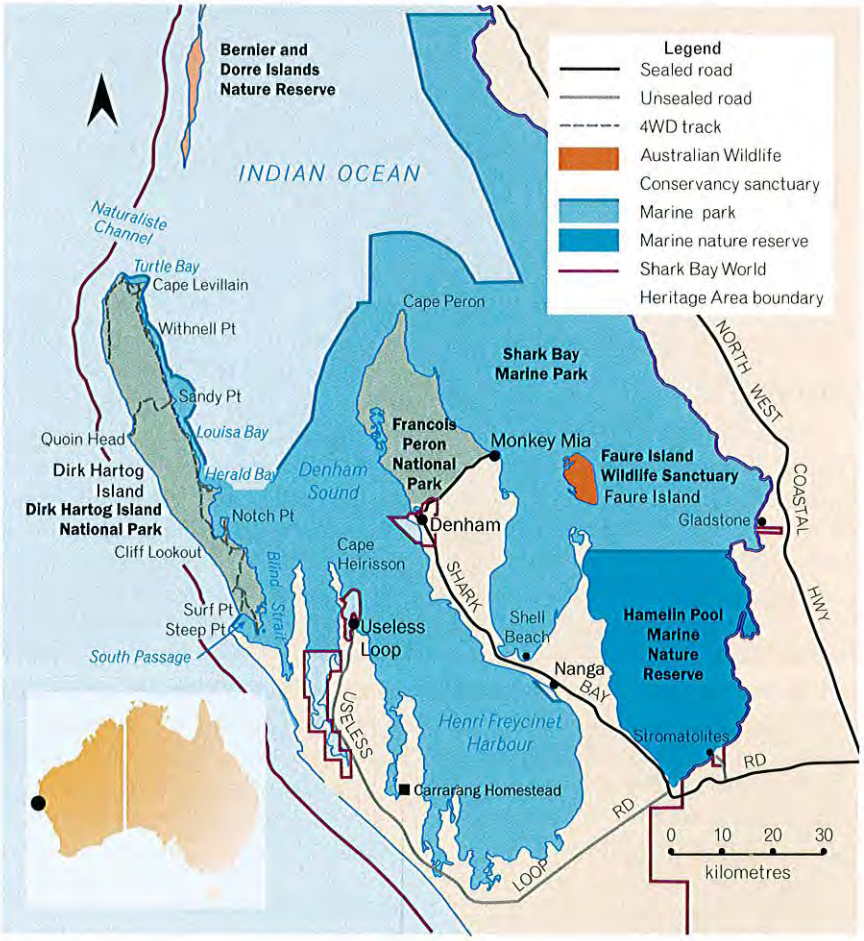
Right Dunes occur along the coastline of Faure Island.
Photo – Wayne Lawler/AWC

dominates some areas, particularly in the south. The area has a semi-arid to arid climate, which means hot dry summers and mild winters with an average annual rainfall of 222 millimetres per year, mostly falling in winter though occasionally a summer cyclone hits the area.

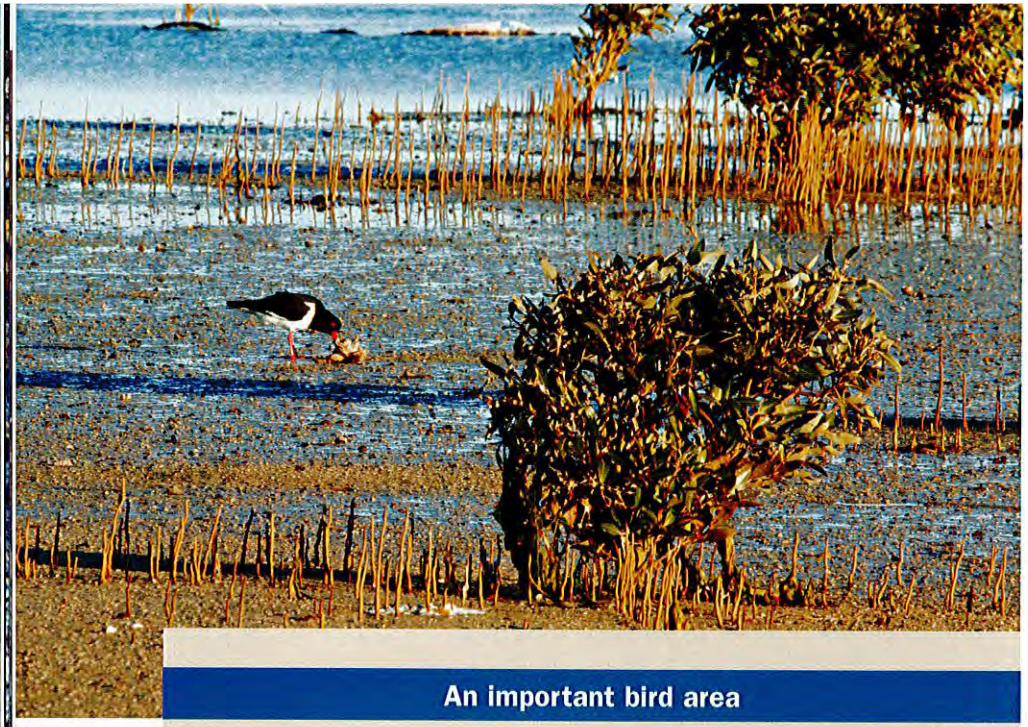
AWC and Faure Island

AWC, founded by Perth businessman Martin Copley and based in Perth WA, is committed to the effective conservation of all Australian animal species and the habitats in which they live. It is an independent not-for-profit body and undertakes scientific research in collaboration with other organisations. AWC currently owns 22 sanctuaries covering more than 2.6 million hectares, capturing a wide variety of ecosystems including tropical Queensland rainforests, arid inland deserts, savannas of the Kimberley, tall forests of the south-west and the serpentine coastal habitats of the Gulf of Carpentaria. More than 90 per cent of the organisation's annual expenditure is on conservation programs including land acquisition.

Faure Island was one of these acquisitions—purchased in 1999 after a long history as a pastoral lease for sheep and angora goats (see 'Return to Faure Island', *LANDSCOPE*, Autumn 2007). Preparing the island for the change to a sanctuary for threatened species required some work. More than 3,400 sheep and goats were removed and feral cats were eradicated. A biological survey involving a number of agencies was carried out in 2000 to help provide a sound knowledge base and determine the suitability of the island habitats for the reintroduction of threatened species. Species introduced to date include the Shark Bay mouse (*Pseudomys fieldi*), boodie (*Bettongia lesueur*), banded hare-wallaby (*Lagostrophus fasciatus*), western barred bandicoot (*Perameles bougainville*) and greater stick-nest rat (*Leporillus conditor*). These animals were either confirmed to have previously occurred on Faure Island based on fossil evidence, or to have occurred in the region in similar habitats to those found on the island. Biannual surveys of the translocated animals have shown that the boodies are thriving, and that the Shark Bay mice and western barred bandicoots have established self-sustaining populations. Walking the beaches and driving the tracks, we were amazed at the network of Australian mammal tracks. And not a cat paw-print to be found.



While there was a bird list for Faure Island—garnered in the initial biological survey in 2000, and subsequently added to with incidental sightings—there had been no comprehensive survey or census of shorebirds. What was needed



An important bird area

Faure Island has been listed internationally by Birdlife International and Birds Australia as an 'Important Bird Area'—identifying it as a priority place for bird conservation. The listing of Faure Island is based on it supporting the threatened fairy tern (*Sterna nereis*), and the presence of more than one per cent of the world populations of the Australian pied oystercatcher (*Haematopus longirostris*) and red-necked stint (*Calidris ruficollis*)—Birdlife International's recognised threshold for one or more congregatory species.

Above Red-necked stint.
Photo – Rob Drummond/Lochman Transparencies

Above left A pied oystercatcher foraging at low tide in the mangrove mud flats.
Photo – Wayne Lawler/AWC

was a baseline list of bird species present on the island and figures on their abundance, especially of shorebirds.

Surveying

Walking, telescope-laden, along the shoreline nearing high tide as abundant small sharks swam a metre or two from the water's edge—apparently following us—we were reminded of the origins of the name for these waters. William Dampier named Shark Bay in 1699 after his protein-starved sailors caught an 11-foot tiger shark (*Galeocerdo cuvier*) as well as seeing many more in the biologically rich waters of the bay.

There are three important shore habitats on Faure Island—the intertidal flats, the shallow lagoons and the mangroves. In addition to this are the many shallow areas of sand flats and nutrient-providing seagrass beds around Shark Bay. The bay continues to be an important and rich area for fish as well as shorebirds.

Surveying the shoreline involved dividing it up into sections and, working in pairs, identifying and counting shorebirds at each high tide over four days. Each team was equipped with telescopes, binoculars, radios and a GPS. To everyone's excitement, it quickly became apparent that the island is an important site for shorebirds, particularly those species that migrate here from the northern hemisphere in their non-breeding season. The presence of species not listed on the BA Shorebird 2020 list was also noted.

In order to survey the terrestrial species (bush birds) on Faure Island we also undertook the standard Birds Australia Atlas two-hectare 20-minute survey method at 16 additional non-coastal sites. These sites were selected to cover the major vegetation types found on the island. This method records the presence or absence, and breeding evidence, of birds. Data are then added to a national database, which began in 1998 and is accessible through the BA website.

Shorebirds abound

Shorebird surveys before those described here either had not been ground surveys or had been carried out at a time of year when the trans-equatorial migratory species would not be expected on the island. The comprehensive Royal Australasian Ornithologists Union waterbird survey of Shark Bay in October 1987 counted 27,900 birds, of which 54 per cent were shorebirds. However, because of weather constraints, Faure Island was only surveyed from the air—so many shorebirds in the extensive mangrove areas may have been missed. It was noted that Faure Island and the surrounding tidal flats might be the most important area for migratory shorebirds in the bay. The results of these new surveys certainly confirmed this.

The total shorebird number recorded was an amazing 8,442 birds in 2008 and 5,395 in 2009 from 35 species in both counts, and 9,654 in 2010 from 40 species. The abundance figures for migratory shorebirds or wader species that migrate to breed in the northern hemisphere were 5,058 in 2008, 3,265 in 2009 and 7,202 in 2010. Thus, Faure Island may be an important feeding site in its own right and a significant stopover for a group of birds that disperses widely in Australia in non-breeding time.

The migratory wader species recorded during the November 2008, September 2009 and October 2010 surveys included the Pacific golden plover (*Pluvialis fulva*), black-tailed godwit (*Limosa limosa*), ruddy turnstone (*Arenaria interpres*), sanderling (*Calidris alba*) and sharp-tailed sandpiper (*C. acuminata*). The terek (*Xenus cinereus*), common (*Actitis hypoleucos*) and marsh

(*Tringa stagnatilis*) sandpipers were also recorded, along with the great knot (*C. tenuirostris*) and red knot (*C. canutus*). The pectoral sandpiper (*C. melanotos*) and long-toed stint (*C. subminuta*) were recorded in low numbers, with just one pectoral sandpiper spotted in the 2009 surveys and eight long-toed stints recorded in November 2008.

Species that favour tidal flats were found in significant numbers, such as the lesser and greater sand plovers (*Charadrius ruficapillus* and *C. mongolus*), bar-tailed godwit (*Limosa lapponica*), grey-tailed tattler (*Heteroscelus brevipes*), common greenshank (*Tringa nebularia*) and red-necked stint (*C. ruficollis*). Mangrove stands are a favoured habitat for the whimbrel (*Numenius phaeopus*) and eastern curlew (*N. madagascariensis*). Shark Bay is internationally important for the eastern curlew and nationally important for the common greenshank (*Tringa nebularia*) and grey plover (*Pluvialis squatarola*). Many of the species in this group of birds were displaying traces of breeding plumage, suggesting a recent arrival in Australia.

Ramsar staging thresholds

It is possible to compare the results of these surveys with the sixth criterion of the Ramsar Convention—an intergovernmental treaty which aims to provide the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources (see 'Western Australia's Ramsar wetlands', *LANDSCOPE*, Autumn 2011). This criterion says that a wetland should be considered internationally important if it regularly supports one per cent of individuals in the global population of one waterbird species. Faure Island appears to be an important regular feeding area for particular migratory shorebirds. This is certainly the case for the bar-tailed godwit and the red-necked stint, for which numbers much greater than these thresholds were recorded. The threshold number for the bar-tailed godwit is 812, while 1,087, 855 and 2,009 birds were recorded in the 2008, 2009 and 2010 surveys respectively. For red-necked stints, the numbers were 2,911, 1,683 and 3,228 for the corresponding years, compared with the Ramsar staging threshold for this species of 813. Many other species

Right High numbers of red-capped plover were recorded.

Below The numbers of eastern curlew suggest that the island is an important non-breeding site for this species.
Photos – Wayne Lawler/AWC

Above Great egrets settling at the Tadpole as the incoming tide floods through the samphire.

Below Faure Island coastline.
Photos – Wayne Lawler/AWC

were also recorded at least once in numbers above their Ramsar staging threshold.

Opportunistic records of migratory wader presence and abundance made during the winter months—when breeding birds would be expected to have left Australia—suggest that this area is also an important site for non-breeding birds. For example, species such as the bar-tailed godwit, eastern curlew, common greenshank, red-necked stint and sharp-tailed sandpiper were recorded during surveys carried out by AWC staff and volunteers in May 2002 and July 2002.

Why so significant?

What is it about this small area of Shark Bay that enables it to support the observed number of shorebirds? These trans-equatorial migratory waders arrive in Australia after their long flight with very few stopovers through the Asian flyway. They are hungry and the marine habitat of the area provides much-needed food and protection.

Shark Bay has many shallow areas, sand flats and seagrass beds. Surrounding waters have varying levels of salinity, largely depending on depth and distance from the open ocean. This is reflected in the abundant and diverse bottom-dwelling invertebrate fauna, including 218 bivalve mollusc species, which are dependent on the level of salinity, the mangroves and the tidal flow. In contrast, there is not the abundance and species richness on the southern coastline of the island. The Faure Sill creates a different marine environment to the south of the island in the form of a landlocked hypersaline marine basin.

Additionally, the shoreline of Faure Island is relatively undisturbed and provides a rare opportunity for the birds to feed away from human impacts. Undisturbed foraging grounds have become increasingly important as China, North and South Korea reclaim large areas of mud flats in the Yellow Sea—where many of these birds live and feed during other times of the year. It is also possible to make much more accurate estimations of shorebird numbers over time when the human variable is absent.

The transition of animal occupation from sheep, goats and cats to Australian native fauna has had measurable positive effects on the land and its flora. With the resulting increased plant cover, water and nutrient run-off from the island is also reduced. And many species benefit in addition to shorebirds—we saw numerous seed-eating birds, raptor species and mangrove-dwelling birds, despite the history of cat presence.

For us BA volunteers, these visits are fantastic—providing the chance to discover a new shorebird-rich area and explore an island that is relatively inaccessible to the public. The field trips also provide the warm satisfaction of knowing that we have made a valuable contribution to another not-for-profit environmental organisation.

Suzanne Mather is a volunteer with Birds Australia and is currently the chairwoman of the Western Australian Group. She can be contacted by email (mail@birdswa.com.au).

Birds Australia is a national organisation working for the conservation and protection of Australia's native birds and their habitats. For more information visit www.birdsaustralia.com.au.

The Australian Wildlife Conservancy establishes and manages wildlife sanctuaries in areas of high conservation value around Australia. For more information visit www.australianwildlife.org.

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