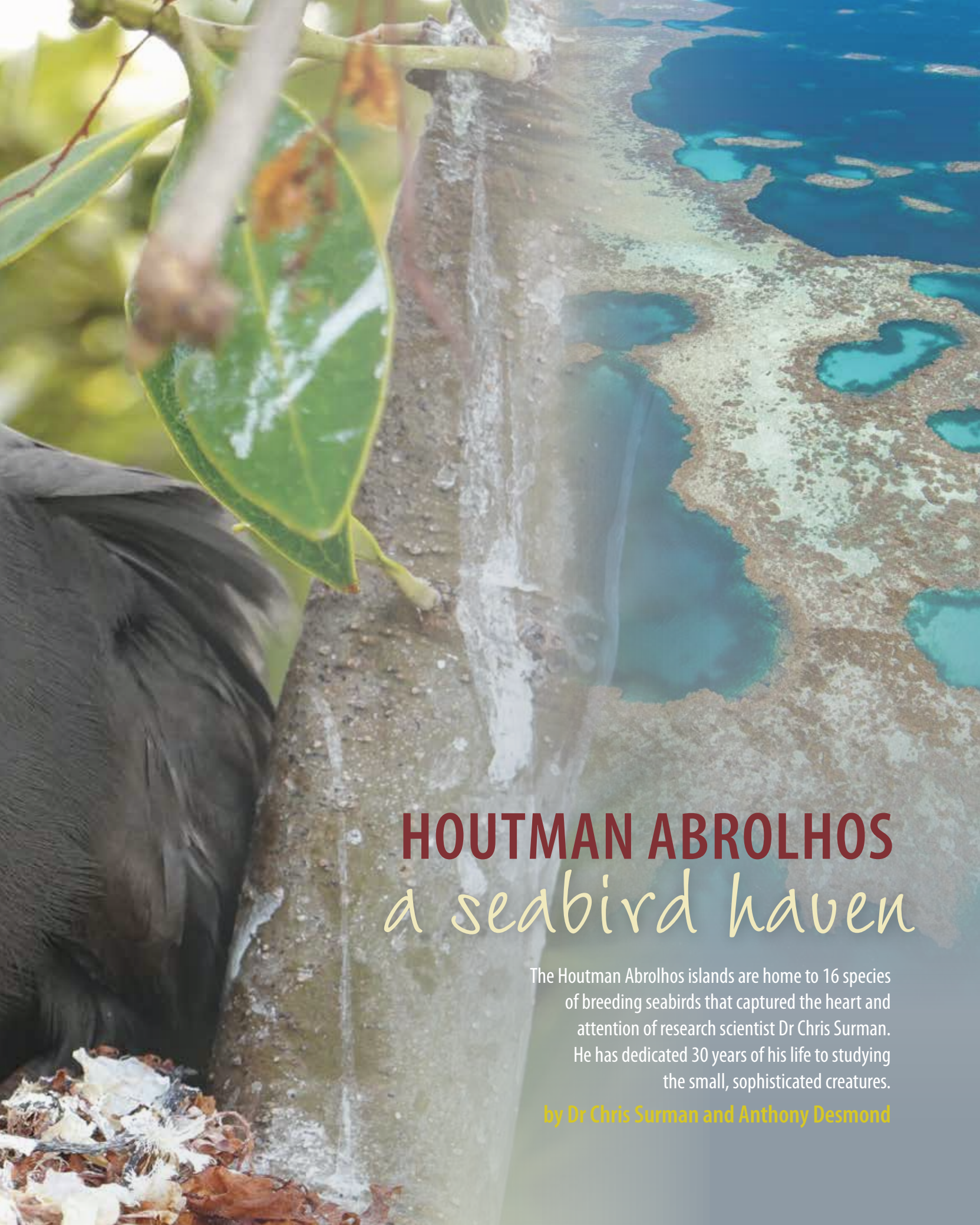
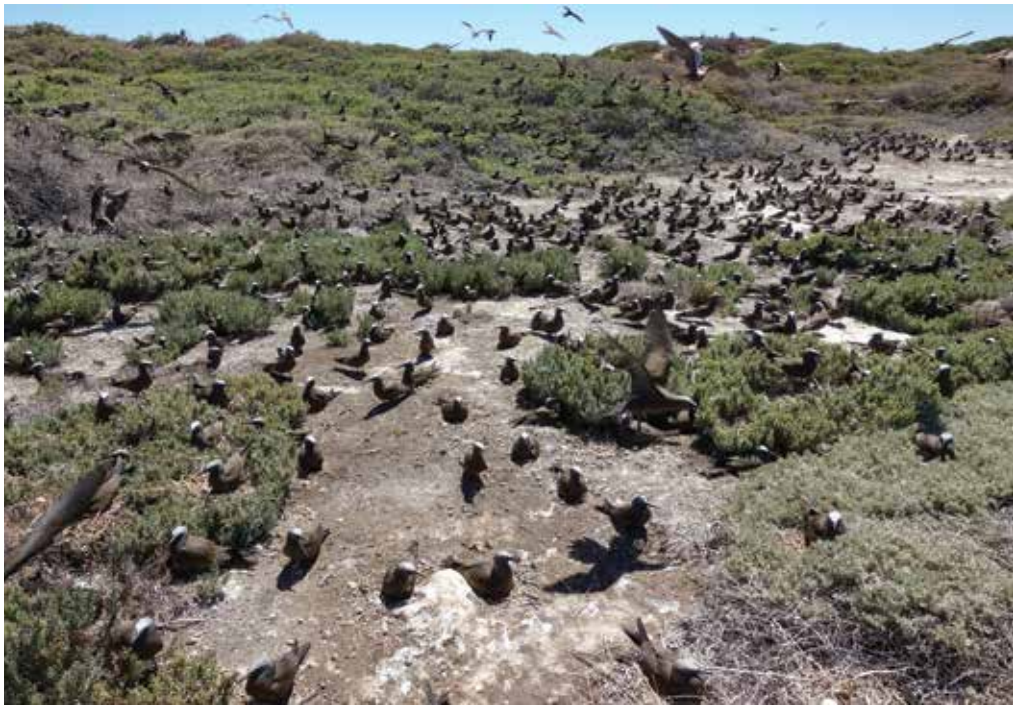


HOUTMAN ABROLHOS
a seabird haven

The Houtman Abrolhos islands are home to 16 species of breeding seabirds that captured the heart and attention of research scientist Dr Chris Surman. He has dedicated 30 years of his life to studying the small, sophisticated creatures.

by Dr Chris Surman and Anthony Desmond



It is 1980. Chris Surman is paddling with his friend on their tiny driftwood raft out over the indigo blue of the drop off, where they were both in awe of the ocean's depth and the fragility of their flimsy raft. It was too long before they retreated to the shallows and continued to paddle across the brightly coloured *Acropora* reefs.

Fast forward 11 years to 1991 and Chris found himself undertaking an Honours degree in Biological Sciences at Murdoch University, studying the threatened lesser noddy (*Anous tenuirostris*), a seabird species that breeds on three islands at the Houtman Abrolhos and at the Seychelles.

LEARNING CURVE

Chris is still drawn to the islands each breeding season and is still following some of the same birds he banded in 1991.

Our entire understanding of seabird demography has changed in the past 30 years and Chris is now enjoying collaborating with his childhood friend Anthony Desmond, who's a nature conservation regional leader with DBCA's Parks and Wildlife Service, on numerous studies of albatrosses, petrels, terns and gulls.

These are sophisticated creatures, that are tied both to their breeding mates and to their nesting sites. They raise few young but live for an extraordinarily long time, which exposes them to a lot of risks.

Back in 1991, Chris simply studied what the birds were eating. Today, through the use of tiny, 1.6-gram nano GPS trackers, we now know some species, such as the tiny lesser noddy, can forage far offshore and fly up to 130 kilometres one way while the other bird of the pair incubates the egg.

There, among a feeding frenzy of wedge-tailed shearwaters (*Ardenna pacificus*), brown noddies (*Anous stolidus*) and sooty terns (*Onychoprion fuscatus*), lesser noddies dip for translucent fish prey pushed to the surface by yellowfin and skipjack tunas, before returning at dusk to their nest site. A single return trip

My island home

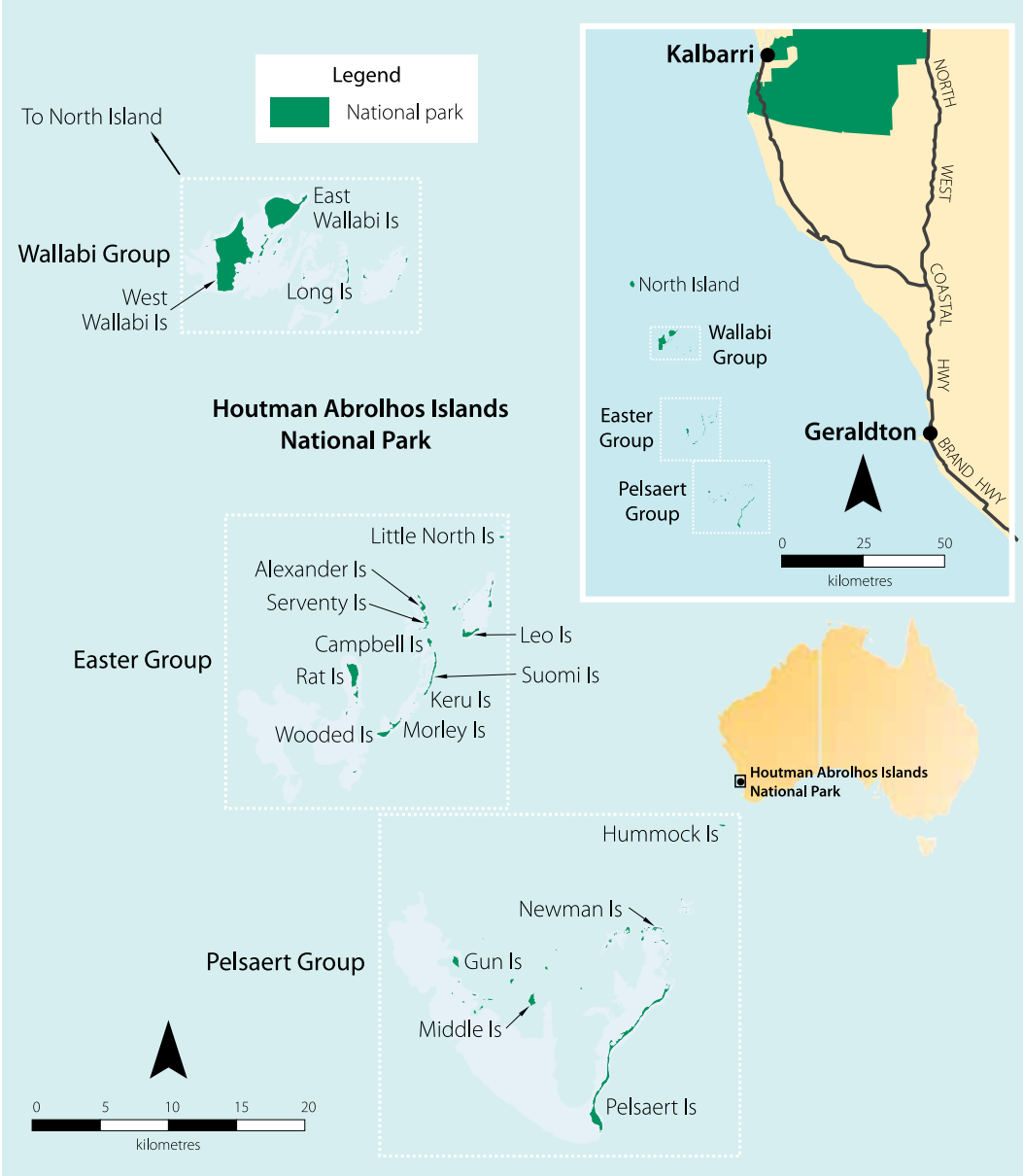
The southernmost coral reef system in the Indian Ocean, the Houtman Abrolhos islands are the result of the violent action of swell, wind, currents and time. Built upon a plateau of ancient coral reefs, today's Houtman Abrolhos islands continue to evolve with the ever-increasing change in sea levels.

The Houtman Abrolhos islands, now one of Western Australia's newest national parks, are home to 16 species of breeding seabirds, including the threatened lesser noddy. Over a million pairs of seabirds breed at the Houtman Abrolhos islands on 148 of the 195 islands (76 per cent). Some, like the brown noddy, nest only at Pelsaert Island. In contrast, the bridled tern nests on at least 90 islands. It is also a stronghold for two marine raptors - the eastern osprey and the white-bellied sea eagle.

Previous page
Main A pair of threatened lesser noddies shelter their newly hatched chick.
Right Aerial of coal reef at Houtman Abrolhos Islands National Park.

Above Pairs of brown noddies nest on Pelsaert Island, among clay pans and *Nitraria* bushes.

Left The southern tip of Pelsaert Island where nearly a million seabirds from 16 species nest.
Photos – Dr Chris Surman



may cover 250 kilometres over a 16-hour period.

Chicks may be fed as much as 14 grams a day, equivalent to feeding your teenager 10 kilograms of food a day. To find their larval fish prey, lesser noddy adults commute 35 kilometres offshore to reach the feeding grounds when raising chicks. However, when incubating an egg, they may extend their foraging range to at least 250 kilometres south-west of the Houtman Abrolhos islands and spend 15 hours searching for food.

Top The largest populations of wedge-tailed shearwaters in the Indian Ocean nest and dive for fish at the Houtman Abrolhos.

Above A crested tern (*Thalasseus bergii*) returns to the colony with a beak full of slender sprat.

Right Two volunteers deploying trackers on a sooty tern on Pelsaert Island.
Photos – Dr Chris Surman

Listen to more about this seabird study

Scan this QR code or visit Parks and Wildlife Service's podcast.

Visiting the islands

Houtman Abrolhos Islands National Park is located 60 kilometres off the Geraldton coast and is managed by DBCA's Parks and Wildlife Service. Seabirds nest on 148 of the 195 islands, mostly during the spring/summer period. Key seabird breeding sites are Pelsaert, Wooded and Morley islands, where the threatened lesser noddy breeds. Visitors can do day trips by flying or boating to the islands with various charter operators from Geraldton. Longer five-day trips are also available from commercial operators. Dr Surman also runs a research project that often requires field volunteers for extended survey trips.

The Geraldton Museum has spectacular displays on the islands' natural and human history, and tours are available and can be booked via visitgeraldton.com.au

Our recent tracking data has also revealed the energetic demands upon breeding seabirds. To raise a single chick, each lesser noddy parent would have flown at least 2800 kilometres to and from the foraging grounds, often against 30 knot southerly winds.

SEACHANGE

Sea levels during the past Holocene period created the perfect breeding grounds close to incredibly rich foraging fields. Seabirds at the Houtman Abrolhos Islands have since adapted to and modified this iconic haven. They have also changed the landscape.

Seabirds subsidise nutrient inputs into the terrestrial and adjacent coral reef systems by depositing nitrogen-rich guano (bird droppings) full of fishy nutrients sourced far out at sea. This extra nitrogen favours some vegetation types over others, and run-off from seabird rookeries, especially those in the mangroves, then filters into the corals themselves and is thought to contribute to coral nitrogen requirements.

Wedge-tailed shearwaters excavate their massive two-metre long burrows each season, kicking out tonnes of sand with their powerful feet, mixing this with their guano and the remains of dead eggs and chicks over years of breeding, enriching the soils. As dusk falls, their eerie, mournful calls haunt the rookery, as they call to their mates and neighbours.

GO WITH THE FLOW

Each year, the seabird breeding schedule shifts because of events that have occurred thousands of kilometres away in the Pacific Ocean. El Niño and La Niña events change the flow of the ocean and ultimately the delivery of larval fish prey to breeding seabirds.

During the strong El Niño event of 1997, larval fishes were so far offshore the seabirds deferred breeding. Eventually

Above A colour-banded lesser noddy incubates its egg.

Above right A bridled tern (*Onychoprion anaethetus*) at its nest among salt bushes on Beacon Island.

Left Lesser noddies nest among the branches of the white mangrove.
Photos – Dr Chris Surman

in December, breeding commenced but sadly by the time the chicks hatched, most parents were unable to provide the nestlings with enough food, and chicks died off across the colony.

In late 2020, a La Niña event occurred, resulting in one of the earliest and most productive starts to the seabird breeding season in the past 30 years. It is a delight to sit and watch lesser noddies flying into their mangrove colonies carrying long fronds of sargassum seaweeds with which to decorate their elaborate tree nests.

UNDER PRESSURE

Seabird populations around the globe are under enormous pressures; in fact one study estimated that seabird populations have declined by 70 per cent in the past 50 years. Much of this is due to human development, overfishing and plastic pollution in our oceans.

Interestingly, at the Houtman Abrolhos islands, seabird nests reflect the state of our seas with the material used in their nest building. While seabirds are not renowned for nest building, almost every species we studied decorates their nest or nest scrape (often just a bare patch of ground with a depression) with sea drift objects that now include hard plastics, rope and pieces of fishing net.

However, we must remain problem solvers, and the data gained from research projects such as this one help guide us as custodians, to seek to lessen our anthropomorphic impacts upon this wondrous place for breeding seabirds.

The Houtman Abrolhos islands are a truly remarkable opalescent gem, perched at the edge of the continental shelf that we need to ensure remains a safe haven for these remarkable seabirds.

Top left Fledgling wedge-tailed shearwaters prepare for flight.

Top A well-camouflaged roseate tern (*Sterna dougallii*) chick.

Above Sooty terns take to the air over Pelsaert Island.

Below Dr Surman monitoring brown noddy nests at a site he established in 1991.
Photos – Dr Chris Surman

Dr Chris Surman is a marine ecologist, photographer and author. He can be contacted at halfmoon.biosciences@westnet.com.au

Anthony Desmond is regional leader nature conservation with DBCA's Parks and Wildlife Service. He can be contacted at anthony.desmond@dbca.wa.gov.au or (08) 9964 0901

Dr Chris Surman's book Houtman Abrolhos: A natural history *is available to purchase from the Halfmoon Biosciences website halfmoonbiosciences.com and is reviewed on page 43*