SUBANTARCTIC SKUAS *in trouble?*

The large skuas (formerly placed in the genus *Catharacta*) are aggressive, versatile predators and scavengers – rather like gulls on steroids. It thus seems unlikely that, in the absence of direct persecution, their populations are going to be threatened. However, a recent study has reported that in the Falklands, the New Island population of Subantarctic Skuas decreased by almost half over the past five years (Catry et al. 2011, *Polar Biology*).

This is worrying, given that New Island supports the largest colony of *Stercorarius antarctica antarctica*, the subspecies that is endemic to the Falklands/Malvinas Islands. Its decrease on New Island appears to have been driven by low breeding success. Over the past seven years, skuas on New Island have raised only 0.34 chicks per breeding attempt, whereas healthy populations average closer to one chick per pair per year.

The failure of young birds to recruit to the breeding population is further supported by the virtual lack of skua 'clubs' on New Island. In healthy populations, the strong competition for territories forces many potential breeders to hang around the periphery of colonies in 'clubs'. A number of studies have shown that the absence of skua clubs is indicative of shrinking populations.

The decrease in skuas on New Island comes shortly after it was reported that the skua population on Marion Island has more than halved during the past two decades (Ryan et al. 2009, *Afr. J. Mar. Sci.* 31: 431–437). Interestingly, the decrease on Marion Island doesn't appear to have occurred on nearby Prince Edward Island, suggesting that the problem affecting the skuas is local rather than regional. In 2008, the ratio of club birds to breeding birds was much higher on Prince Edward Island (1.1) than on Marion Island (0.4), further indicating cause for concern about the latter population.

Research is currently under way to assess the causes of the decrease in skuas on Marion Island. It is tempting to speculate that differences in the abundance of burrowing petrels, the main prey of Subantarctic Skuas at most colonies, account for the different population trajectories at the two islands. Marion Island has far fewer burrowing petrels than neighbouring Prince Edward Island, thanks to the depredations of feral cats that roamed the island from 1950 to 1990. However, most of the measured decrease in skua numbers has occurred since cats were eradicated more than two decades ago, so other factors may be involved in the birds' poor performance on Marion Island.

There is no evidence that the decrease in skua numbers on New Island results from a shortage of food. Breeding skuas feed mainly on the island's large population of Slender-billed Prions, which appears to hold its own on the island despite predation by the skuas, Striated Caracaras and a seemingly deadly combination of introduced mammals (cats, rats and mice; see Catry et al. 2007, *Polar Biology* 30: 391–394). One possible reason for the poor breeding success on New Island is the growing population of Striated Caracaras. These raptors are known to eat skua eggs and chicks, and to steal the skuas' prey.

Further studies are needed to assess whether skua numbers are falling at other colonies in the Falklands and throughout the Southern Ocean.

PETER RYAN □

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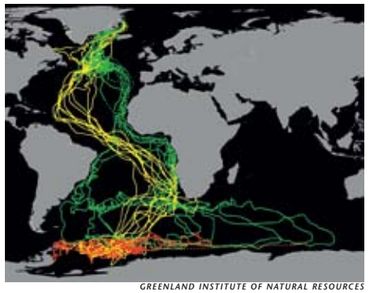
Subantarctic Skua

Arctic Tern

TRACKING *the longest migration*



GREENLAND INSTITUTE OF NATURAL RESOURCES

Tracks of Arctic Terns migrating south from colonies in Greenland and Iceland (green), their movements in the austral summer (red) and return migration to the breeding grounds (yellow). Dashed lines indicate periods close to the equinoxes when latitudinal fixes are compromised.

The Arctic Tern is renowned for having the longest migration and seeing more daylight than any other organism on earth.

The Arctic Tern's *Sterna paradisaea* northernmost colonies are well north of the Arctic Circle yet the birds spend the austral summer foraging off the Antarctic continent. Ringing recoveries indicate that most terns breeding in Greenland and northern Europe fly down the west coast of Africa, with some individuals travelling as far east as Australia, but it is only recently that the details of their epic journeys have been unravelled, thanks to tiny light-loggers.

In the early 1990s, bird-gadget wunderkind Rory Wilson was approached by the Royal Society for the Protection of Birds to design a way to discover where British Roseate Terns go in winter. Weighing around 100 grams, the terns were too small to carry a satellite transmitter, so Wilson decided to use a very small sensor that recorded light intensity every minute. With this information a bird's latitude (from day length) and longitude (from the time of sunrise and sunset) could be calculated each day. It would only be accurate to a few hundred kilometres, but the device required very little power and could perhaps be made small enough to be carried by a tern.

The first 'geolocator' models were too big to be used on terns, but engineers at the British Antarctic Survey have continued to refine the sensors, reducing them to a little more than a gram. In July 2007, a team led by Carsten Egevang deployed 50 light-loggers on Arctic Terns breeding in north-east Greenland and 20 on terns breeding in Iceland. The following summer, 11 terns were recaptured and the data from their loggers used to reconstruct their movements. The results, published in the *Proceedings of the Academy of Natural Sciences of the USA* (107: 2078–2081), provide unparalleled insights into this most extreme of migrations.

The southward movement after breeding is leisurely, lasting about three months. The birds feed along the way, with a major stopover lasting three to four weeks on the west slope of the mid-Atlantic Ridge east of Newfoundland. They then travel to the upwelling zone off Senegal, West Africa, whence some continue inshore around the Gulf of Guinea to Namibia. Others cross the Atlantic Ocean to the coast of Brazil, travelling rapidly through the tropics, where food is scarce, and starting to fan out across the Southern Ocean once they reach the Subtropical Convergence. Interestingly, all the tracked birds flying down the west coast of Africa moved offshore in central Namibia, continuing south off the shelf edge and passing South Africa at the beginning of November. This fits well with observations of southward movements of Arctic Terns and Long-tailed Jaegers several hundred miles west of the Cape at this time.

Although some Arctic Terns move east into the Indian Ocean, most spend the southern summer around the Antarctic Circle between South America and Africa. The return migration is more rapid, taking on average 40 days to cover more than 25 000 kilometres. All birds travel north through the eastern South Atlantic, then move west after crossing the equator to take advantage of prevailing wind patterns. By the end of this mammoth trip they travel 500–600 kilometres per day in their rush to return to the breeding grounds.

The southbound and northbound migrations are highly synchronised and the terns travel a total of 60 000–80 000 kilometres each year. With some individuals living up to 30 years, they will cover at least two million kilometres in their lifetime, more than three return trips to the moon!

PETER RYAN □

For more information, visit *www.arctictern.info*. Tiny geolocators have also been used to track the migrations of Purple Martins and Wood Thrushes in the New World (see Stutchbury et al. 2009, *Science* 323: 896) and Eurasian Hoopoes travelling between Europe and West Africa (Bächler et al. 2010, *PLoS ONE* 5(3): e9566), as well as the 27 000-kilometre migration of Ruddy Turnstones between Siberia and south-east Australia (*home.vicnet.net.au/~vwsg*).

FEATHER-LOSS MYSTERY *in penguin chicks*

Researchers on both sides of the Atlantic Ocean are grappling with a wildlife mystery: why are some penguin chicks losing their feathers?

The feather-loss disorder first emerged in Cape Town, South Africa, in 2006, when researchers at the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) observed it in African Penguin chicks that were being artificially reared at the centre. During that year, approximately seven per cent of the penguin chicks at the facility lost their feathers, followed by 18 per cent in 2007 and 11 per cent in 2008. Chicks with feather-loss disorder grew new plumage and were released back into the wild. The ailment is now routinely seen at SANCCOB each year, but it has never exceeded 20 per cent of the chicks admitted for artificial rearing.

On the other side of the South Atlantic, researchers from the Wildlife Conservation Society (WCS), the University of Washington and Centro Nacional Patagónico observed feather-loss disorder in the chicks of wild Magellanic Penguins (which are closely related to African Penguins) for the first time in 2007 at four different study sites along Argentina's coastline. They noted that while feathered chicks took cover from the hot midday sun, featherless chicks remained in the sun's glare. Several of the afflicted chicks died during the study.

In both instances, penguin chicks with feather-loss disorder grew more slowly than their feathered counterparts. Featherless chicks were also smaller in size and weight; both disparities were presumed to be a result of the increased energy expended on thermoregulation in the absence of an insulating coat of feathers and/or down. So far, the possible causes include pathogens, thyroid disorders, nutrient imbalances or genetics. It is not known whether the feather-loss disorder in the African and Magellanic penguin species is related.

'Feather-loss disorders are uncommon in most bird species. We need to conduct further studies to determine the cause and see if this is in fact spreading to other penguin species,' said Dee Boersma, who has conducted studies on Magellanic Penguins for more than three decades. 'We need to learn how to stop its spread, as penguins already have problems with oil pollution and climate variation,' she said. 'It's important to keep disease from being added to the list of threats they face.'

JEFFREY SMITH

SANCCOB

Magellanic (top) and African (above) Penguin chicks affected by feather-loss disorder.

Dr Nola Parsons, the veterinarian and researcher at SANCCOB, says that the disorder in African Penguins seen at the rehabilitation centre is probably caused by an infection as there is no evidence of a parasite, or of malnutrition or stress. But the culprit has proved elusive, so in 2010 Parsons sent samples from affected penguins to Greg Cunningham of St John Fisher College in Rochester, New York, who will try to identify the cause. Parsons says that there have been several cases of feather loss seen in wild African Penguin chicks and, although those chicks recover, the disorder may have dire consequences for wild birds. Anything that threatens the African Penguin is considered a problem because of the species' endangered status.

NOLA PARSONS □

REFERENCE

A study on the disorder appears in the journal *Waterbird* (2010) 33(3): 415–421. The authors of the paper are researchers from the organisations listed above.

Crisis in UTOPIA

The crisis referred to in the title of Peter Munch's classic book on Tristan da Cunha was the 1961 volcanic eruption that led to the evacuation of the island. But in March 2011, a man-made crisis struck nearby Nightingale Island, with equally dramatic implications for some of the island's inhabitants. From a conservation perspective, Nightingale is more Utopian than its larger neighbour. Home to two endemic landbirds and literally millions of pairs of breeding seabirds, it has barely been altered by human activities, with no introduced mammals and only a few localised weeds.

Early on the morning of 16 March, a bulk carrier full of soya beans en route from Brazil to Singapore ran aground on Nightingale. Quite how the 75 300-tonne *Oliva*, built in 2009, could hit one of the very few specks of land in the vast South Atlantic Ocean has yet to be explained. The gravest concern was that rats or mice might have got ashore and a team from Tristan's Conservation Department left immediately to deploy traps along the shore adjacent to the stranded ship. It will be some time before we know whether the island remains free of rodents. If these creatures do become established, they will need to be eradicated as soon as possible, before they wipe out the Endangered Wilkins' Bunting.

Within two days, the *Oliva*'s back broke and she spilled more than 1 000 tonnes of fuel oil into the sea right next to the world's largest colony of Northern Rockhopper Penguins. To make matters worse, south-easterly winds carried some of the oil to Inaccessible Island, threatening penguin colonies on that island too. All told, more than 60 per cent of the global population of Northern Rockhoppers was at risk of being oiled. The penguins had finished breeding, but most adults were still moulting. Conservation officers tried to stop clean birds from reaching the sea by closing off paths through the tussock, but this was impossible at many of the larger colonies. Thousands of penguins were oiled, but only some of those at the more accessible sites could be rescued.

The response to the crisis was constrained by the islands' remoteness; it takes roughly a week to reach Tristan from South Africa as there is no air access. The small Tristan community rose to the occasion. Assisted by Estelle van der Merwe, a former SANCCOB director who accompanied the initial salvage operation, they set up a penguin cleaning station. The island's swimming pool was partially emptied and used to exercise the cleaner birds (those up to 20 per cent oiled). One of the greatest challenges was feeding the penguins: the more than 3 700 oiled birds needed at least 600 kilograms of fish per day. Boats went out fishing specifically for the penguins, while volunteers cut up the fish and fed the birds. After some delays, a five-person team from SANCCOB in Cape Town was dispatched with more supplies, including frozen fish, to ease the situation on Tristan.

The full impact on the penguin population will only become clear once the birds return to breed in spring. Even more worrying for the Tristan community, though, is the effect on the islands' rock lobster fishery. Fishing has had to be halted at Nightingale and Inaccessible islands, which has severe implications for the Tristan economy. The one positive outcome is that there are moves afoot to declare the Tristan Islands a Particularly Sensitive Sea Area, which would require passing ships to remain further offshore, hopefully preventing a mishap like this from happening again.

PETER RYAN □

KATRINE HERIAN

Tristan Islanders feed oiled Northern Rockhopper Penguins in the island's swimming pool, which was partly drained as an exercise pool.