it's not **love**, actually

Albatrosses have become icons of the open ocean and, like dolphins and whales before them, are at risk of being 'generalised'. They are the birds with the largest wingspan, and their wanderings encircle the globe. Their social lives are the envy of any family-rights campaigner, with pairs mating for life. But we shouldn't lose sight of the diversity within albatrosses. With more than 20 species, they vary considerably in size and movement patterns. And we're starting to discover that their sex lives aren't as boring as we once thought. **Peter Ryan** shares some insights obtained from a 25-year study of the smallest species, the Atlantic Yellow-nosed Albatross. ▸

TEXT & PHOTOGRAPHS BY PETER RYAN

The **Atlantic Yellow-nosed Albatross** *Thalassarche chlororhynchos* is the smallest and arguably one of the most handsome albatrosses.

Below *Atlantic Yellow-nosed Albatross nest in a wide range of habitats, from sheltered sites among island trees (***below left***) to the top of exposed boulders (***below right***). It's not always clear where they find the material to sculpt their often impressive nest mounds.*

Opposite *Allopreening is the most important behaviour in forming and maintaining pair bonds. But it is not confined to paired birds, and sometimes takes place between birds of the same sex.*

Previous spread *Getting to know you. Mutual 'head-forward' displays are the usual opening gambit in a tête-à-tête between Atlantic Yellow-nosed Albatrosses.*

Weighing just over two kilograms and with a wingspan of barely two metres, it is smaller than a gannet, and looks tiny next to a lumbering nine-kilogram Wandering Albatross *Diomedea exulans* with its wingspan of up to 3.5 metres. The Atlantic Yellow-nosed Albatross breeds only on the Tristan da Cunha archipelago and Gough Island in the central South Atlantic Ocean. To the Tristan islanders it is known simply as the molly, from the old whaler term 'mollymawk', which refers to the small, dark-backed albatrosses now placed in the genus *Thalassarche*. Adults, chicks and eggs were eaten by the early settlers on Tristan, and doubtless by sealing gangs operating on the islands. However, the species is now protected throughout the islands, with a breeding population of some 30 000 pairs.

Until recently, mollies were lumped with their Indian Ocean cousin, *T. carteri*, but the two species differ in size, head colour and bill structure. Perhaps more significantly, they also differ in their choice of breeding sites. The Indian Yellow-nosed Albatross breeds in dense colonies on cliffs, sometimes together with Grey-headed Albatross *T. chrysostoma*. Atlantic Yellow-noses, on the other hand, breed in loose colonies, scattered about on relatively flat ground, often in dense vegetation, including under island trees *Phylica arborea* and in surprisingly dense tussock grass *Spartina arundinacea*, especially on Nightingale Island. Some pairs must walk up to 100 metres to reach an open area where they can take off.

As their common names suggest, the two species are separated geographically. Whereas Atlantic Yellow-noses are confined to islands in the central South Atlantic, Indian Yellow-noses breed on Prince Edward, the Crozets, Amsterdam and St Paul islands in the southern Indian Ocean. Both species are regular visitors to African waters, with a broad area of overlap in their ranges off South Africa.

Adults of the two species are fairly reliably separated at sea: the Atlantic birds have a grey wash over the entire head and neck; in the Indian birds, this is confined to the cheeks. At close range, they can also be distinguished by the shape of the yellow culminicorn stripe at the base of the bill: rounded in Atlantic birds and pointed in Indian. Juveniles and young immatures are more difficult to tell apart, because their bills are all black and they have largely white heads and necks. Young mollies tend to appear larger-headed and often have a grey wash extending onto the hind-neck from the mantle.

Both species occur primarily in the warmer waters north of the Subtropical

Convergence that forms the boundary between temperate and sub-Antarctic waters. They consume more fish than other Southern Ocean albatrosses, often feeding in association with gamefish or cetaceans that drive smaller fish close to the surface. In feeding mêlées, yellow-nosed albatrosses tend to be outmuscled by larger albatrosses and giant-petrels. They compensate for this by using their greater aerial agility to reach prey first, snatching what they can before larger species arrive. This can be costly when they scavenge behind long-line vessels, as they are often caught on the baited hooks and drowned. Long-line mortality is the main reason for both species being listed as Endangered, although recent decreases in Indian Yellow-noses at Amsterdam Island have apparently been the result of outbreaks of avian cholera, probably introduced to the island by poultry kept at the French military base.

Recent trends are more encouraging for the Atlantic Yellow-noses. The steady decrease in numbers breeding in the study colony at Gough Island during the 1980s and early 1990s has been reversed, and counts from the Ponds (three inland lakes) on Nightingale Island suggest that numbers there have also increased since 1999. A formal re-assessment of the species' conservation status is currently under way.

However, that isn't the main focus of this article. In 1982, seabird researcher John Cooper started a small study colony of Atlantic Yellow-noses adjacent to the South African weather station on Gough Island. Each adult was ringed and marked with a unique combination of colour rings during the spring incubation period. Volunteers from the weather station followed the birds' breeding attempts and ringed the chicks shortly before they fledged. This study has continued each year, building up a remarkable long-term data set. Thanks to John's foresight, we not only have a powerful tool to monitor the health of this population, but have also gained fascinating insights into their breeding biology and mating strategies.

The first adults come ashore in late August. Like typical married couples, ▷

species **fact file**

ATLANTIC YELLOW-NOSED ALBATROSS
Thalassarche chlororhynchos

MASS: 2.2 kg (1.8–2.8 kg) Males average slightly larger than females
NO. OF BREEDING PAIRS (year of estimate):

Tristan	20 000 (1972)
Nightingale	4 000 (2007)
Inaccessible	2 000 (2004)
Gough	5 000 (2000)

CONSERVATION STATUS: Endangered
CLUTCH: 1 white egg (95 x 63 mm)
INCUBATION: 64–70 days
CHICK PERIOD: 4 months
BREEDING SUCCESS: 64%
Breeds annually

Young Yellow-noses gather to court at a 'molly knob', an open site on an exposed ridge where they can land and take off easily.

their greetings are understated compared to the more exuberant courting of young birds later in the season. The females visit only briefly, spending most of their time at sea, where they take a couple of weeks to form the single, large egg. Males spend more time ashore, refurbishing their turret-shaped nests with a fresh layer of mud, presumably to reduce the numbers of ectoparasites remaining from previous breeding attempts. Some build a new nest, pulling up vegetation to clear a space, then scraping up mud and peat into a cone-shaped mound before plastering the sides using their bills. On Nightingale Island, a few nests are built on bare rock, and it is a mystery where the birds find the material.

Most males wait at the nest for several weeks for their mate to return, possibly to prevent the nest being usurped by other birds. When the female returns (from mid-September to mid-October), she usually only remains for a few days to lay her egg. I recently witnessed a female laying. She sat on the nest looking a little distracted, ignoring her mate's attempt to preen her. Suddenly, she stood up and dropped the egg from a height of 10–15 centimetres into the bowl of the nest. She then called, displaying her bright golden gape stripe, and bent down to inspect the egg, while the male also tried to look at it. She promptly sat down and refused to budge, despite the male's evident interest. After a minute or two, in a typical display of male insensitivity, he mounted her, but was summarily thrown off her back. After a few more displays he finally flew off, leaving the female to incubate in peace.

Within one or two days of laying, the female leaves the male to take the first long incubation shift, which typically lasts 20–25 days. Thereafter the birds change over more regularly, until the chick hatches (from mid-November to early December). For the first three weeks or so, the newly hatched chicks are dependent on their parents for heat and for protection from Tristan Skuas *Catharacta antarctica hamiltoni*, but thereafter they are left to fend for themselves while both parents forage. The chicks defend themselves by clapping their bills and, if really threatened, vomit oily liquid onto intruders. They grow fairly rapidly, attaining a mass greater than that of their parents, before slimming down shortly before fledging in March or early April.

Once the chicks leave the island they are on their own. Mortality is probably quite high among young birds as they learn the business of finding food at sea. In the past, this was exacerbated by the deliberate capture of birds at sea for food. Most recoveries of birds ringed as chicks by the Norwegian Expedition to Tristan in 1938 occurred within a year or two of fledging, when they were caught for food by fishermen off Angola, Namibia and South Africa. Fortunately, this practice has largely ceased (although there are rumours of it persisting off Angola), but it is a fate that still awaits many young Waved Albatrosses *Phoebastria irrorata* once they leave their breeding grounds in the Galápagos to forage off Peru.

We know very little about the first few years that mollies spend at sea. Most return to the island for the first time after five to eight years, although a few come back when they are only three years old and are still showing some black on the top of the bill tip. Since the start of the study on Gough, nearly a quarter of all chicks have returned to the island. Eighty per cent of them recruit to the colony where they were born, with the remaining birds being found within a few hundred metres of the study area. Youngsters mostly arrive in November and December, after the adults have laid. They gather on fine days, landing in small groups at exposed sites, termed 'molly knobs' by Tristan islanders. The preference for ridges and cliff-tops is a ▷

Like typical married couples, their greetings are understated compared to the more exuberant courting of young birds

An adult Indian Yellow-nosed Albatross has a sharply pointed base to the yellow bill stripe and a paler head than its Atlantic cousin, with a pale grey wash confined to its cheeks.

JOHN GRAHAM

Experienced Yellow-noses use their aerial agility to land and take off in areas with little room for error. This bird is coming in to land through dense tussock grass along the path leading to the Ponds on Nightingale Island.

result of their lack of landing experience. They circle repeatedly, almost landing, only to pull back and circle round again. When they finally do commit, they sometimes make a hash of it, tumbling base over apex into the surrounding vegetation. Others prefer to remain in the air, soaring on the updraughts created by the island's cliffs. It is wonderful to watch them hang motionless on partly furled wings, controlling their altitude with their feet. They even display in the air, throwing back their heads and giving their distinctive rattling call.

At the molly knobs, birds stretch forward, pointing their bills at prospective partners. If this overture is accepted, it might lead to a bout of mutual preening. It's quite refined, with little squabbling, even when two birds express an interest in the same partner. Scuffles usually occur only if a hapless bird lands on top of another. However, once they progress away from the knobs and start to occupy nest sites, the competition heats up, with combatants squawking aggressively and biting one another. Usually the nest incumbent wins the day, but sometimes an intruder is successful in displacing a bird from its home. Pair bonds are formed over the following few years, cemented by mutual displaying and long bouts of allopreening. The pair return earlier each year, until they finally make their first breeding attempt, typically once they are 10–11 years old, although a few start as early as six, and others fail to breed until their late teens. Unlike Wandering Albatrosses, there is no difference between the sexes in the age at which breeding starts, nor is there much difference in the success of birds that start to breed early compared to those that wait longer.

Like all seabirds, mollies are monogamous, requiring the efforts of two adults to incubate the egg and gather sufficient food for the chick. Contrasting with many other albatrosses, the breeding season is short enough for most pairs to attempt to breed every year. They usually retain the same mate in successive years, but few mate for life. So far, only one bird out of more than 300 pairings has ceased to breed once its partner disappeared. After staying with its mate for at least 17 years, this faithful individual returned to the colony for six lonely years before it too disappeared. More typically, birds resume breeding with a new partner, usually after a respectful mourning period of one or two seasons, although this lag is probably more about establishing a new pair bond than any real sense of loss.

Not all individuals are so well behaved. Divorces account for five per cent of pairings. Some temporary divorces are perhaps understandable; a bird returns to find its partner absent and takes a new mate. It then reverts to the original mate when it returns the following season. In other cases, the mate is present in the colony in the year when the partner strays – perhaps the partner arrived too late to breed? Permanent divorces also occur and most appear to be acrimonious, with one bird pairing up much more quickly (often with no lag at all) than the aggrieved partner, which takes, on average, just over three years to find a new mate.

Why should Atlantic Yellow-noses indulge in such dalliances? It probably comes down to improving the number of chicks they produce, which is the ultimate currency for judging evolutionary success. Despite studying the mollies on Gough for 25 years, we still can't measure the numbers of chicks that the 'best' birds in the colony produce in their lifetime, because there are still some birds alive that were breeding when the study first started. Despite this caveat, the average adult (defined as a bird that attempts to breed at least once) produces about four chicks, but this varies greatly, from 0–18 chicks. Birds probably switch partners, either temporarily or permanently, to improve their lifetime reproductive success.

Just as in the human world, such shenanigans may incur a cost. Up to one per cent of nests contain two eggs, both of which usually fail, as the birds cannot effectively incubate two eggs. In some instances, the eggs are laid by two pairs that have staked a claim to the same nest, but sometimes a male is guilty of courting two females at the same time. In a recent example, a female which had lost her partner of 20 years took up with a neighbouring male. She duly laid in his nest, and after four days he took over incubation duties. Three days later, however, his usual mate was on the nest, and the egg was lying next to the nest. The usual mate laid the next day, having won back her nest and partner – at least for this year.

At times it seems as though we're watching a soap opera unfold as pairs swap back and forth. We have one case where a third bird has 'helped' at another pair's nest for the past two years, occasionally taking an incubation shift. The female helper had previously bred with the male from the nest, but they had an amicable divorce four years ago that apparently didn't work out for the female, and she is now 'pining' for her previous partner.

At times it seems as though we're watching a soap opera as pairs swap back and forth

A less risky way for females to improve their offspring's chances is to ensure the best possible genes by mating with high-quality males. The frequency of extra-pair fertilisations has not been measured among mollies but, in other albatrosses, has been found to range from four to 20 per cent. Such genetic investigations, coupled with long-term studies of individually marked birds, have forced us to re-evaluate the way we look at albatross mating strategies. Clearly, they are not always the paragons of monogamous virtue portrayed in popular literature. □

An Atlantic Yellow-nose contemplates the unusual sight of two eggs in its nest. Unless one is lost early during incubation, neither is likely to hatch.