PETER RYAN

follow that ship

Albatrosses refine their ship-following behaviour

Many seabirds follow boats and ships. Some, such as sooty albatrosses, do so for the free lift generated as the wind rises over the vessel. Others do so to improve their chances of finding food. Boobies rely on vessels to flush flying fish or flying squid, whereas storm petrels patter over the wake, searching for zooplankton stirred up to the water surface. But many birds follow in the hope of obtaining food directly from the vessel, either discarded meal scraps or food made available by vessels exploiting marine resources.

Albatrosses, petrels, gulls, gannets, skuas, frigatebirds and even terns often follow fishing boats because they have come to associate these vessels with an easy meal. The numbers of birds vary in relation to food availability. Birders on pelagic trips off the Cape Peninsula know that long-liners processing their catch attract a small but steady stream of seabirds, whereas the numbers of birds attending trawlers peak as the net reaches the surface. This is evidently a learned behaviour because many of the birds only start to mill around the stern of the vessel once the trawl doors are hauled aboard, shortly before the net surfaces.

above *A recent study shows how Wandering Albatrosses refine their ship-following behaviour as they spend more time at sea, and how individual 'personality' influences the length of time they spend following ships.*

Following fishing vessels can provide birds with an easy meal, but it can also expose them to accidental bycatch on fishing gear. It is thus important to understand how this behaviour develops, as it can inform which birds are most at risk. A recent paper by Henri Weimerskirch and colleagues (*Proceedings of the Royal Society B*, doi: 10.1098/rspb.2022.2252) provides fascinating insights into how age, sex and personality affect the reactions of Wandering Albatrosses to ships.

By attaching devices that record ships' radar signals to the birds, they were able to measure how often each albatross approached a vessel and how long it remained in the vicinity in relation to the type of vessel and its activity (encoded in the ship's Automatic Identification System data). Based on data from more than 400 albatrosses, they found that ship-following increased with age. Juveniles foraged mostly over deep oceanic waters, where they seldom encountered ships, whereas adults visited a mix of coastal and oceanic waters, where they were three to four times more likely to come across ships. Immatures were intermediate in terms of both habitat use and the frequency of ship encounters.

The proportion of fishing vessels also changed with age and experience, accounting for only about 20 per cent of ships encountered by juveniles compared to 70 per cent of those visited by adults. Juveniles and young immatures spent an average of one to two hours following vessels, irrespective of type, whereas adults spent three to four hours at fishing vessels, but usually less than an hour at other vessels.

Among adults, gender had little influence on ship-following behaviour, but birds with bold personalities (based on their response to novel stimuli at their nest site) were more likely to approach ships. Shy females spent very little time at vessels, but shy males spent longer at vessels than bold birds did, possibly because they were less able to compete for scraps. These findings suggest that personality traits might influence the risk of albatrosses being killed on fishing gear.

The study reaffirms the importance of individual differences and highlights how such differences need to be considered when assessing how species might respond to global change. The study was conducted over the past few years and it would be interesting to measure long-term changes in following behaviour. In my experience, far fewer birds follow research vessels now than was the case in the 1980s, despite there being no changes in their local populations. I suspect that this results largely from shorter attendance times. In the early 1980s, Wandering Albatrosses followed the SA *Agulhas*, South Africa's Antarctic resupply vessel, for up to 10 hours (*Ostrich* 53: 228–235), whereas these days they seldom remain for longer than an hour. This probably reflects at least in part the tighter controls on the dumping of waste at sea, which makes non-fishing vessels less attractive to scavenging birds.

PETER RYAN

explosive speciation

The rapid radiation of white-eyes

The white-eyes and yuhinas are a family of generalist, warbler-like birds confined to the Old World. Almost 150 species are recognised in 12 to 14 genera, with more than 100 species of white-eyes in the genus *Zosterops*, which is by far the largest bird genus. The enormous diversity of white-eyes results in large part from their powers of dispersal, which has seen them colonise many of the islands in the Western Pacific and Indian oceans.

This exploration is ongoing. The Silvereye *Z. lateralis* arrived in New Zealand from Australia in the 1850s and since then has gone on to colonise all the sub-Antarctic islands south of New Zealand. Yet once they reach far-flung islands, not all white-eyes are good dispersers. In the Solomon Islands, some quite distinct species have evolved on islands only a few kilometres apart. As a result, many white-eyes are single-island endemics.

Over the past few years, several studies have used genetic evidence to infer the evolutionary history of this remarkable radiation. Nicholas Vinciguerra's team (*Ibis*, doi: 10.1111/ibi.13177) estimated that the Zosteropidae evolved around 10–12 million years ago, but the massive diversification of *Zosterops* occurred within the past two million years. As expected, the rate of speciation has been roughly twice as fast among island species as in continental species. However, there is something special about *Zosterops* as, compared to other genera in the family, speciation has been much faster in this genus, irrespective of where they occur.

Another study by Frederico Martins et al. (*Molecular Phylogenetics and Evolution*, doi: 10.1016/j.ympev.2020.106843) estimated that white-eyes colonised the Afrotropics and adjacent islands around 1.3 million years ago, with most species evolving in the past 500 000 years. Martins et al. concluded that all African white-eyes evolved from a single colonisation event from Asia, whereas a more comprehensive phylogeny of the genus suggests that the story might not be quite so simple. Chyi Yin Gwee et al. (*eLife*, doi: 10.7554/eLife.62765) found three main groups within *Zosterops*: Indo-African, Asiatic and Australasian. Most African species are in the Indo-African group, but Abyssinian and Socotra white-eyes both fall within the Asiatic group.

Unlike the extreme morphological changes seen in the adaptive radiations of Madagascan vangas or Hawaiian honeycreepers, the radiation of *Zosterops* has been much more conservative. Their uniform morphology explains why few areas support more than two species – they are seldom ecologically distinct enough to support many species in the same habitat. Their uniform appearance has also obscured the relationships among populations. And even where there are distinctive forms, appearances can be deceiving!

For example, the four species of speirops from Mount Cameroon and the Gulf of Guinea islands used to be placed in a separate genus. However, they are just unusual *Zosterops* white-eyes and are not even each other's closest relatives (see Melo et al. 2011, *Molecular Ecology*, doi: 10.1111/j.1365-294X.2011.05099.x). The two speirops and three white-eyes endemic to the oceanic islands, São Tomé, Príncipe and Annobon, form a single radiation, whereas the speirops on the land-bridge island of Bioko and Mount Cameroon evolved independently from continental white-eyes.

ALBERT FRONEMAN

The Southern Yellow White-eye is one of at least six African species that were formerly lumped into the Yellow White-eye.

Genetic data are also revising our view of other African populations. Several populations formerly included in the Madagascar White-eye are quite distinct, giving the Comoros archipelago five endemic species and another species confined to nearby Aldabra Atoll. And the white-eyes on Socotra, which were assumed to be the same as those in nearby Somalia, are completely different.

Perhaps the biggest development for African white-eyes has been among the continental taxa. In 2000, *Birds of Africa* listed four species: Cape *Z. capensis*, Yellow *Z. senegalensis*, Abyssinian *Z. abyssinicus* and 'Mountain' *Z. poliogaster*. In 2020 Martins et al. recognised at least 18 species. We still have only three species in southern Africa, but the Yellow White-eye contains at least six species, including one endemic to Angola. Not all these changes have yet been adopted by the major lists, but brace yourselves for still more splits as we continue to learn more about these fascinating birds.

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