SLIP SLIDING *away*

BIRDS ON THE MOVE

In 1963, when Bob Dylan recorded his classic album 'The times they are a-changin', he had little idea of quite how prophetic his lyrics were to be. His song referred to the social and political revolution of the times, but almost 50 years later we are witnessing arguably the most rapid environmental revolution the world has experienced since the mass extinction at the end of the Cretaceous, 65 million years ago. Signs of this transformation abound in the natural world and are linked to habitat modification and climate change. Among birds, there are many examples of marked alterations in species' abundances, ranges, breeding seasons and migration patterns.

TEXT & PHOTOGRAPHS BY PETER RYAN

The Sanderling is one of the migrant shorebird species that has become scarce on the south Peninsula over the past two decades, probably as a result of global population decreases as well as local increases in human disturbance.

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The South African Bird Atlas Project (SABAP) offers a great tool to assess how local bird populations are shifting. Data collection for the first SABAP was conducted mostly in the 1980s and it culminated in the 1997 publication of the two-volume *Atlas of the Birds of Southern Africa*. The atlas team at the University of Cape Town's Animal Demography Unit then took a well-deserved rest before launching SABAP2 in 2007. After a rather slow start, SABAP2 has taken off and has already amassed more than two and a half million records from 45 000 checklists. Thanks to the project's online data-capture system, it is possible to interrogate the data as they are submitted to assess how bird populations have altered over recent decades.

As an enthusiastic supporter of both atlas projects, I thought it would be interesting to see how things look in my home square, the southern Cape Peninsula, which extends from Constantia Nek south to Cape Point. Before reporting the results, however, there are a few technical details that need to be understood. SABAP1 was conducted at the spatial resolution of the quarter-degree square (15 x 15' blocks, roughly 28 x 22 kilometres in extent) and a temporal resolution of one month. Although this vastly improved our understanding of bird distributions in southern Africa, both in space and time, it was soon apparent that an even finer resolution would be valuable to detect subtle changes in birds' ranges. Also, in SABAP1 there was no attempt to standardise search effort. A card completed while driving through a square at 120 kilometres per hour contributed as much weight to 'reporting rates' (the proportion of cards on which a species is recorded) as did a card gathered over an entire month by someone based in a square.

In an attempt to address these issues, SABAP2 records are gathered at the 'pentad' level (5 x 5' blocks, approximately 9 x 7 kilometres) and cover at most a period of five days. The spatial resolution is thus nine times and the temporal resolution six times finer than in SABAP1. Each observer has to spend at least two hours birding each pentad and should attempt to survey all the main habitats in the pentad (incidental records can be submitted, but they don't contribute to reporting rate calculations). Species are recorded in the order observed, giving some index of their relative abundance in the area. The improved resolution of SABAP2 comes at a cost: it is tricky to compare reporting rates with those obtained during SABAP1. The simplest solution is to lump together all records for the pentads in a quarter-degree square and calculate the overall reporting rate for SABAP2.

But this can lead to biases. For example, on the Cape Peninsula, African Penguins are only regularly observed in one of the 11 pentads that include some land area, the one around Simon's Town that contains the Boulders penguin colony. (If you're wondering why the south Peninsula has 11 not nine pentads, that's because in SABAP1 some coastal quarter-degree squares with only a small land area, such as the southern tip of the Peninsula, were lumped with their neighbouring square.) Most SABAP1 atlas cards for the area should have reported penguins because the species is easy to see at Boulders, whereas in SABAP2 only cards from the Simon's Town pentad are likely to have penguins. In fact, only 11 per cent of SABAP1 cards had African Penguins, partly because penguins only colonised Boulders in the mid-1980s and partly because many 'incomplete' cards were submitted. But the pooled reporting rate for African Penguin in SABAP2 is less than two per cent, because only eight of the 372 cards submitted for the region to date have been for the Simon's Town pentad. Clearly Simon's Town needs a resident atlaser! The moral of this story is that one has to be cautious when interpreting the apparent sevenfold decrease in African Penguin reporting rates from SABAP1 to SABAP2, when in fact there are now many more penguins at Boulders than there were when SABAP1 was conducted.

The other big difference between SABAP1 and SABAP2 is the duration of the two studies. SABAP1 built on the Western Cape Bird Atlas Project, so data for the Cape Peninsula spanned more than a decade, whereas SABAP2 has been running for just on three years. SABAP1 had 93 818 species records on 1 407 cards for the south Peninsula, compared to 18 208 species on 372 cards to date for SABAP2. As a result, vagrants and species that irrupt into the area infrequently are less likely to have been recorded during SABAP2. However, sufficient data have accumulated to assess changes in the more common birds of the region, and some very striking patterns have emerged.

There have been no marked changes in species with wide habitat tolerances (generalists such as Cape Robin-Chat, Cape White-eye, Cape Bulbul, Karoo Prinia and Common Starling). Aerially feeding swallows and swifts also appear little changed, with the possible exception of the arrival of Common Swifts. Among fynbos species characteristic of the Peninsula's mountain chain, several appear to have decreased in abundance. In the case of some localised ones, this may be as a result of reporting biases (for example, Cloud Cisticola, Cape Clapper Lark and Plain-backed Pipit), but in others there is little doubt that species have either disappeared entirely (African Stonechat) or become much more scarce (Grey-winged Francolin). Verreaux's Eagles have become rare, whereas Booted Eagles have increased in abundance and now breed on the Peninsula.

In general, the south Peninsula's forest birds have fared better than their fynbos counterparts. The only species that have probably declined are Lemon Doves and Red-chested Cuckoos (although both are still doing all right on the northern Peninsula). By contrast, Forest Canaries, Swee Waxbills, Amethyst Sunbirds, Buff-spotted Flufftails, Black Sparrowhawks and African Harrier-Hawks have all either arrived or greatly increased. Records of Forest Buzzards are also more numerous, although they are possibly being confused with the 'mystery' buzzards now breeding in the area (see Curtis and Koeslag 2007, *Africa – Birds & Birding* 12(3): 48–50). Cardinal and Olive woodpeckers remain rare, but there have been more records of both during SABAP2 than SABAP1. This increased diversity and abundance of forest birds is interesting given the ongoing debate around the relative merits of the clearing of pine and eucalypt plantations in the area. It remains to be seen whether these birds' positive trends will continue as the areas of plantation decrease.

Not surprisingly, birds characteristic of lowland areas of the Cape Flats are less than enthusiastic about the changes resulting from continued urban sprawl. As open spaces on the flats adjacent to the southern Peninsula have been lost, records of African Hoopoes, Black-shouldered Kites, Lanner Falcons and Barn Owls have decreased. Birds of coastal thicket, such as Karoo Scrub-Robins, Long-billed Crombecs and Chestnut-vented Tit-babblers, have been hard hit. Several species that used to irrupt fairly regularly onto the flats, such as Namaqua Doves and Pied and Wattled starlings, have not yet been recorded there in SABAP2, and it will be interesting to see if they are still willing to venture so far south. Other species have invaded the urban landscape, ▷

Above *A colour-ringed White-fronted Plover at Kommetjie. Researcher Penn Lloyd's study showed the key role that dogs play in reducing recruitment of this species.*

Opposite, above *African Stonechats have disappeared from the Cape of Good Hope section of Table Mountain National Park over the past 20 years, despite this being a protected area.*

Opposite, below *Even with habitat restoration, such as here along the lower Silvermine River, several wetland bird species have disappeared or become less common on the south Peninsula.*

Other species have invaded the urban landscape, such as House Crows and Hadedas. Southern Grey-headed Sparrows have also reached the Peninsula, the latest in a long list of species that have spread into the Western Cape

The invasive House Crow is an unwelcome addition to the avifauna of the south Peninsula. It has had unfortunate impacts on the populations of many local birds, including breeding waterbirds at Rondevlei Nature Reserve.

such as House Crows and Hadedas. Southern Grey-headed Sparrows have also reached the Peninsula, the latest in a long list of species that have spread into the Western Cape. Fork-tailed Drongos, another such species, are now more common than they were during SABAP1.

In some cases, the changes are difficult to understand. Acacia Pied Barbets invaded the Cape Peninsula in the 1970s. They began to spread into the Western Cape in the 1930s, thanks to the increased availability of trees in which to nest, and were followed by Lesser Honeyguides, their brood parasite. Both species were fairly common on the Peninsula during SABAP1, but they have since largely disappeared, despite remaining common elsewhere in the Western Cape. The clearing of alien acacias may have contributed to their demise, but this can't be the entire story as rooikrans and Port Jackson willows remain all too common, despite the best efforts of local authorities to eradicate them.

The most dramatic decreases have occurred among shorebirds. Reporting rates of all migrant shorebirds have plummeted, in concert with global decreases in the populations of many species, indicating problems far beyond the borders of the Cape Peninsula (or indeed South Africa). Of 14 migrant waders that had reporting rates of more than one per cent during SABAP1, only seven have been recorded in SABAP2, and among these species their reporting rates are on average 33 times lower than they were in SABAP1. Reporting rates of resident Kittlitz's and White-fronted plovers have also decreased, but not to the same extent. For largely coastal species such as Ruddy Turnstones, Sanderlings and Common Whimbrels, increased human activity along the coast has probably exacerbated their decreases. Two migrant terns have also suffered: White-winged Terns have not been recorded during SABAP2 (down from 14 percent of cards in SABAP1) and Antarctic Terns have largely disappeared (due at least in part to increasing disturbance at their traditional roost site at Kommetjie).

Some resident wetland birds have experienced significant losses during the past few decades. Hamerkops were recorded on more than a quarter of SABAP1 cards from the south Peninsula, but not a single one has been logged in SABAP2. Half-collared Kingfishers have also gone, and Giant Kingfishers are less common than they once were. Greater Painted-snipes are now rare vagrants and Black Storks, once regular winter visitors to the Peninsula, have disappeared entirely. Ducks have held their own, as have two of the three grebe species, but Black-necked Grebes are now decidedly rare. The only new wetland species gained are Goliath Heron (thanks to a long-staying individual at Rondevlei Nature Reserve) and African Openbill (following the 2009–10 irruption throughout South Africa).

Phil Hockey and Guy Midgley recently reviewed the pattern of birds colonising the Cape Peninsula since the 1940s (*Ostrich* 80: 29–34), and the atlas data largely support the patterns they identified. However, they did not consider the species disappearing from the system. Overall, the negatives outweigh the positives: excluding vagrants, total bird species' richness has decreased by about 10 per cent on the southern Peninsula in the recent past. The species lost tend to be specialists, whereas many of those gained have been generalists that in some instances have the potential to become a 'nuisance'. The one constructive aspect we can take from this is that, thanks to SABAP2, we can demonstrate just how significantly bird populations are changing around us. These results can be used to help guide local and regional conservation management and planning. □

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