

A deadly game of

HIDE and SEEK

NESTING IN THE KAROO

Upon reaching adulthood, birds experience fewer attempts on their lives, mostly because they are so much more mobile than their predators. Their evolution of feathers, flight and warm-bloodedness set them apart from their dinosaurian ancestors, and allowed them to flourish in a niche virtually devoid of animals longer in tooth and claw. But one feature of their reptilian ancestry still ties them to the earth – the very immobile egg within which birds begin their lives. Rich in nutri- ▷



TEXT AND PHOTOGRAPHS BY PENN LLOYD

Above *A Double-banded Courser's egg in typical 'nesting' habitat, illustrating how exposed but nonetheless cryptic the egg is.*

Right *The Double-banded Courser, a champion at predator avoidance, with its chick whose downy plumage is also an effective example of crypsis.*





A Black-eared Finchlark nest showing the rim packed with sand-encrusted buckspoor spider webs to camouflage it in the sandy nesting substrate.

ents for the early stages of development, eggs are a choice target for roving predators. The greatest challenge that parent birds face is preventing their vulnerable eggs and nestlings from becoming just so many more links in the food chain.

The windswept, sun-bleached expanses of the Great Karoo flatlands in the arid west of southern Africa have an unusually diverse band of predators for such a seemingly barren landscape. The searching eyes and noses of a variety of snakes, mongooses and larger mammals commonly find seven or eight of every 10 nests with eggs or nestlings. The Lark-like Bunting seems to fare particularly badly, with sometimes fewer than five nests in every 100 escaping detection. In the face of such an extreme selection pressure, it is hardly surprising that the birds living there have evolved a wide variety of intriguing behaviours to reduce their vulnerability.

The longer the eggs and chicks remain immobile in the nest, the higher the risk of them eventually being found. To shorten their time in the nest, several species have accelerated the rates of egg and chick development. The Grey-backed Finchlark, for example, has the shortest

nesting period of any bird in the world: its eggs hatch, on average, after just 10 days of incubation, and the chicks are fully feathered and can leave the nest within seven days of hatching. An incubation period of 9–10 days is probably pushing the physiological limit, for finchlark chicks that hatched after just eight days were small, weak and died within hours.

The 'broken-wing' distraction display, where the bird flutters ahead of a predator to entice it away from the nest, is a familiar behaviour that adults adopt as a last resort. But there are other, more discrete behaviours that can be employed to hide the nest and avoid the close approach of predators. The Double-banded Courser arguably rates as one of the champions at predator avoidance. Because it 'nests' in such open and exposed situations, one might expect it to be very visible to predators. In fact, the opposite holds true – the predators are more visible to the incubating bird, which runs off the 'nest' well before the predator gets anywhere near. I use the term 'nest' because this bird does not have a nest as such, but simply lays its single egg on bare ground. In an apparent paradox, the complete absence of a bird at the nest lowers predation risk considerably, for pred-



A male Black-eared Finchlark feeding its chicks. The species has the ability to breed before reaching full adult status – another way of increasing fecundity during the short periods of plenty.

ators are left with very few cues to find the superbly camouflaged egg and only 20 per cent of courser eggs are found and eaten. The incubating bird is assisted in this strategy by its partner, which loiters nearby, acting as a sentinel to warn the sitting bird of approaching danger. This behaviour of 'abandoning' the eggs can be far more effective than sitting tight in the hope of evading detection. The Namaqua Sandgrouse (see *Africa – Birds & Birding* 1(6):26–32), which nests in very similar situations to the Double-banded Courser, adopts the latter strategy and loses over 90 per cent of its nests. Predators either scent the bird or flush it off the nest accidentally when they trot past too close, and use this as a cue to find the eggs.

For birds that must construct a nest, camouflaging the site is of the utmost importance. Species such as Sclater's and Stark's larks, as well as the Grey-backed Finchlark, surround the protruding twigs and bits of nest lining with a rim of pebbles from their gravelly nest environment. The Black-eared Finchlark prefers slightly sandier substrates and it has the extraordinary habit of collecting dozens of sand-encrusted webs of buckspoor spiders (*Seothyra* spp.) to pack around the rim of its nest. My efforts to test the different

methods of camouflage were thwarted by the industrious birds: as fast as I packed pebbles around Black-eared Finchlark nests in sandy habitat, the birds packed new webs on top of the pebbles! Buckspoor spiders spin a small disc of sticky web on the soil surface above the entrance to their underground tunnel-home. This web becomes encrusted with the surrounding sand particles. Because the birds collect webs close to their nest sites, the web and nesting substrates usually match, one of the prerequisites for effective camouflage.

The insectivorous birds of the Karoo tend to be resident and territorial, whereas most of the seed-eaters are nomadic, moving about widely in search of dense patches of seed which appear following localized thundershowers. These divergent life-styles have a significant influence on the outcome of the deadly game of nest hiding and nest seeking. Because residents patrol the same restricted beat every day of the year, they develop a detailed knowledge of predator activity within their relatively small territories. This enables them to select safer sites for their nests. On the other hand, nomads are continually on the move and have to take pot-luck in >

their choice of nest site. They consequently lose twice as many nests to predation as do their resident counterparts. Nomads are able to compensate for these losses, to some extent, by avoiding areas experiencing drought and following the thunderclouds to greener pastures where conditions are more favourable for breeding.

The unrelenting aridity of the Karoo ensures that plant growth is very dependent upon rainfall. Plants directly or indirectly fuel the populations of all animals, from arthropods to aardvarks. To breed successfully, birds generally need an abundance of food to produce eggs and to appease the insatiable appetites of their chicks. Thus the breeding seasons of most birds in the Karoo are fine-tuned to coincide with the pulses of increased food supply following rainfall. But the amount of rain that falls varies considerably from shower to shower and from season to season. Furthermore, conditions may be suitable for breeding for only short periods of time before the blazing sun dries up the landscape again. Birds therefore have to make the most of whatever opportunities they can get, particularly if they are residents and cannot follow the patches of high productivity like the nomads do. The Spike-heeled Lark is one such resident. In a drought year, I observed this species building nests and laying eggs within one week of a mere six-millimetre rain-shower. In times of poor rainfall the birds lay a clutch of only two eggs because there is not normally enough food to raise a larger brood.

But when the rains are good and the sandy plains are transformed into a sea of waving grass, insects abound and the birds increase their clutch size accordingly, laying as many as five eggs. For as long as the favourable conditions last, the birds will also raise several broods in quick succession so that in bumper years they quickly make up for population reductions during years of drought. □

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**BIRD SPECIES MENTIONED IN THE TEXT,
LISTED IN THE ORDER IN WHICH THEY APPEAR**

- Lark-like Bunting *Emberiza impetواني*
- Grey-backed Finchlark *Eremopterix verticalis*
- Double-banded Courser *Smutsornis africanus*
- Namaqua Sandgrouse *Pterocles namaqua*
- Sclater's Lark *Spizocorys sclateri*
- Stark's Lark *Spizocorys starki*
- Black-eared Finchlark *Eremopterix australis*
- Spike-heeled Lark *Chersomanes albofasciata*

Grey-backed Finchlark chicks, fully feathered at the age of seven days, in their pebble-rimmed nest. Finchlark nests are nearly always placed on the south to east side of small plants to gain some shade during the heat of the day.

