Hatched in hell...

Breeding strategy in Sclater's Lark

TEXT AND PHOTOGRAPHS BY PENN LLOYD

Beads of sweat prickled, swelled and gravitated down to the point of my chin, to drip into the sand at my feet. In the shade of the stunted shepherd's tree under which I sat, the thermometer registered 38 ˚C. Out in the sun, the soil surface was a sizzling 50 ˚C.

Drying an eyebrow, I leaned forward to the eyepiece of the telescope again. It was focused 40 metres away, on a patch of quartz gravel, devoid of any plant life. In the shimmering glare, the shape of a bird slowly rose up. Half standing, with wings drooping, feathers erect, beak agape and head pointed to the sun, it was employing every means at its disposal of both shedding heat and limiting heat gain. In the bottom of the nest cup at its feet lay a single egg. No need for incubation – now it was important to shade the egg and prevent its temperature from reaching 43 ˚C, above which its proteins would begin to denature, killing the developing chick.

The bird I was watching on the gravel plains of the Arid Karoo was a Sclater's Lark *Spizocorys sclateri*, a rather uncommon and poorly researched southern African endemic. This drab lark has the peculiar strategy of nesting in the middle of bare expanses of quartz gravel, fully exposed to the baking sun. The reason for this apparently insane behaviour is simple. The principal cause of nesting failure for ground-nesting birds in this region is predation by small mammals, such as the yellow mongoose *Cynictis penicillata* and striped polecat *Ictonyx striatus*. These mammals are primarily insectivorous and concentrate their foraging activities around shrubs and patches of grass, where insects are more numerous.

Naturally, as they are so exposed, the birds must pay particular attention to nest camouflage. The nest cup, lined with fine grass fibres, is sunk level with the ground in a hollow scratched out by the birds. To conceal the disturbed sand and any protruding bits of nest-lining, they pack pebbles around the rim of the nest. This blends it very effectively into the gravelly nest environment.

Their association with quartz is no accident. Being light-coloured and highly reflective, a quartz pebble surface never reaches the egg-frying temperatures that a darker surface would.

Nonetheless, the incubating bird is subjected to severe heat stress. The pair naturally share incubation duties and, on a hot day, will relieve one another at intervals of as little as 10 minutes. The single egg hatches within 11 days. Because the chick is not very good at regulating its body temperature, it has to be shaded by one of the parents through the heat of the day. This probably explains why Sclater's Larks only ever lay a single egg; time spent shading the chick means there is less time to find food for the chick. If there were more mouths to feed, there might not be enough food to go around, in which case the chicks would either starve or suffer from delayed development. As it is, the chick grows quickly, and is well feathered and ready to leave the nest to seek out the shade of a nearby shrub at the age of just 10 days. It will be another couple of days before it begins to fly.

Surprisingly, this nesting strategy is not very successful. While nest predation is slightly lower than in other larks, increased failure due to the greater exposure to the elements means that nesting success is roughly equivalent between species. Furthermore, whereas other larks fledge 2–3 chicks per successful nesting, Sclater's Lark only fledges one. This probably explains the general scarcity of these birds. No doubt this strategy was more of an advantage when it first evolved.

An explanation for this change may be found in man's alteration of the environment. Farmers have dramatically reduced the populations of raptors and larger mammal predators through poisoning, shooting and trapping. Small mongooses, which may have fallen prey to these larger predators, now no longer have to stick so closely to cover, and can wander with impunity over exposed areas.

The heavily-built beak of Sclater's Lark is adapted to chisel out its preferred food, the seeds of eight-day grass *Enneapogon desvauxii*, a food source which only it and Stark's Lark *Alauda starki* are known to utilize. Eight-day grass is a remarkable ephemeral plant. It produces two types of seed: the normal grass seed on an inflorescence, and larger seeds that remain tightly enclosed in the bases of the leaf sheaths, just above the roots. When one of the infrequent summer rain showers falls, these seeds germinate within the tiny, dead tuft, grow and produce seed again within the space of eight days, hence its name. Because these seeds are so well protected, they escape the attentions of harvester ants, the other main granivores, and provide an abundant food source to these two larks, even through extended droughts.

'Tee-reup!' I focused my attention back through the eye-piece. The bird had interrupted its panting to look around expectantly. 'Tee-reup!' it answered, as its mate flew in to land alongside. Nest-relief time. The two looked at one another for a moment, before the bird on the nest bent down, picked up a half-shell, hopped out of the nest and flew off with it.

Another chick had hatched to face the rigours of a desert in summer. □

Above *Sclater's Lark standing over its egg to shade it from the scorching sun.*

Above left *A Sclater's Lark reaching into its nest to feed the chick. While the adults eat mostly seeds, they feed the chick on a variety of insects. Insects have a far higher protein content, which is important for the rapid growth of the chick.*

Above right *A tuft of eight-day grass, eight days after rain.*

Above *The single egg in the base of the nest cup, with a rim of quartz pebbles around the nest.*