Africa is the global centre of bustard diversity, and the southern portion of the continent supports no fewer than 11 of the world’s 25 species, including six endemics. If you’re a bustard enthusiast, southern Africa is definitely the place to be. But, unfortunately, very few people are passionate about them and the region’s unique bustard fauna is distinctly under-appreciated. Somehow, they just don’t match the style and elegance of other groups of birds, such as the similar, but much-celebrated cranes.

Worryingly, and perhaps because they lack that vital glamour factor, there is at present no orchestrated research or conservation effort under way to improve the understanding of southern Africa’s bustards, despite the fact that six of the species are already considered Threatened. Even more alarming is that the largest of the endemic species, Ludwig’s Bustard, is dying in great numbers as a result of man’s developments in its Karoo homeland. It could be facing imminent extinction, yet, to date, remedial efforts do not appear sufficient to avert this potential tragedy.
Collision course

Ludwig’s Bustard Norits ludwigi is a Karoo species, preferring open, plains country, where it can wander around, picking insects, small reptiles and bits of vegetation from the stony ground. It typically occurs in loose flocks, aggregating to roost on hilltops overnight, and moving haphazardly with the seasons, following the plentiful aftermath of rain in this semi-desert environment.

There are probably fewer than 80 000 of these rather ponderous, seemingly absent-minded nomads left in the world, all contained within an area of less than 400 000 square kilometres. While their Karoo habitat has generally been spared the ravages of industrial and agricultural development, and is big and sparse enough to absorb most of what has come its way to date, it accommodates thousands of kilometres of overhead power and telephone lines. The South African national power grid comprises a backbone of massive, high-voltage lines, branching into a complex grid of smaller, lower voltage distribution and reticulation lines, and is crucial to sustaining the country’s economic growth. Unfortunately, it is also a lethal trap for bustards.

Biologists and power utilities around the world have known for decades that power lines can be hazardous for birds, and that many species suffer significant casualties in collisions with high-tension wires and strong cables. Such collisions seem to occur particularly in situations where the height, configuration and situation of the lines, which affect their visibility and the extent to which they impinge on popular flight paths of birds, all combine against the prevailing avian traffic. Also, certain types of birds (notably bustards, cranes, storks, raptors, waterfowl and game-birds) are more susceptible to hitting power lines, branching into a complex grid of smaller, lower voltage distribution and reticulation lines, and is crucial to sustaining the country’s economic growth. Unfortunately, it is also a lethal trap for bustards.

In grassland habitats, the very similar Denham’s Bustard N. denhami replaces Ludwig’s, but is more widely distributed and far less inclined to keep distance, so it is probably not as collision-prone. All things considered, Ludwig’s Bustard may have the worst avian collision risk profile on record.

The scale of the problem

For more than 12 years, the Endangered Wildlife Trust (EWT) has worked in partnership with the South African power utility, Eskom, to collate, monitor and mitigate wildlife mortalities on existing power lines, and to ensure that all new infrastructure built is as ‘bird-friendly’ as possible. All recorded and reported incidents are added to the Partnership’s Central Incident Register (CIR) for evaluation and feedback on possible required management and mitigation. To date, the CIR holds about 3 000 mortality records, of which just less than 10 per cent are Ludwig’s Bustard casualties. This figure is in itself a concern, given that only a fraction of all collision victims are actually picked up and reported.

But, when examined more closely, the true gravity of the Ludwig’s Bustard’s situation becomes apparent. In the only properly quantified study, avian collision rates on South African power lines, conducted in the eastern Karoo in the late 1990s (and funded by Eskom), Mark Anderson recorded about two Ludwig’s Bustard collisions per kilometre of high-voltage line per year. More recently, repeat surveys of one of Anderson’s focal lines by Ronelle Visagie and Bradley Gibbons of the EWT are producing equally concerning results. Although Eskom has invested a huge amount of resources into the development and implementation of mitigation measures at these and other collision sites, the ongoing mortalities are cause for concern and point to the need to increase our response drastically.

Anderson’s was also the only significant local attempt to test the efficiency of various marking devices being used to make power lines more obvious to birds (and hence lower the likelihood of collisions). The markers are generally either static coils of wire (bird-flight diverters, also known as ‘pigtails’), or teardrop shapes suspended loosely from the line and able to flap about in the wind (bird-flappers). Both of these devices are positioned at intervals along problem sections of line, usually on the higher, thinner earth-wire, which poses the greatest threat to overturning birds. The Karoo study showed that while both markers available at that time were reasonably effective in reducing Blue Crane collisions, they had no noticeable effect on Ludwig’s Bustard casualties. Subsequent to this study, several new variations on these markers have been developed by Eskom and its suppliers, and anecdotal evidence of some success in reducing bustard collisions at certain sites has emerged. However, it is clear that the mechanisms of a bird-power line collision are such that the victim dies hanging from the line.

Opposite The massive, high-tension power lines that traverse the Karoo are crucial infrastructural links, carrying power from source to user. Unfortunately, they are also deathtraps for large terrestrial birds.

Previous spread All power and forward momentum, a Ludwig’s Bustard takes to the air. Built for carrying its considerable bulk over the vastness of the open Karoo, the bustard’s airframe is ill-equipped for rapid evasive manoeuvres. Collisions with aerial obstacles seem almost inevitable.
Ludwig’s Bustard may be more collision-prone than other large bustards because of its greater tendency to fly. Researchers need to know far more about where, when and why individuals undertake their movements, so that an effective strategy to reduce bustard deaths on power lines can be developed. Satellite telemetry may hold the key.

WHAT CAN BE DONE?

This was the question asked in March 2008 at a birds-and-power-lines research strategy workshop hosted by the EWT’s Wildlife and Energy Interaction Group (which incorporates the Eklom-EWT Strategic Partnership), and attended by a panel of local crane, bustard and raptor biologists. What could accurately be called the ‘bustard crisis’ emerged clearly as the most pressing issue on the workshop’s agenda, and a wishlist of bustard research was drawn up, focused on finding a way to reduce collision rates. Our other research goals are rather more challenging. The only way to fully get to grips with these is being done on birds worldwide and, while it is expensive and has a number of practical drawbacks and limitations, it is unsurpassed in terms of the quality and quantity of spatial information it delivers. If we can raise the funds for it, and manage to catch some bustards to fit with trackers (quite possibly much easier said than done!), we will definitely follow the satellite-telemetry route.

Ludwig’s is the third-largest bustard in southern Africa, with males weighing up to six kilograms. The species is named after a Cape Town pharmacist, German-born Baron von Ludwig, who was an active amateur naturalist in the region in the early 1800s. Despite its size and relative conspicuousness on the open plains of the Karoo, Ludwig’s Bustard is remarkably little known, and critical areas of its life, in particular the details of its seasonal movements, remain frustratingly mysterious.

We know that it is a semi-desert specialist that generally occurs in small groups, walking and feeding together on insects, fruits and leaves in roughly the same area. These small bands collect to form larger gatherings at designated, hill-top roost sites. We also know that Ludwig’s, like most bustard species, is a polygynous breeder, with the adult males, which are far larger than the females, going it alone every breeding season. They do this to ensure reproductive success. We hope to recruit the assistance of David Allan more than 15 years ago.

That we do not yet have an adequate solution, despite already using the state-of-the-art devices available globally. While the bustard death rates recorded near De Aar may represent extreme collision ‘hotspots’ and the overall average may be consider-
ably lower, with more than 16,000 kilometres of medium-high-voltage power line in the Karoo and even more low-voltage and tele-
phone lines, the total Ludwig’s Bustard casualty count every year could be huge. We don’t have sufficient accurate life-history information to assess fully the impact of such heavy losses on the population as a whole, but we probably do know enough about large, long-lived and slow-reproducing birds to be sure that unnatural mortality rates of as much as 10 to 20 per cent per annum cannot be sustainable. Without the benefit of rapid and effective intervention, future prospects for Ludwig’s Bustard look extremely grim.

Professor Graham Martin from the University of Birmingham in the UK to tackle this highly specialised aspect of the study. Martin is an expert on avian eyesight and is well known for the unique approach and apparatus he uses to measure birds’ visual fields, determining what they can and cannot see in a range of circum-
stances. Already, in our initial correspondence with him, we have noticed some of the incred-
ible nuances of this kind of work. With his help, we hope to figure out why bustards on the wing apparently fail to see power lines, and what other methods we should employ to better draw the bustards’ attention to the hazards ahead of them.

A TEAM EFFORT

Chantism issues notwithstanding, it’s high time Ludwig’s Bustard received the attention it so urgently requires. Covering the research ground described above and devising and exe-
necuting the resulting conservation plan will take a concerted team effort. To its credit, Eskom has already expressed its continued commit-
tment to this cause, and we at the Wildlife & Energy Interaction Group will do all we can to facilitate the process, second the relevant expertise and bring the required person-power needed to get the job done. Here’s hoping that the bustards can persist in the interim.

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