Powerlines
and cranes

7 of a 9 part brochure series

Bird collisions with earth wires and electrocutions on pylons have become more prolific with the increased demand for electricity.

Access to affordable electricity in South Africa is now regarded as a fundamental human right and so enormous pressure is being placed on electricity suppliers to provide energy at the lowest cost to as much of our population as possible.

The greatest challenge to Eskom – Southern Africa's largest electricity supplier – is to find a balance between the interests of industry, the demands of residential electrification, and acting as a responsible steward of our natural resources. *Pic 2*

Collisions and electrocutions often involve bird species that have already low population numbers, so this is rapidly pushing these species toward a threatened status or even extinction. *Cover pic*

Electrocutions and collisions

Many different types of interactions take place between birds and power line infrastructure, the most significant being electrocutions on, and collisions with, power lines.

Bird electrocutions occur when a bird is perched on electrical infrastructure. This can cause an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components. Among the cranes, only the Grey Crowned Crane is vulnerable to electrocutions, because only they have the ability to perch on structures, including transformer poles, that expose them to live components.

Bird collisions causing death or injury take place when the bird fails to see the conductor and/or earthwire while in flight and collides with it.

Data gathered over the past decade is proving that collisions are as much a major cause of unnatural

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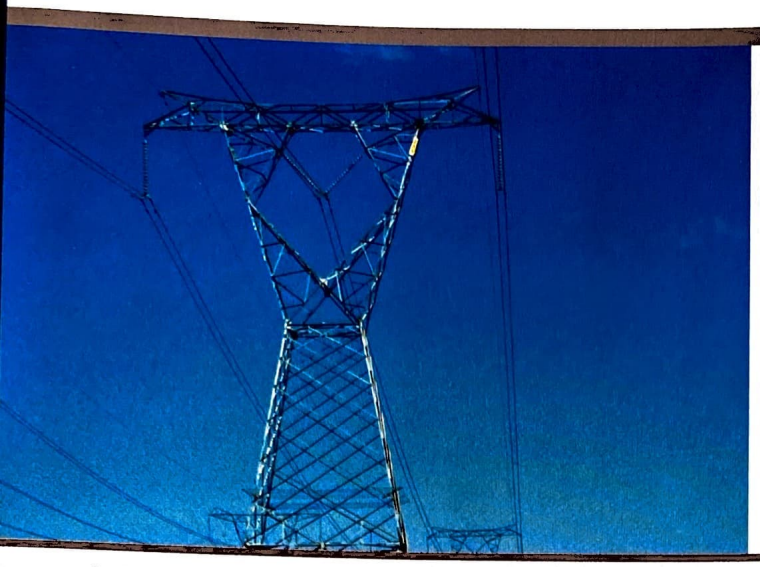


2 Thousands of kilometres of power line cross the agricultural landscape to supply electricity to people throughout the region

Cover Grey Crowned Crane collides with and is entangled by a utility line

3 Here an adult Blue Crane flew into a distribution powerline

mortality for several threatened species, as electrocution is. Up to 1996, the latter was thought to be the main cause. Species vulnerable to power line collisions are the slower and less agile birds. These species have a high wing loading (ratio of body weight to wing area), which makes it difficult for them to change course in time when encountering a power line, hence the collision becomes unavoidable. *Pic 3*

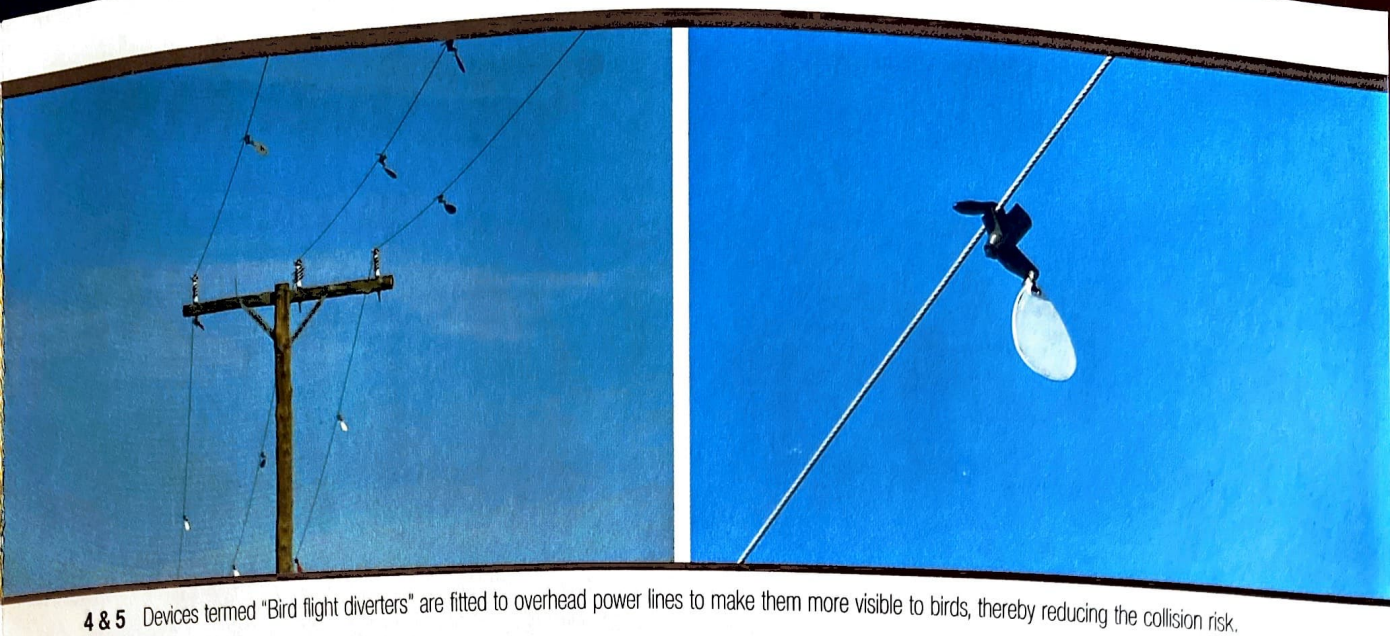
Species vulnerable to this threat include all three species of cranes as well as storks, bustards and many other large terrestrial bird species.

Business risk

Bird power line interactions may have serious economic impacts on organisations. e.g system reliability. Nearly all industry sectors are computerised and even with automatic reconnection, a 'flash' or 'dip' caused by an electrocuted animal can be destructive to the industry. This can be extremely annoying to customers, especially in the agricultural sector, since even a 'flash' in the electricity supply causes single-phase pumps supplying water to dams and livestock to trip, which in turn have to be started manually.

Furthermore, birds and birding have a substantial local, regional and international economic value. The worth of South Africa's birds is presently estimated at about R1.64 billion to R3.48 billion, with each bird species being worth between R2.2 million and 4.7 million.

Hence, reducing negative interactions between birds and power lines through implementing mitigation measures, has benefits for both the electrical industry and society as a whole



4 & 5 Devices termed "Bird flight diverters" are fitted to overhead power lines to make them more visible to birds, thereby reducing the collision risk.

Solutions

Collisions

When powerlines are to be erected, the most important aspect is the initial route placement. Avoid routing the power line adjacent to wetlands and farm dams that are bird roost sites, or across rivers, waterways or valleys. This will decrease the collision hazard significantly. Use the surrounding topography to the advantage of the route planning by using natural obstacles to increase the height at which birds fly, thereby assisting the birds to avoid the powerlines.

For existing power lines, the most accepted method of reducing the collision threat is to mark the power line conductors or earth wires with devices called 'bird flight diverters'. This increases the visibility of the power line for the birds from a distance. *Pic 4 and 5*

Electrocutions

Methods of preventing electrocutions are very different for each configuration of powerline structure, but in principle, they entail insulating live components, cutting the earth wire of 11/22 kV T-structure powerlines, or preventing birds perching close to live components through the use of bird guards. As a proactive measure, Eskom should be encouraged to build bird-friendly power lines to prevent the interaction from the start.

The Eskom-EWT Partnership

Eskom is very aware of these problems and is dedicated to reducing these adverse interactions. Eskom has been working with the Endangered Wildlife Trust (EWT) in an attempt to solve bird power line interaction problems since the 1970s. In 1996 the Eskom-EWT Strategic Partnership was formed as a joint venture aimed at solving the problem of negative interactions between birds and powerlines in a systematic manner.

One of the main pillars on which this partnership is based is public participation. Bird interactions can only be managed effectively if they are properly reported and investigated. Public liability claims and unwanted negative

6 All incidents reported to the Eskom-EWT Partnership are investigated to determine the cause of the incident and to recommend mitigation action

publicity against Eskom around bird mortalities from power lines can be prevented if incidents are timeously investigated and mitigation measures implemented. *Pic 6*

What you can do

The public, specifically the farming community, is urged to contribute to the conservation of our threatened birds by regularly inspecting power lines running across their property and reporting any birds killed by and found under the power lines to the EWT at the number below.

Contact

For more information regarding this issue, or to report wildlife killed by power lines, please contact the Eskom-EWT Partnership on 0860 111 535 or email weig@ewt.org.za

This brochure series has been developed for farmers and the public to use in conserving the three cranes species and their habitats. For more information about EWT and cranes, call (011) 486 1102 or email crane@ewt.org.za

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