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Zoetvlei Blue Crane Case: *summary to date*

This is not a scientific report, because it is based solely on observations. The goal of this report is to highlight the history of the power line problem with the Blue Cranes of Zoetvlei and to raise awareness about the scale of the problem.

The most dangerous power line in South Africa; MBH 694-61-94 to MBH 694-61-100

The Blue Crane, *Anthropoides paradiseus*, is South Africa's national bird and is a symbol of freedom and peace. In the 1970's South Africa had about 100 000 Blue Cranes, but by the end of the 20th century there were 20 000 left. The species are thus classified as **vulnerable** by the IUCN. What caused this enormous decline in the South African Blue Crane population? There are four major killers of Blue Cranes; wrongful use of poisons/chemicals, collisions with and electrocution by power lines, destruction of wetlands (breeding site) and the destruction of natural grasslands (key habitat and breeding site). Although wrongful use of poison is the main factor involved in Blue Crane deaths in South Africa, power lines are the biggest problem for this species in the Karoo.

Zoetvlei is located south of Richmond in the Northern Cape Province. In 1992 Zoetvlei (1000ha) had 600 Blue Cranes. At this time Eskom started a project of installing power lines

across the farm in order to provide electricity to neighbouring farms. Six years later (1998) the Blue Crane numbers had declined to 280 and by the end of 2003, Zoetvlei had a mere 170 Blue Cranes left. That's 28% of the original population left after only 11 years!

In 2003 Marina Beal, co-owner of Zoetvlei, observed that a particular stretch of power line was causing the death of a large number of Blue Cranes. This stretch of power line is 800m long and is between poles MBH 694-61-94 and MBH 694-61-100. It crosses the farm's Blue Crane sanctuary next to a very large water source. Marina contacted David Juliffe from the South African Crane Working Group (SACWG) and invited him to visit Zoetvlei and inspect the lines. Marina and David counted, on average, 16 dead Blue Cranes between each set of poles underneath the stretch of power line. David called it; "the worst case I have ever seen". David subsequently moved to Australia. In 2004 Marina contacted Riem de Beer of Manyano Power about the problem and he came to install flappers on the line (Fig. 1).

The Blue Crane numbers mentioned after this section should be taken as an absolute minimum. The reason is that scavengers drag the carcasses away, thus not allowing for accurate collection. Many of these birds also get injured in the collision, but are able to fly a few hundred metres before dying.

In April 2005, the lines were walked again and it became clear that the flappers were ineffective and were also braking off the lines; more fresh Blue Crane carcasses were found. Marina thus contacted Bradley Gibbons from the Endangered Wildlife Trust (EWT) and he visited the site. He was appalled by the amount of Blue Crane deaths and suggested that the lines be buried, because of its intrusion into the Blue Crane flight path. Bradley himself did not take this problem any further. By June 2006 another 25 Blue Crane carcasses were found.

In June 2007, new devices were installed on the power lines with the help of Willy Els (Colesberg Eskom), because of the ineffectiveness of the flappers. These 'pods' were round shaped objects with reflection pads in the middle and were made to swivel in the wind (Fig. 2). The devices worked perfectly for the duration of 2007, but the reflection pads started falling off (they were glued onto the 'pods', Fig. 2). This was reported to the Eskom/EWT partnership, but no immediate action was taken. In April 2008, 13 Blue Crane remains were collected and the 'pods' started falling off the lines (it is also thought that these devices did not fall off the line, but were knocked off by the Blue Cranes). By July 2008 another 15 dead Blue Cranes were found and their carcasses collected.

The lack of action from Eskom forced Zoetvlei to start installing home-made devices ('barrels') underneath the lines in July 2009 (Fig. 3). Previous observations indicated that Blue Cranes do not collide with power lines spun above fences, so the thinking was that the 'barrels' would have the same effect. These 'barrels' were normal 25 litre, black plastic drums with the original white stickers on them. While installing the 'barrels' another 7 Blue Crane carcasses were collected. Unfortunately in December 2009 another 18 Blue Crane remains were found underneath the line, even though the 'barrels' were installed. Also two Blue Cranes died directly above a farm gate.

Thus, in December 2009 the 'barrels' were altered to include reflective tape and glow-in-the-dark paint (Fig. 3). Since then there has not been any new Blue Crane deaths and everything is going well for the species at Zoetvlei. However, the main time during which Blue Crane deaths are observed is in the winter (July - October). Time will tell if the altered 'barrels' are effective.

Table 1: Summary of Blue Crane deaths since Eskom installed first devices

Date	Number of Blue Cranes collected	Devices in place at the time
June 2006	25	Flappers
June 2007	0	Pods with reflectors
December 2007	0	Pods with reflectors
April 2008	13	Pods without reflectors
July 2008	15	Pods without reflectors
July 2009	7	Pods without reflectors
December 2009	18	Pods and 'barrels' (unaltered)
February 2010	0	Pods and 'barrels' (altered)

*Note that the only winter time during which no Blue Crane deaths were observed was the time when the pods still had reflectors.

A minimum of 78 Blue Cranes have died in the last three years at Zoetvlei (Table 1; Fig. 4). All these deaths were from colliding with the same stretch of power line; MBH 694-61-94 to MBH 694-61-100. We feel that this is totally unacceptable and would like to propose possible solutions.

Proposed solutions to the Blue Crane problem in the Karoo

There are a few different solutions to the problem of Blue Cranes colliding with Eskom power lines. This is solely our own opinion and not based on any scientific data.

1. Eskom needs to consider the topography of the landscape when installing new lines

When new lines are installed they need to be placed so that the topography forces the birds to fly over the lines. For instance, at Zoetvlei, there is a stretch of line that goes past the farmstead. The farmstead buildings force the birds to ascend when they get close to the farmstead and help them clear the power lines; even if they do not see it. If, however, a valley needs to be crossed the power lines should be placed away from large water sources (e.g. dams) and wetlands. This should ensure that the power lines stay out off regular bird flight paths. If none of the above is possible, then the lines need to be buried.

2. Durable 'pods' needs to be designed

The second round of devices, the swivel 'pods' with reflectors, that Eskom installed seem to work very well until the reflective pads started falling off. If these pods are made to be more durable it could very much alleviate the problem. Also Eskom needs to inspect the lines that have been classified as problem lines in order to monitor the durability of the devices.

3. The communication between conservation authorities (e.g. EWT) and Eskom needs to be improved

Two cases have been brought to our attention where EWT gave Eskom the wrong line numbers and Eskom installed devices on the wrong lines. This is obviously unacceptable, because it wastes money and time that can be spent otherwise.

4. Eskom workers need to be carrying the tools needed to install devices and the devices with them on all jobs

The Eskom workers have raised the point that they can readily recognize problem stretches of line while doing maintenance on the lines. They can, however, not install the devices without word from an organization like the EWT. They also carry the tool needed to install the devices with them in their vehicles, but not the devices. These workers need to be able to install devices as they recognize problem lines.

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Fig. 1: The flappers that were installed in 2004. Note that the left flapper broke off in the middle and that right flapper broke at the attachment.



Fig. 2: The 'pods' installed in 2007. These 'pods' worked perfectly until the reflective pads fell off. Note that the reflective pads are small, but still proved effective.



Fig. 3: The altered home-made 'barrels' with reflective tape and glow in the dark paint installed in December 2009 underneath the power lines.



Fig. 4: Fifty three of the 78 Blue Cranes that died at Zoetvlei over the last three years. Note that this is the minimum amount and that the real amount is probable closer to 150.