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### GROUND-BREAKING POWER LINE MONITORING AND SURVEY PROJECT

#### Why do we need a monitoring and survey project?

The NamPower/NNF Strategic Partnership recently consolidated a focussed action plan to address bird / power line interactions in Namibia (see our website below for the workshop report, on 17 March 2011, and newsletter No. 7).

The first item of this plan, namely surveys/monitoring of power lines, is regarded as a priority in order to obtain scientifically meaningful data on bird mortalities on power lines, as a basis for making decisions about mitigation measures. The recording of incidents is ongoing, and serves to give an indication of a possible problem area. However, it is only by means of repeat dedicated surveys to quantify collision rates that the impacts of power lines on bird populations may be determined. This is underlined by two recent reports by Jessica Shaw and her co-workers on the unsustainable impacts of power line collisions of Blue Cranes and other species in the Cape Overberg (see textbox on p2).

The NP-NNF Partnership is therefore launching a ground-breaking project involving dedicated repeat surveys of representative sections of power lines in Namibia.



The Trekkopje-Wlotzka 132 kV line was surveyed on 24/8/11 by a dynamic team from Areva (Environment Management), including Kaarina Nkandi (right) and Richard Gurirab. This line is monitored regularly since the first flamingo collision incident was recorded here in July 2010 (photo: Areva).

#### Where do we start?

At two mini-workshops in Windhoek and Swakopmund in July, some priority areas for pilot surveys were identified:

- Monte Christo
- Seis North
- Avis Dam
- Langer Heinrich Mine (to C28)
- Husab Mine: new temporary line
- Trekkopje-Wlotzka Line
- Coast: Walmund S/S to Swakop River crossing
- Rössing Uranium Mine
- Keetmanshoop 400 kV & Rock Harib
- Lüderitz area
- Caprivi
- Kavango + Kwando River corridors/new 350 HVDC
- Etosha East
- Waterberg West
- Erongo Mountains
- Ganab area (NNP)
- Auas area
- Mariental Fish River/Hardap Dam
- Onuno-Ondjiva – new line north of Ondangwa.

Project proposals for several of these surveys have already been submitted (see p2), each driven by a coordinator and involving a variety of interested participants, including from mines on the coast. A strict methodology will be followed so that data may be recorded in a scientific way. The project is being initiated in close collaboration with NamPower, in view of the stringent safety requirements for working beneath power lines (including induction).

### Why do we need power line surveys?

Avian mortality on power lines in South Africa is currently recorded on the Central Incident Register (CIR), which is a collation of incidentally reported cases. The true scale of the problem is unknown, so we report here on a survey of representative power lines in the Overberg region of the Western Cape. On the 199 km surveyed, 123 birds of at least 18 species were found. Collisions were more common than electrocutions, apparently killing 88% of the birds found on distribution lines. Large terrestrial birds were the most numerous victims, with large numbers of Blue Cranes *Anthropoides paradiseus* and Denham's Bustards *Neotis denhami* killed. In comparison with mortality rates from the CIR, we estimate that only 2.6% of power-line mortalities are reported, emphasising the importance of systematic surveys in quantifying mortality and directing mitigation. Our survey highlights the general hazard that power lines pose to avifauna, and the urgent need for further research into the population impacts of the high incidence of collisions.

*Abstract: A preliminary survey of avian mortality on power lines in the Overberg, South Africa by Jessica M Shaw, Andrew R Jenkins, Peter G Ryan and Jon J Smallie. Ostrich 2010, 81(2): 109–113.*

The Overberg wheatbelt population of Blue Cranes *Anthropoides paradiseus* in the Western Cape of South Africa is approximately half the global population of this vulnerable species. Blue Cranes are highly susceptible to collisions with overhead power lines, and a spatial model was developed to identify high-risk lines in the Overberg for proactive mitigation. To ground-truth this model, we surveyed 199 km of power lines. Although Blue Cranes were the most commonly killed birds found (54% of all carcasses), the model was unable to predict lines with high collision risk for Blue Cranes. Further Geographic Information System (GIS) modelling was undertaken to test a wider range of landscape and power-line variables, but only the presence or absence of cultivated land could usefully identify lines posing a collision risk. Modelling was limited by a lack of detailed spatial habitat data and recent information on Crane numbers and distributions. **We used recent carcass counts to estimate a Blue Crane collision rate, corrected for sample biases, of 0.31 /km power line per year (95% CI 0.13–0.59 /km/ year), which means that approximately 12% (5–23%) of the total Blue Crane population within the Overberg study area is killed annually in power-line collisions. This represents a possibly unsustainable source of mortality.** There is urgent need for further research into risk factors and for mitigation measures to be more widely implemented.

*Abstract: Modelling power-line collision risk for the Blue Crane Anthropoides paradiseus in South Africa by Jessica M Shaw, Andrew R Jenkins, Jon J Smallie and Peter G Ryan. Ibis (2010), 152, 590–599.*

### What progress is being made?



A power line in the Avis Dam area, Windhoek (above) was investigated by John Pallett and Allen Kafene (below; photo John Pallett).

#### Avis Dam area

John Pallett and Allen Kafene were quick off the mark and did some preliminary investigations near Avis Dam, covering 1.9 km on 10/7/11. They found the first part of the proposed route heavily encroached with bush, and are now revising their tactics.

#### Monte Christo

Liz Komen at NARREC has initiated a project for a third year student of the Polytechnic of Namibia Nature Conservation diploma course, Johannes Rugharo, which will be funded by the Partnership. Johannes will monitor a 220kv power line over the farms Monte Christo North and Monte Christo South in the Khomas region. This project builds upon Polytechnic projects funded by the NamPower/ NNF Partnership last year.

#### Power lines in the South

Peter Cunningham has submitted a proposal for surveys of the 400 kV power line in the South, as well as the Rock-Harib 132 kV line. Details of the areas are still being fine-tuned, to supplement the excellent work already done in this area by NamPower staff.

## Trekkopje-Wlotzka 132 kV line and Trekkopje bypass



Team Areva (Environment Management) during a survey of the Trekkopje bypass (above) and Trekkopje-Wlotzka 132 kV line (below) on 24/8/11, showing Kaarina Nkandi (left) and Annina van Neel (photos: Areva).

On 24/8/11, a team from Areva Resources Namibia under the capable leadership of Kaarina Nkandi (Areva Environment Management) and including Annina van Neel and Richard Gurirab completed a survey of 68.5 km, covering the Trekkopje bypass (66 kV and 220 kV) and Trekkopje-Wlotzka (132 kV) lines (start S0497062 E7552091, end S442616 E752896). No dead or injured birds were found, and few birds were observed flying under or in the vicinity of the power line.

Two flamingo collision incidents in November 2009 were first investigated by the Partnership and Kaarina Nkandi on 16/7/10 (see newsletter No. 5). On 11/11/10 Sandra Muller (Areva Environment Manager) found two more flamingos that had collided with the 132 kV Trekkopje-Wlotzka line (see newsletter No. 6). From December 2010 to May 2011 (the period covering flamingo migration periods), Sandra drove along the 132 kV line twice a month, usually around the 11th and 29th, and watched out for dead birds (without walking) but found no more carcasses. Additional surveys were conducted on 11/11/11 (132kV) and 19, 26 and 29/11/11 (entire line: 66/220 kV and 132 kV).

## Langer Heinrich Mine

A commitment has been made by Langer Heinrich Uranium Ltd to monitor the 66 kV line from the mine to the C28 road. This line is in the process of being replaced.

## Swakop Uranium

A commitment has been made in principle to monitor the power lines associated with the Husab Mine.

It is hoped that the results of this project will provide a firm basis for determining the need and areas for applying mitigation measures. We look forward to reporting on further progress in our next newsletter, and thank all those who have given their enthusiastic support to this critically important initiative. Anyone else interested in becoming involved is invited to contact the project managers (see footer on p1 for details).

## SECRETARYBIRD AND HOODED VULTURE AT RISK OF EXTINCTION

It graces South Africa's national coat of arms, as a symbol of strength and vigilance, but this mighty bird is in trouble. The International Union for the Conservation of Nature has just released data relating to its 2011 Red List for Birds, and the snake-hunting Secretary bird has been added to the list of animals facing extinction. Another South African bird is even worse off. The Hooded Vulture is now classified as *Endangered*, meaning it has experienced a massive population decline and faces a "very high risk of extinction in the wild". The Secretary bird, famous for appearing on the national coat of arms of two countries, South Africa and Sudan, is marked as *Vulnerable*.

Just two years ago, both birds were categorised on the Red List as being of "least concern". A large distribution range across most of Africa, it was thought, protected them from serious population decline. "The Hooded Vulture in the past was a common sight in many African



The Secretarybird is now classed as *Globally Vulnerable*; recent population declines are ascribed to hunting, poisoning and habitat loss (photo Ann Scott).

towns, but now they have suffered a decline of 50 percent over the last three generations,” said Mike Jordan, the senior conservation adviser at the National Zoological Gardens of South Africa. Both birds had experienced population declines because of hunting, poisoning and habitat loss, according to Jordan. Both birds, he said, were known to scavenge and sometimes they fell prey to carcasses that had been baited with poison to kill jackal. The Hooded Vulture is also captured for food in some parts of Africa and is susceptible to diseases such as avian flu. “There have been reports of vultures being deliberately killed because they give away poaching activities,” Jordan added. The grasslands on which Secretary birds hunt have in recent years suffered from excessive burning and overgrazing. This change in the grasslands has resulted in declines in the populations of mice and other rodents, which make up the raptors’ diet.

The University of the Witwatersrand plans to conduct a detailed study of the Secretary bird, and the hope is that this might shed new light on these long-legged birds of prey which could one day help save them. Dr Craig Symes, of the school of animal, plant and environmental sciences at Wits, said one of the researchers in the department planned to use GPRS, the same technology used in cellphones, to track Secretary birds in the Kalahari. The research, he said, could provide information on how far the birds range and on their diet, and provide comparisons with other habitats.

Jordan’s worry is that there are currently no active global conservation measures in place to conserve either species.

#### Shaun Smillie

<http://www.iol.co.za/thestar/secretary-bird-hooded-vulture-at-risk-of-extinction-1.1096426> (adapted)

July 11 2011

#### What is the situation in Namibia?

To date we have records of three Secretarybird collisions on power lines in Namibia:



Secretarybird mortality on the Kokerboom-Auas 400 kV line, pole 496-498 on 9/3/10 (photo A.C. van Zyl)

- 19/11/09 Kokerboom-Auas 400 kV line east of Keetmanshoop (H. Peens, P. Cloete, A & M Scott)
- 9/3/10 Kokerboom-Auas 400 kV line, pole 496-498 (A.C. van Zyl)
- 30/3/11 Nossob 33 kV line (A.C. van Zyl; this issue)

Please help us keep an eye open, and report any further incidents. It would be sad if either of these two magnificent raptors – Secretarybirds or Hooded Vultures – were to disappear from our Namibian skies.

### EXCELLENT PROGRESS WITH THE ENVIRONMENTAL INFORMATION SERVICE (EIS)

([www.the-eis.com](http://www.the-eis.com))

The development of the EIS was an initiative of the NamPower - Namibia Nature Foundation Strategic Partnership.

#### What is the EIS?

- A free, online information resource for Namibia;
- A search and retrieval system for data (including databases, spatial data, literature, links to relevant websites and organisations, and other resources);
- A repository for data and a mechanism for sharing data.

The EIS is well on the way to becoming the “one-stop-shop” for public environmental information in Namibia, both through providing data directly and by providing links to other sources of information. Its users include government staff, NGO staff, researchers, consultants, EIA practitioners, students and many other people who are involved in environmental issues both within Namibia and further afield.

The EIS already includes a large volume and variety of information and - because it is still under development - new information and new features are being added on an ongoing basis. It includes an upload option which allows anyone to submit data and has a number of features which allow users to actively interact with it.

#### Why do we need an EIS?

Wherever possible, planning and decisions should be informed by up-to-date, reliable data and information. This is as true for environmental issues as it is for other areas. A lot of environmental information exists which is not easily accessible including literature, reports, GIS data, databases and more. Often, finding out what information exists and then obtaining it is a long and time-consuming process requiring many phone calls and visits to offices. The EIS brings together data and information from a wide range of sources with a user-friendly search interface and makes it freely available for download, if it is available.

#### Who can use the EIS?

Anyone with internet access can use the EIS for free. There is no need to register or pay to search for or

download information and data, although you are encouraged to register as an EIS user so that we can keep you informed when new data and features are added.

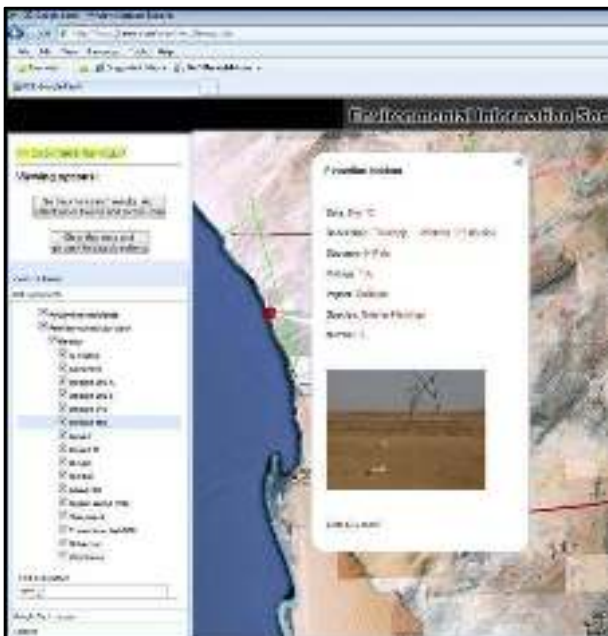
### What's in the EIS?

The EIS incorporates a wide range of data types including:

- Literature: books, reports, journal articles, theses and more
- Links to other useful websites and data sources
- Environmental impact and assessment materials
- Environmental legislation
- Links to environmental organisations

### Special features

The EIS is responsive to its users' needs. With the support of NamPower, a fully-customised 'Birds and Powerlines tool' has been developed to support decision-making processes regarding the siting of powerlines in relation to birds, especially those species which are impacted by, and impact on, powerlines. This tool allows the online viewing of spatial (map) data so that the user can, for example, interactively view maps of powerline distributions and overlay hotspots of sensitive bird species distributions together with maps of key factors such as topography and known incidents between birds and powerlines. Used appropriately, this innovative tool can assist NamPower in planning new powerlines so that their environmental impact will be minimised.

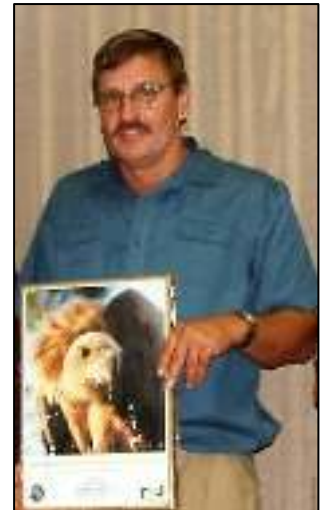


Example of use of the "Birds and Powerlines" tool, used here to document a flamingo collision on the Trekkopje-Wlotzka 132 kV line on the coast (EIS)

## HOW I CAME TO BE REPORTING WILDLIFE/ POWER LINE INCIDENTS

AC van Zyl, email AC.Van.Zyl@nampower.com.na

*Ed: Together with Pieter Cloete, A.C. van Zyl was the recipient of a Certificate of Merit by the NamPower/NNF Partnership on 17 March 2011. These awards were for exceptional dedication to the objectives of the Partnership in the form of the number of reports of wildlife/power line incidents submitted. We asked the recipients how this came about ...*



I was born and grew up on a farm in Aranos district. I started my apprenticeship at Iscor, Sishen in the Northern Cape. I started at the end of 1990 at Eskom with the new development of power lines along the Molopo. I was transferred to Van Zylsrus (Kalahari) for the new area. We started under difficult conditions and it was a great ecosystem.

We had problems like customers who didn't want to wake up and see the poles on their dune, erosion, outages caused by bird nests, trees and a large, sensitive vulture nesting area near Askham. Customer care was one of our priorities and I had to take care of it. We put in some branches for erosion, put raptor protectors on the lines and held a record of 14 vulture nests for trimming of trees etc. For Sociable Weaver nests - I made a study of the birds and their habits and solved the problem by shifting them down on the pole structure. The customers' poles were painted to soften the view. I received two NamPower Managers' Awards (Bronze and Gold) for my efforts.

I went back to Namibia in December 1994 and bought my own farm. I started working again at NamPower, in the Aranos District, in March 2002.

We had lots of trouble with Sociable Weaver nests causing outages in the Kalkpan area. We had to drive twice a week to remove nests. No solutions were known, but I decided to do something. I made my study to find out what I must do and started to use old/damaged poles to relocate birds from the line. I had great success (see p6 for details of methods).

The enforcement was part of my life. During our operations we had found the animals and birds on transformers and along the lines, so when the NamPower/NNF Strategic Partnership started it was easy to take part and report incidents.

## Technique for setting up “dummy” poles to tranlocate Sociable Weaver nests

AC van Zyl, email [AC.Van.Zyl@nampower.com.na](mailto:AC.Van.Zyl@nampower.com.na)  
(reproduced from newsletter No. 3)

To start – check and mark water points of farms in area; wind directions; and where the birds’ nesting and feeding grounds are. Then you can decide where to put up the dummy pole or other structures. It is difficult to make holes. Use old oil drums (200L), put the pole in it and fill with stones and sand. Now, burn all old nesting material and grass at this nesting spot. Every week, remove the new nests and put some of them in the dummy pole until the birds start moving. Make enough space available for them, otherwise they will move back. I can show you how to make a basket; it is not always easy, if one doesn’t work you must try another way. My experience is that in the Kalahari the most bird nests are situated south to south east on the tree/ structure. (I started these baskets in 1991 at Eskom – Van Zylsrus, Northern Cape and had great success.)



Dummy pole on Farm Eldorado (pump) on Kalkpan reticulation line, 153km from Aranos (see dummy on left, and smaller nest on the cross-arm structure; *photo AC van Zyl*)



Basket (made out of old conductor wire) on Kalkpan HLPCD (horizontal line post compact delta) reticulation line, Farm Dai Gratia (*photo AC van Zyl*)

## POWER LINE/WILDLIFE INCIDENTS

### Secretarybird on Nossob 33 kV

A.C van Zyl, email [A.C.Van.Zyl@nampower.com.na](mailto:A.C.Van.Zyl@nampower.com.na)

30/3/11 on the Nossob 33KV Ret-Selurian. Electrocution on pole with jumper on top, carcass 2-3 months old. (Also see African Hawk-eagle below.)



### African Hawk-eagle on Nossob 33 kV

A.C van Zyl, email [A.C.Van.Zyl@nampower.com.na](mailto:A.C.Van.Zyl@nampower.com.na)

30/3/11 on the Nossob 33KV Ret-Selurian. Electrocution on strain pole with A-frame design and jumper on top, carcasse 2-3 days old. This is the second incident (see Secretarybird above). We need to isolate the jumper on top, or adapt the structure.



PTO for second photograph.

Continued from p6.



### Barn Owl at Gerus S/S

Hendrik Espag, email [Hendrik.Espag@nampower.com.na](mailto:Hendrik.Espag@nampower.com.na)

On 6/6/11 we rescued an owl from our 400kV HP 3 Filter yard at Gerus S/S. We were doing maintenance and noticed the bird hopping around in the yard. After catching it we delivered it to Dr Axel Hartman, the vet at Otjiwarongo Vet Clinic.



### Ludwig's Bustard on Walmund-Kuiseb

Karl-Heinz Wagner, email [Karl-Heinz.Wagner@nampower.com.na](mailto:Karl-Heinz.Wagner@nampower.com.na)

On 16/6/11 we found the fresh remains of a Ludwig's Bustard on the Walmund-Kuiseb line (S22 46.639 E14 43.956; lower yellow marker on map, top right). Three lines running parallel: 220 kV, 66 kV, 66 kV; carcass found closest to 220 kV line, between it and the two 66 kV lines.



## Bustard on Walmund-Rössing

Karl-Heinz Wagner, email Karl-Heinz.Wagner@nampower.com.na

On 3/8/11 a colleague found the remains of a bustard on the 220kV line from Walmund to Rössing, close to Stone Africa (approx. 12 km from Rössing Mine; S22 32 12,9 E14 54 38,2; top yellow marker on map at top of p7). Collision on a 302A Structure.



## Spotted Eagle-owl at Aranos

A.C van Zyl, email A.C.Van.Zyl@nampower.com.na

On 19/8/11 on the Aranos -Leonardville 33KV Ret., on Farm Terra Nova. Electrocutation on transformer. First tripped whole Leonardville Ret. and blew two fuses on farm .



## Tripping out of 11 kV feeder at Rössing Uranium

Amakali, Simaneka; Elago, Tomas; Yvonne Mupupa

The tripping out of 11kV Feeder F3 - feeding the Coarse Ore Substation, Compressor Substation and Open Pit Substation has been affecting our production negatively. On 21/5/11 @ 14:14:30 F3 tripped out and again today (27/5/11) F3 tripped out on similar conditions. Our team ascertained the causes of these momentary faults and uncovered the following:

The smaller bird was found roasted, but dry on the ground, while the bigger bird (Ed: a Pale-winged Starling) was found still perched but roasted at the crossbeam between the masts.

We would appreciate if our environmental experts can investigate why birds such as the crow or starling may be attracted to power line pole structures and possibly come up with measures to prevent possible reoccurrence.



## MITIGATION FOR OUTAGES CAUSED BY CROWS AND OTHER BIRDS

MEGAN DIAMOND Wildlife and Energy Programme (WEP) Manager, Endangered Wildlife Trust, Tel: +27 11 372 3600 Fax: +27 11 608 4682 email: megand@ewt.org.za website: www.ewt.org.za

There is an insulating material that can be used to address outages caused by birds (on low voltage lines). It is an American product manufactured by Raychem and distributed locally by Tyco Electronics. We predominantly use this product for Sociable Weavers but I would imagine that the same principle could be applied



to crows. You are right in saying that waste management is a more sustainable and proactive approach towards managing the crows and should be employed wherever possible...



Step 1: Cut MVLC to fit over insulator head



The Raychem Medium Voltage Line Cover and Insulator Cap; two different methods of installation are related to the structure type (photos Eskom Holdings: Distribution Division).

The next newsletter of the

## BIRDS AND AIRCRAFT RESEARCH NAMIBIA PROJECT (BARN-P) Vol. 2(11) Aug 2011

is now available from Morgan Hauptfleisch, email [morgan.hauptfleisch@ea.com](mailto:morgan.hauptfleisch@ea.com). More about this in our next issue!