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EDITORIAL

In this issue we pay tribute to the vital contribution that is being made to the monitoring of power lines by coastal mines. These organisations are clearly demonstrating their commitment to environmental excellence. Progress with the Partnership's action plan has been assessed, and the plan has been updated as required. Feedback is provided on the impressive results of power line surveys and incidental records from 2009 to 2015, with details of 483 birds involved. One year of post-mitigation monitoring of the Kuiseb-Walvis Bay 132 kV power line indicates that the mitigation methods being tested are having a positive effect. Swakop Uranium has taken the initiative in organising an electrocution brainstorm at the Husab Mine. The Environmental Information Services (EIS) moves into an exciting new phase, thanks to support by the Namibian Chamber of Environment. The Namibia Bird Club celebrates International Vulture Awareness Day in style. Lastly, an update on all the power line surveys and incidents recorded from November 2015 to September 2016. Many thanks to all who have faithfully submitted these records, and for your ongoing support.



Members of the Swakop Uranium team monitoring the 132 kV Lithops-Husab power line on the Husab Mine (L to R: Abraham Amuthenu, Andrea Roxin, Claudia Vahekeni, Ignatius Katupao; *photo Immanuel Kalomho*)

COASTAL MINES MAKE A VITAL CONTRIBUTION TO POWER LINE MONITORING

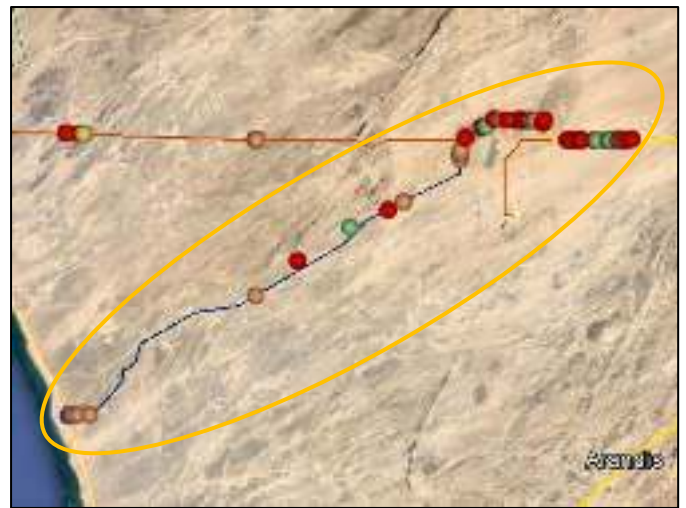
We are very proud to acknowledge the support and commitment of our coastal mines to power line monitoring by means of regular, dedicated repeat surveys. Well done and thank you all for your contributions to this vital activity over the past years. It should be noted that much of this survey work is done on foot, sometimes under hot and windy desert conditions. Apart from the surveys, additional incidental reports of wildlife interactions are also submitted from time to time (but are not included in the survey results below).

On Trekkopje Mine, **AREVA** (AREVA Resources Namibia) completed dedicated monitoring of two sections of power line regularly for wildlife incidents, in total 69 km long, from August 2011 to August 2013, and thereafter continue with incidental observations.

On Husab Mine, **Swakop Uranium (SU)** has monitored power lines in two areas, total length 36-54 km, from January 2014 to August 2016 and thereafter quarterly. SU is also monitoring two camera traps set up on the Khan River crossing to record bird movements in the power line area.

On Rössing Mine, **Rössing Uranium Limited (RUL)** has monitored three sections of power line, total length 12 km from April 2015 to June 2016, and thereafter quarterly.

The total distance already covered by this combined effort is an impressive 2,126 km (minimum).



Some of the members of the coastal mine power line monitoring teams and the areas they are monitoring; dots in various colours on the maps indicate the accumulated records for these areas (from these surveys, but also for other surveys as well as incidental records; www.the-eis.com):

Top: AREVA team and the Trekkopje Mine area (L to R: Kaarina Nkandi, Mike Scott, Helmut Ochurub, Richard Gurirab
 Middle: Swakop Uranium team and the Husab Mine area (L to R: Ann Scott, Calvin Sisamu, Immanuel Kalomho, Carlene Binneman)

Bottom: Rössing Uranium team and the Rössing Mine area (L to R: Inekela Iiyambo, Vistorina Nangola, Mike Scott, Loide Hausiku (photos Ann & Mike Scott)

Langer Heinrich Uranium is also monitoring its power lines for any incidents.

In the south, **Namdeb** (Namdeb Diamond Mine Corporation [Pty] Ltd) has contributed a number of incidental records of wildlife interactions on their power lines over the years.

The survey monitoring teams are as follows:

AREVA: Richard Gurirab, Sandra Müller, Kaarina Nkandi, Helmut Ochurub and Annina van Neel

Swakop Uranium: Abraham Amuthenu, Carlene Binneman, Percy Hoebbe, Immanuel Kalomho, Ignatius Katupao, Ronald Munjede, Andrea Roxin, Ilka Schröer, Calvin Sisamu and Claudia Vahekeni

Rössing Uranium Limited: Loide Hausiku, Inekela Iiyambo, Vistorina Nangola, Yvonne Nghilumbwa and Steven Williams

Although the total number of incidents recorded during this monitoring is relatively low (45 incidents), the value should be measured in the fact that repeat surveys enable us to express the results in a standard way (in total 0.02 incidents per km covered), which may later be corrected by means of standard calculations (e.g. for observer bias and scavenging bias), to arrive at higher estimates of the actual impacts of the power lines on wildlife populations. These results also need to be viewed in the context of recorded incidents for the greater area and for the region, where there is a cumulative impact.

Two potential impacts are possible for these power lines. For high voltage lines (e.g. 220 kV or 132 kV), the main risk is bird collisions on power line structures, whereas bird electrocutions are less likely due to the relatively large clearances between structures. For low voltage power lines (e.g. 33 kV, 22 kV or 6.6 kV), both bird collisions and bird electrocutions on power line structures are a risk, the latter due to the smaller clearances between structures, including transformers.

The commitment of our coastal mines in initiating and conducting these regular power line monitoring surveys is commendable and makes an important contribution to the expanding database of wildlife and power supply interactions for Namibia. This database feeds continually into the planning for the mitigation of the impacts of such interactions in identified "hotspots", with a view to promoting an environmentally sustainable power supply.



Black-winged Stilts at Husab Mine (photo Ilka Schröer)

PARTNERSHIP ASSESSMENT AND PLANNING MEETING AND UPDATE OF PROJECT ACTION PLAN

Progress with meeting the mission and objectives of the Partnership was discussed and assessed at a productive meeting on 24 June 2016. The project action plan, on which all activities are based, was updated: the main points are summarised below.

PROJECT ACTION PLAN

1. Conduct power line surveys/monitoring

- 1.1 Conduct power line surveys/monitoring
- 1.2 Enter/process/analyse/provide feedback on data

2. Implement effective mitigation

- 2.1 Implement proactive mitigation measures
- 2.2 Implement mitigation for existing power supply structures
- 2.3 Investigate monitoring/mitigation in renewable energy developments

3. Conduct focal research projects

- 3.1 Mitigation for impacts of weaver nesting on power supply structures
- 3.2 Bustard and power lines project
- 3.3 Flamingo tracking project

4. Promote awareness, information-sharing, education, outreach, collaboration

- 4.1 Produce newsletters
- 4.2 Produce further project information: flyer; website; guidelines
- 4.3 Disseminate information and material to identified target groups
- 4.4 Encourage further communication/collaboration with local partners
- 4.5 Encourage further communication/collaboration with international partners
- 4.6 Conduct training/awareness workshops and other workshops

5. Further develop and promote the sustainability of the Environmental Information Service (EIS)*

- 5.2 Refine existing atlases
- 5.3 Incorporate new atlases
- 5.4 Develop an Environmental Assessment component
- 5.5 Continue with outreach component
- 5.6 Promote sustainability of the EIS

**Note that the EIS falls under the Namibian Chamber of Environment from September 2016; the Partnership will continue to support the EIS in whatever way it can.*

FEEDBACK ON POWER LINE INCIDENTS: 2006-2015

A detailed analysis of the wildlife and power line incident database has been done for 2006-2015, with 483 birds involved to date. Note that these are minimum mortality figures; the data have not yet been corrected for scavenger or observer bias.

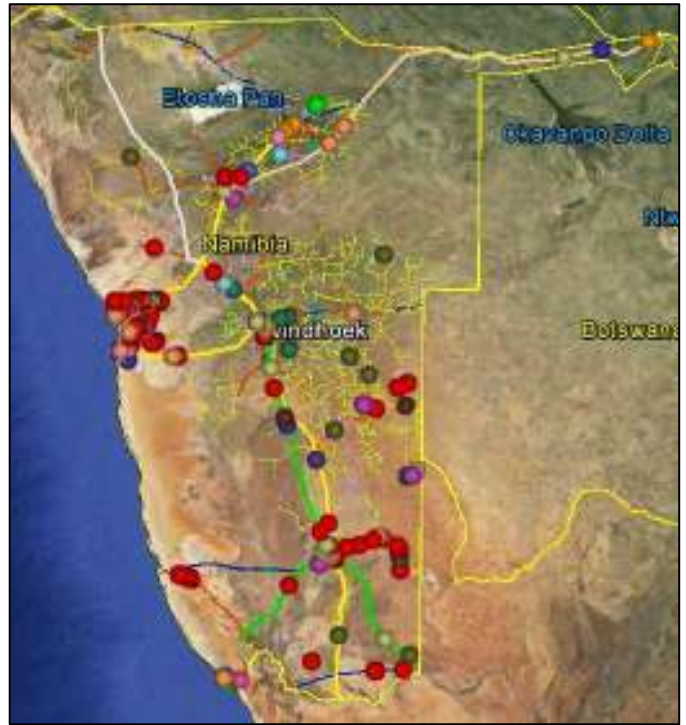
- The results indicate that mainly bird species are involved, in particular bustards and flamingos, but also raptors (birds of prey: various eagles, vultures, owls, Secretarybirds) and waterbirds
- A number of these species are Red-listed and/or endemic or migrant (i.e. with high biodiversity value)
- Two mammal species are involved: small-spotted genet and giraffe

A summary of bird species and numbers for all survey and incidental data is provided below; and a summary of all power line surveys conducted from 2006-2015. The maps below give an indication of where these data have been collected, and may be downloaded from www.the-eis.com, under the Powerlines and birds assessment tool.

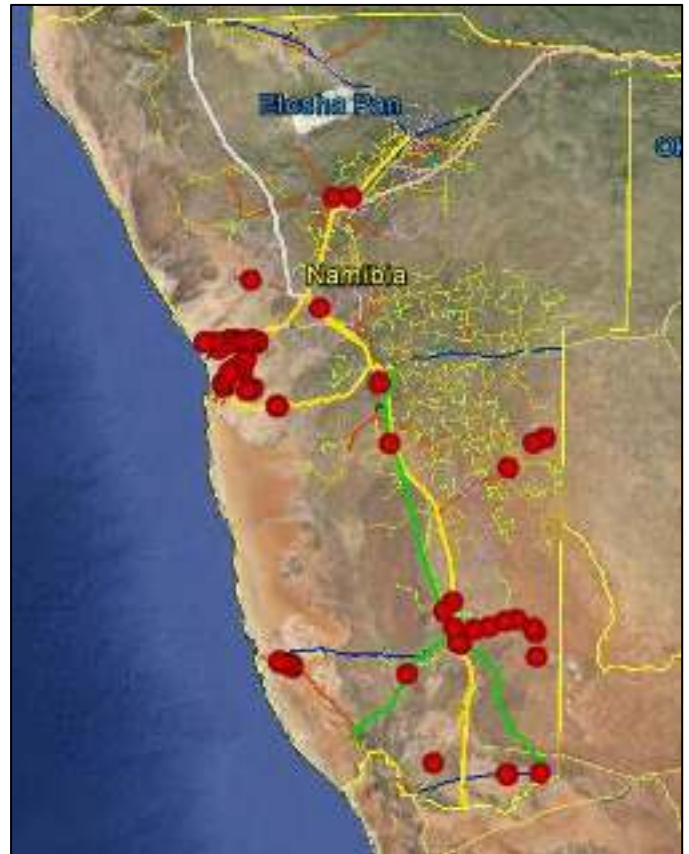
Many thanks to all those who have contributed to this invaluable collection of data. One may ask, why collect this information? Mitigation of power lines is a costly initiative, and can be planned and implemented only when there is just reason to identify appropriate sections of power line as being "hotspots" for repeated incidents. The best alternative is to identify such potentially problematic sections before the power line is built, and mitigate appropriately; however, this does not solve the challenge of where and how to mitigate on existing power lines.

Table 1. Summary of bird species and numbers involved for all power line survey and incidental records in Namibia, 2006-2015	
Group	Total no. (%)
Bustards (168) & korhaans (18)	186 (39%)
Flamingos	137 (28%)
Raptors (birds of prey)	61 (13%)
Other waterbirds	44 (9%)
Other species	55 (11%)
TOTAL	483

Table 2. Summary of all power line surveys in Namibia, 2009-2015				
Year	No. of surveys	Km	Mortalities	Mortalities/km surveys
2009	6	104	13	0.12
2010	16	614	31	0.05
2011	9	357	26	0.07
2012	16	611	46	0.08
2013	7	475	23	0.05
2014	30	518	84	0.16
2015	67	819	60	0.07
TOTAL	151	3,499	283	0.08



In total 483 wildlife and power line interactions were recorded in Namibia from 2006-2015; these records are shown in bird groups in the maps below (www.the-eis.com)



In total 168 bustard and power line interactions were recorded in Namibia from 2006-2015 (www.the-eis.com)



In total 137 flamingo and power line interactions were recorded in Namibia from 2006-2015, mostly on the coast but also inland (www.the-eis.com)



In total 61 raptor (bird of prey) and power line interactions were recorded in Namibia from 2006-2015 (www.the-eis.com)

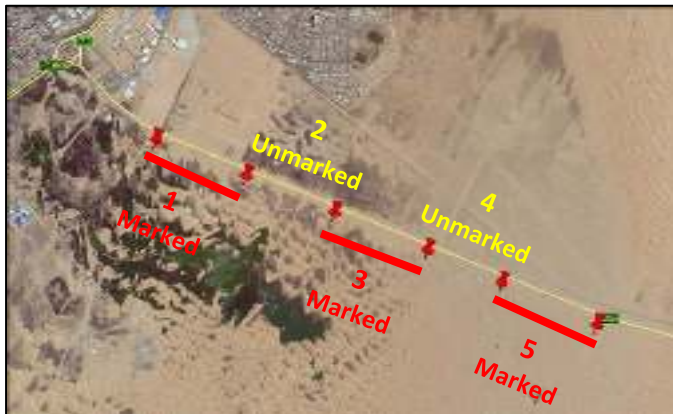


In total 18 korhaan and power line interactions were recorded in Namibia from 2006-2015 – mainly in the desert habitats of the Erongo Region (www.the-eis.com)



In total 44 other waterbird (in addition to flamingos) and power line interactions were recorded in Namibia from 2006-2015 (www.the-eis.com)

WHAT DOES ONE YEAR OF POST-MITIGATION MONITORING OF THE KUISEB-WALVIS BAY 132 KV POWER LINE AT BIRD PARADISE TELL US?



Marking design for a 3.9 km section of the Kuiseb-Walvis Bay 132 kV power line at Bird Paradise (based on a Google Earth map)

Introduction and methods

The double Kamerad 66 kV Kuiseb-Walvis Bay power line was replaced by a double steel monopole 66/132 kV structure in June 2015. The area is important in terms of avifauna and its associated habitats. According to the recommendations of the EIA, a 3.9 km section of the new power line in the vicinity of Bird Paradise was therefore marked in May 2015 as mitigation for potential bird collisions.

The marking design consisted of three marked sections alternating with two unmarked sections, each section approximately 0.8 km long (see figure above). This experimental design enabled comparative monitoring of the marked vs unmarked sections. Two alternating devices were fitted, 10 m apart on each earth wire (see previous newsletters): fluorescent black and white flappers (made in Germany), as both a diurnal and nocturnal mitigation for collisions, and alternating black and white Double Loop Bird Flight Diverters (made in South Africa), as a diurnal mitigation.

The above section of power line was monitored five times pre-marking, from 26/9/14 to 26/3/15, followed by nine times post-marking, from 10/6/15 to 8/6/16. Monitoring involved walking under the lines (usually one observer) and searching for signs of carcasses according to standard procedures (NamPower/NNF Strategic Partnership).

During the post-mitigation monitoring, large areas of water seepage took place intermittently from the sewage ponds up to the power lines, which attracted large numbers of birds, especially flamingos. The times that this took place included August 2015, and again May-June 2016, mainly in the unmarked section on the west (Section 2, see figure above). Some sand-mining activity also took place on the western side. Fresh jackal spoor were observed regularly, and also those of domestic dogs; scavenging on carcasses is likely to be high.

Note that the monitoring results have not yet been corrected for (1) observer efficiency; or (ii) scavenger bias, which would give a higher estimate of mortalities. The present figures should therefore be regarded as minimum numbers.

Results and discussion

Numbers of birds involved in collisions in the study area for five marked/unmarked sections, pre-mitigation and post-mitigation are shown in Table 1 (page 7).

Fifty-one mortalities were recorded pre-mitigation; note that a number of these were old, accumulated carcasses, in some cases exposed after strong winds shifted the sand. The highest numbers of mortalities were in Section 1 (23) and Section 3 (17). Thirty-four mortalities were recorded in one year of monitoring post-mitigation. The highest number of mortalities (24) was recorded in Section 2 (unmarked).

The predominant group involved in collisions was flamingos: 47% pre-mitigation and 68% post-mitigation. A variety of other species was involved, including a number of small waders, ducks and coot. Both Lesser Flamingo and Greater Flamingo are classed as *Vulnerable* in Namibia, and Lesser Flamingo is also *Globally Threatened*. Two Black-necked Grebe were also identified, classed as *Near-Threatened* in Namibia.

Even though the pre-mitigation period (six months) and post-mitigation period (12 months) were not the same, the results show a reduction in bird mortalities in the two marked sections to the west, Section 1 and 3. This appears to indicate that the marking has had a positive effect.

Intermittent and sometimes extensive seepage in Section 2 (the unmarked area to the west) attracted large numbers of birds to this area, particularly flamingos. Any disturbance (e.g. from tourists wishing to walk in closer to photograph the birds) causes the birds to fly up, thus increasing the collision risk. Mortality results in this section for the post-mitigation period may thus be regarded as being inflated.



Water seepage has unfortunately attracted many birds to the areas beneath the power lines, increasing the chances of collisions when the birds are startled (photo Ann Scott)

Table 1. Summary of survey results: Kuiseb-Walvis Bay 132 kV power line, pre-mitigation (26/9/14 – 26/3/15) and post-mitigation (10/6/15 – 8/6/16)

Monitoring period	Section of study area (3.9 km in total)					Total
	All unmarked - pre-mitigation					
Pre-mitigation: 26/9/14 – 26/3/15	12 flamingo 5 wader 2 duck/coot 1 crake 2 cormorant 1 unknown	3 flamingo 3 wader 1 moorhen	5 flamingo 10 wader 1 duck 1 sparrow	3 flamingo	1 flamingo	24 flamingo 18 wader 3 duck/coot 1 moorhen 1 crake 2 cormorant 1 sparrow 1 unknown
Total	23	7	17	3	1	51
Marked May 2015	1 Marked (west)	2 Unmarked	3 Marked	4 Unmarked	5 Marked (east)	
Post-mitigation 10/6/15 – 8/6/16	3 flamingo 1 Black-necked Grebe 1 coot 1 waterbird 1 Rock Dove	18 flamingo 1 Black-necked Grebe 3 duck 2 wader	1 flamingo 1 wader	1 flamingo	0	23 flamingo 2 Black-necked Grebe 3 wader 1 waterbird 1 coot 3 duck 1 Rock Dove
Total	7	24	2	1	0	34

The results for Section 4 and 5 are low both pre- and post-mitigation, as these areas are relatively further from the water bodies that attract the birds and there is thus less movement.

A number of aquatic habitats in the greater area increases the chances of bird movements. Some species fly nocturnally or under conditions of poor light, e.g. flamingos, but also some waders and ducks. This behaviour may decrease the chances of predation, but increases the risk of colliding with overhead structures. Frequent adverse weather conditions in this desert habitat on the coast (including strong winds, dust and fog) also increase the collision risk.

Recommendations

The recommendation of now marking the unmarked section of line to the west (Section 2) has been accepted by NamPower and will be carried out as soon as possible, hopefully in 2016.

Ideally, monitoring of the power line should continue, in order to monitor the effectiveness of the new mitigation. Should repeated collisions still take place, the mitigation would need to be re-assessed.

Discussions are continuing with the Municipality of Walvis Bay about the water seepage under the power lines, due to the associated increase of the collision risk to birds attracted to the water.

NamPower is thanked for its willingness to participate in this proactive mitigation experiment, and to follow up on the recommendations.

CAN SEEING STRIPES HELP SAVE BIRDS?

Black and white (fluorescent) flappers are being fitted onto power lines (see photo on p8, and report on p6) as a collision mitigation measure. This mitigation is based on the principle that, to be effective in promoting visibility, such devices should be large and highly contrasting, and have movement (Dr Graham Martin pers. comm.). In previous issues we have highlighted Dr Martin's research that has shown that bird groups such as bustards, cranes and vultures have a blind spot when flying ahead.

The inability of seabirds to see gillnets under water has results similar to the inability of birds to see power lines ahead of them when flying in poor light; consequently they collide with the nets. The article below illustrates a fascinating overlap between disciplines, addressing a similar problem and testing a similar form of mitigation.

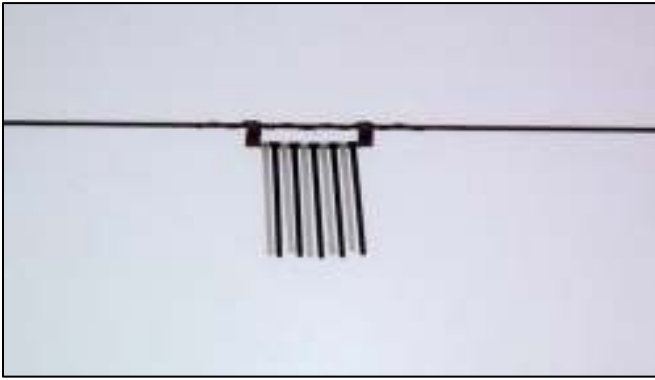
The information below is based on an article by Alex Dale, 30 Sep 2016, BirdLife International News

(<http://www.birdlife.org/worldwide/news/how-simple-striped-sheets-could-save-seabirds>).

Every year, 400,000 seabirds worldwide are estimated to meet their end as a result of becoming unintentionally caught in gillnets while diving for food.

Reducing the number of birds caught in these fishing nets while still enabling fishermen to catch fish, presents a unique challenge for conservationists.

To further our understanding, Rory Crawford, Gillnet Programme Manager in BirdLife's Marine team, got in touch with Dr Graham Martin, a sensory ecologist, to build



A large, contrasting, moving design is being used to mark power lines, to make them more visible as a mitigation for collisions (photo Ann Scott)



Similarly, the black and white contrasting pattern of the sheets fitted to gillnets is designed to be visible for diving seabirds (photo Julius Morkunas)

a picture of what it is that birds are likely to see when they dive underwater. The answer is that birds do not see gillnets – they forage in low light levels, unable to see fine detail.

Armed with this information, Dr Martin devised a potential low-tech solution to the problem: 'stimulus warning panels'. These are strips of flexible material attached to the nets at regular intervals, designed in striking alternating black and white stripes for maximum contrast (see photo on p8). The theory goes that these should alert diving birds to the presence of the net.

Inspired by the hands-on approach of BirdLife's Albatross Task Force, who work directly with fishermen in ports and on ship decks across the Southern Hemisphere, a Seabird Task Force has been performing similar work with local fishermen in Lithuania for the last three years. The Lithuanian team have been conducting trials of the black and white panels, comparing them with standard fishing nets.

While more data collection is needed this coming winter before any real conclusions can be drawn, the early results are encouraging; raw data suggest that bycatch (of seabirds) is about a third lower in nets equipped with panels. Interestingly, fish catch increased significantly in nets with the panels compared to normal nets – clearly, it's important for fishermen that their catch is not negatively impacted.

ELECTROCUTION BRAINSTORM AT HUSAB MINE

Due to a concern about the number of electrocutions on power line structures on the low-voltage (33 kV) on-site power line structures at Husab Mine, Swakop Uranium (SU) initiated an investigative meeting and site visit on 27 May 2016. Representatives from Swakop Uranium, NamPower and the Partnership brainstormed causes of the electrocutions and suggested possible mitigations.

The meeting kicked off with a presentation by the chairperson, Carlene Binneman, of Swakop Uranium's Environmental Department. The details and paths of the power lines, as well as the legal requirements and SU's environmental commitments in terms of the mine's Environmental Management Plan, were outlined.

A total of nine electrocutions has taken place to date (involving six Pied Crows, two Spotted Eagle-Owls and one Black-chested Snake Eagle); and two collisions (one



Electrocution brainstorm at Husab Mine (L to R): Mike Scott, Wicus Meyer, Bruce Boer, Danie Louw, Ilka Schröer, Abisai Shanyenge, Simon Charter, Carlene Binneman (photo Ann Scott)



Investigating causes of Pied Crow electrocutions at the Husab Construction Village during the site visit (photo Ann Scott)

sparrow and one three-banded plover). Most of these electrocutions have caused outages.

Structures most at risk to avifauna are the A-Frame structure and associated structures, including transformers; no incidents have been reported on the 44 kV A-Frame structures to date. Areas where incidents occurred are mostly at the Construction Village, SX Pond, next to Plant Run-Off Pond, Processing Plant, Aggregate Crusher and TSF Perimeter.

After discussion and a site visit, various mitigation measures were proposed, e.g. using PVC piping to insulate problem droppers or sections of conductors; adding a bird perch above problematic structures such as transformers; and creating a 300 mm gap between metal A-frame structures and the bonding/earthing. Swakop Uranium will conduct some trials based on these recommendations.

Swakop Uranium thanked all the participants for participating in the discussions in order to investigate further avifauna electrocution or collision preventative measures that can be incorporated into the different industries. The Partnership also thanked SU for its continual support in conducting the monitoring surveys and for submitting all survey and incident reports.

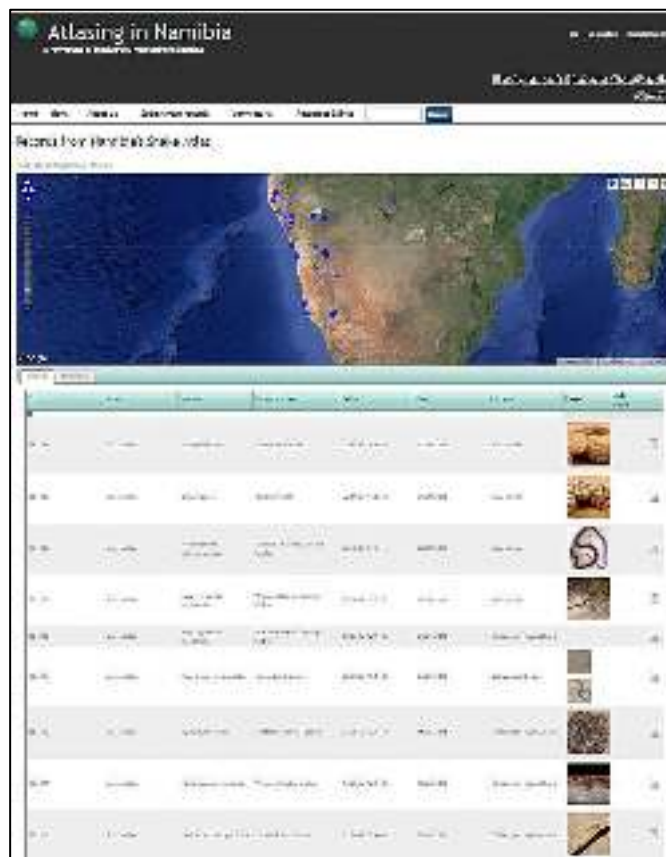
EXCITING EIS NEWS (www.the-eis.com)

Alice Jarvis

Development of the **Environmental Information Service** (www.the-eis.com) is ongoing. We are grateful for the support and funding we have received for many years through the NamPower-NNF Partnership. This has now come to an end and we are delighted to announce that the EIS is now being funded by the Namibian Chamber of Environment (www.n-c-e.org). We have many plans for further additions and improvements to be made over the next year. The EIS is being constantly updated with new records and now contains more than 12,600 records. Around half of these are journal articles, followed by reports, shapefiles and books/book sections.

Recent additions to the Atlasing in Namibia site (www.the-eis.com/atlas) include the new Snake Atlas, in collaboration with Francois Theart and the Snakes of Namibia facebook team. Over 50 snake records have already been added. The site also includes a photo guide to snakes, and other groups, to assist with identification. The citizen science projects now have just over 50 active contributors and contain close to 12,000 records. The Bird Information System component (www.the-eis.com/atlas/?q=bird-information-system) includes options for viewing maps of SABAP1 distribution data as well as museum specimen records, and you can also view and download species accounts for Red Data species.

The Birds and Powerlines tool is back in action (www.the-eis.com/tool.php). It needed to be redesigned after



Above: Snake records on the new EIS citizen science-based Snake Atlas (www.the-eis.com)

Below: The atlas includes a facility for uploading photographs of species, such as this Perringuey's adder (photo F Vallat)

Google 'pulled' their Google Earth plug in at the end of last year. With the new tool you can overlay maps of species distribution for birds which are known to interact with power lines, especially threatened (Red Data) species. Previously recorded incidents can be displayed. Together with overlays of powerline infrastructure, conservation areas, wetlands, dams and other features, the tool offers a way for EIA practitioners and others to evaluate whether an area is high-risk in terms of likely bird-power line impacts. All map layers are also downloadable as kmz (Google Earth) files.

We would like to acknowledge **Paratus Telecom** for their ongoing sponsorship of the EIS: they supply hosting, domain registration, and fantastic technical support. Thank you.

AVIAN MORTALITY AT UTILITY-SCALE SOLAR ENERGY FACILITIES IN THE UNITED STATES

The abstract below is taken from a recent publication, "A preliminary assessment of avian mortality at utility-scale solar energy facilities in the United States", by Walston LJ, Rollins KE, LaGory KE, Smith KP, Meyers SA; Argonne National Laboratory, Environmental Science Division, Argonne, IL, USA (Renewable Energy 92 (2016) 405e414 2016; (<http://www.sciencedirect.com/science/article/pii/S0960148116301422>)).

Abstract

Despite the benefits of reduced toxic and carbon emissions and a perpetual energy resource, there is potential for negative environmental impacts resulting from utility-scale solar energy (USSE) development. Although USSE development may represent an avian mortality source, there is little knowledge regarding the magnitude of these impacts in the context of other avian mortality sources. In this study we present a first assessment of avian mortality at USSE facilities through a synthesis of available avian monitoring and mortality information at existing USSE facilities. Using this information, we contextualize USSE avian mortality relative to other forms of avian mortality at 2 spatial scales: a regional scale (confined to southern California) and a national scale. Systematic avian mortality information was available for three USSE facilities in the southern California region. **We estimated annual USSE-related avian mortality to be between 16,200 and 59,400 birds in the southern California region, which was extrapolated to between 37,800 and 138,600 birds for all USSE facilities across the United States that are either installed or under construction.** We also discuss issues related to avian-solar interactions that should be addressed in future research and monitoring programs. Published by Elsevier Ltd. This is an open access article under the CC by license (<http://creativecommons.org/licenses/by/4.0/>).

Comment

Renewable energy is taking off rapidly in Namibia. Although widely regarded as "clean" and "green", both solar and wind energy developments are increasingly being found to have negative impacts on the natural environment, including on birds. Many of these impacts can be mitigated against with proper planning and assessment, including through the optimum siting of renewable energy facilities. Rigorous pre-construction and post-construction monitoring are essential to measure any residual impacts.

The study above is considered to be the first systematic assessment and contextualization of avian mortality at USSE facilities in the United States.

In neighbouring South Africa, BirdLife South Africa and the Endangered Wildlife Trust of SA have taken the lead as strong proponents for the responsible development of a

renewable energy industry in the region. Proactive, wise decisions about the development of environmentally sustainable supplies of renewable energy need to be well informed in order to avoid impacts such as collisions with infrastructure, displacement of priority species, barrier effects to bird movements, and changes to habitats. The above organisations are helping to address and minimise these impacts, and have compiled the comprehensive guideline documents below:

- Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa (BirdLife South Africa / Endangered Wildlife Trust)

Compiled by AR Jenkins, CS van Rooyen, JJ Smallie, JA Harrison, M Diamond & HA Smit, 2015. *Recent UPDATE*, downloadable from the EAPAN website (www.eapan.org, under Resources; also see previous newsletter, No. 16; and <http://www.birdlife.org.za/conservation/terrestrial-bird-conservation/birds-and-renewable-energy>).

- Birds and Solar Energy Best Practice Guidelines. Best Practice Guidelines for assessing and monitoring the impact of solar energy facilities on birds in southern Africa (BirdLife South Africa)

Compiled by AR Jenkins, S Ralston & HA Smit-Robinson, 2015. *DRAFT for comment*, available from Samantha Ralston at BirdLife SA, email energy@birdlife.org.za.

In Namibia, the Ministry of Mines and Energy is in the process of reviewing and updating the White Paper on Energy Policy, and of developing a National Energy Policy. Inputs have been made by the Partnership, including to promote and support environmentally sustainable energy development; to initiate Strategic Environmental Assessments (SEAs) for both wind energy and solar energy developments in Namibia; and to incorporate best practice guidelines in the Renewable Energy Policy.

Contact details for the National Energy Policy for Namibia: info@energypolicy.org.na www.energypolicy.org.na

VULTURE AWARENESS DAY AND THE NAMIBIA BIRD CLUB

Gudrun Middendorff, Namibia Bird Club

International Vulture Awareness Day was celebrated on 3 September 2016 and it has become a tradition to invite interested members of the public to a vulture ringing day on the farm Smalhoek near Dordabis. Africa's vultures are facing catastrophic declines due to factors such as poisoning and illegal harvesting, with seven of the continent's eleven species facing extinction.

Namibia Bird Club members, in conjunction with the Stehn family and representatives of Vultures Namibia, take the visitors to vulture nests on the farm. The procedure, involving the surveying of the nest with a camera on a long pole to establish the size of the chick, rigging up the 12 m ladder against the tree, climbing up, measuring the height of the tree and capturing the chick, is demonstrated. Once the chick is brought down from the nest the

measurements of wing and tail are taken and the leg is fitted with a uniquely numbered metal ring. If the chick is big enough it is fitted with numbered yellow tags, one on each wing, for easy identification later in the field. Lastly the bird is weighed and it is then returned to the nest. The diameter and depth of the nest are recorded, as are unusual (prey) items found in the nest.

The general public is urged to report any sightings of tagged White-backed or Lapped-faced Vultures to either the Vulture re-sightings crowd-map, <http://vulturesresightings.crowdmap.com> or the Namibia Bird Club at namib.bird@gmail.com or Vultures Namibia: Peter Bridgeford: pmbridge@iway.na. Please submit co-ordinates and, if possible photographs of tagged vultures.

Who is the NAMBIA BIRD CLUB?

The Namibia Bird Club is a membership-based society established in 1962 to fill a void in knowledge and interest surrounding birds of Namibia. We are involved in numerous bird related activities and projects and publish a journal, *Lanioturdus*, and a newsletter, *Namibia Bird News*. We also arrange birding outings on a regular basis.

- **Birds are beautiful**, charismatic, varied and represent a global symbol of freedom.
- **Birds are indicators for wider biodiversity**: When birds disappear, it often signals that something is wrong with the environment where they used to live. This can impact habitats and their components including mammals, insects, vegetation, and ultimately, people. If no action is taken, some of the threatened birds of Namibia could become extinct within the next decade!
- Birding tourism provides **income generation and employment opportunities**; this contributes to poverty alleviation and biodiversity conservation in Namibia.

The Bird Club's Role

The Namibia Bird Club wants to prevent Namibia's birds from becoming extinct! We are working to:

- **Contribute** to research on some issues;
- **Educate** local children and communities about birds;
- **Publish** bird educational materials;
- **Lobby** our ministries for better protection of birds;
- **Establish** a system to monitor several important sites;
- **Promote** eco-tourism and so emphasize the full potential financial value of birds;
- **Contribute** data for the Atlas of Southern African Birds, Important Bird Areas of Southern Africa, biannual waterbird counts and raptor road counts;

How you can help...

- Become a member and provide power through support
- Read our publications
- Assist with research, e.g. by contributing bird sightings
- Make a donation
- Visit our website www.namibiabirdclub.org or contact our chairperson (Gudrun Midden-dorff, email namib.bird@gmail.com) for news of birding events or outings; non-members are welcome to participate.



The Namibia Bird Club and interested members of the public at the vulture ringing day on 3 September 2016 on the farm Smalhoek near Dordabis (photos Lisa Berl)

Your support helps us make this world a better place for birds and people alike.

POWER LINE SURVEYS: NOVEMBER 2015 – SEPTEMBER 2016

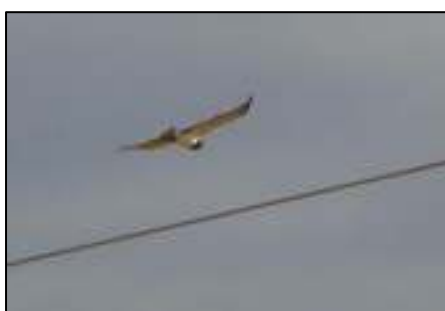
Over the past seven years, 151 power line surveys have been recorded, covering around 3,500 km. This combined effort has documented 283 power line mortalities, on average 0.08 incidents/km. Detailed feedback is provided on page 4-5. In 2015, an impressive total of 67 surveys was completed – the highest annual figure to date – covering 819 km and recording 60 mortalities (0.07/km). (Note that these figures have not yet been corrected for bias.)

Special thanks for NamPower staff for their records, and to our teams from the coastal mines (see page 1-3, including details of participants) as well as to all the other contributors for this sterling effort!

Date	Line	Km	kV & marking	Participants	Results	Tot
18/11/15	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
18/11/15	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
18/11/15	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
1/12/15	Kuiseb-Walvis Bay (Bird Paradise)	3.9	Double steel monopole 132 kV	A & M Scott	2 Flamingo 1 Wader	3
14/12/15	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
14/12/15	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
14/12/15	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
26/1/16	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
26/1/16	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
26/1/16	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
27/1/16	Husab on-site power line network	36	132 kV steel monopole + 33 kV wooden single pole	Swakop Uranium: I Katupoa & P Hoebeb		0
28/1/16	Lithops-Husab	18	132 kV steel monopole + 220 kV	Swakop Uranium: C Binneman, I Schröer, I Kalomho, R Mujende		0
2/2/16	Kuiseb-Walvis Bay (Bird Paradise)	3.9	Double steel monopole 132 kV	A & M Scott	1 Flamingo 1 Duck 1 Rock Dove 1 Waterbird	4
12/2/16	Kuiseb-Langer Heinrich	56.3	66 kV	A & M Scott		0
12/2/16	Walmund-Kuiseb	16.7	Double 66 kV, double 220 kV	A & M Scott		0
22/2/16	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
22/2/16	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
22/2/16	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
22/2/16	Husab on-site power line network	36	132 kV steel monopole + 33 kV wooden single pole	Swakop Uranium: I Katupao, A Amuthenu, P Hoebeb		0
16/3/16	Kuiseb-Walvis Bay (Bird Paradise)	3.9	Double steel monopole 132 kV	A & M Scott	1 Flamingo 1 Duck	2

Date	Line	Km	kV & marking	Participants	Results	Tot
22/3/16	Lithops-Walmund (from Swakop River)	18	Guyed lattice 220 kV + wishbone (marked Swakop River to D1991 road)	A & M Scott		0
23/3/16	Lithops-Husab	18	132 kV steel monopole + 220 kV	Swakop Uranium: I Katupao, A Amuthenu, I Kalomho		0
30/3/16	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
30/3/16	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
30/3/16	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
5/4/16	Husab on-site power line network	25	132 kV steel monopole + 33 kV wooden single pole	Swakop Uranium: A Amenuthenu, I Kalomho	1 Pied Crow (elec.)	1
26/4/16	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
26/4/16	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
26/4/16	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
28/4/16	Kuiseb-Walvis Bay (Bird Paradise)	3.9	Double steel monopole 132 kV; 3 sections marked	A & M Scott	2 Flamingo 2 Small wader	4
?28/4/16	Lithops-Husab	18	132 kV steel monopole + 220 kV	Swakop Uranium		0
17/5/16	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
17/5/16	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
17/5/16	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
27/5/16	Lithops-Husab	18	132 kV steel monopole + 220 kV	Swakop Uranium: A Amuthenu, I Katupao, I Kalomho		0
8/6/16	Kuiseb-Walvis Bay (Bird Paradise)	3.9	Double steel monopole 132 kV; 3 sections marked	A & M Scott	1 L Flamingo	1
13/6/16	Khan-Rossing	6	220 kV steel pylons	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
13/6/16	Rossing Arandis airport	3	Arandis airfield: A-frame 22 kV	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
13/6/16	Rossing CMC	0.4	X-mas tree (low voltage)	Rössing Uranium Ltd: L Hausiku, V Nangolo		0
22/6/16	Husab on-site power line network	36	132 kV steel monopole + 33 kV wooden single pole	Swakop Uranium: A Amuthenu, I Katupao, I Kalomho		0
27/6/16	Lithops-Husab	18	132 kV steel monopole + 220 kV	Swakop Uranium: A Amuthenu, I Katupao, I Kalomho	1 Red-eyed Bulbul	1
6/7/16	Kuiseb-Langer Heinrich	10.6	66 kV H-pole	K-H Wagner, J van Biljon, A & M Scott	1 Namaqua Sandgrouse	1
6/7/16	Khan-Lithops	24.4	220 kV steel pylons	K-H Wagner, J van Biljon, A & M Scott		0
8/7/16	Langer Heinrich	2.6	Internal lines	P Smit		0

Date	Line	Km	kV & marking	Participants	Results	Tot
14/7/16	Trekkopje Bypass (to Trekkopje Substation)	20.5	Double line: guyed steel tower (220 kV) + Kamerad (66 kV; no earth)	A & M Scott	2 Bustard 2 Korhaan 1 Flamingo 1 Unident	6
14/7/16	Trekkopje-Wlotzka	47	Double H-pole 66 kV + earth	A & M Scott		0
3/8/16	Husab on-site power line network	25	132 kV steel monopole + 33 kV wooden single pole	Swakop Uranium: A Amuthenu, I Kalomho		0
4/8/16	Lithops-Husab	18	132 kV steel monopole + 220 kV	Swakop Uranium: A Amuthenu, I Schröer, I Kalomho	1 L Bustard	1
9/8/16	Kuiseb-Walvis Bay (Bird Paradise)	3.9	Double steel monopole 132 kV Marked for three sections	A & M Scott	17 Flamingo 3 Waterbirds	20
17/8/16	Namib Water Base east	2.4	22 kV wishbone	A & M Scott, M Sanzila	1 Crow (elec)	1



L: Black-chested Snake-eagle (*photo I Kalombo*); Centre: Black-chested Snake-eagle (*photo AC van Zyl*); and R: Black/Verreaux's Eagle (*photo C Binneman*)

POWER LINE INCIDENTS: NOVEMBER 2015 – SEPTEMBER 2016

Spotted Eagle Owl - electrocution

Husab Mine – onsite power line network
33 kV HLPCD (T-off – jumpers)
Electrocuted while consuming a snake
Reported by C Sisamu & I Schröer
21 December 2015



Great White Pelican - collision

Walmund-Kuiseb
Kuiseb-Walmund 220 kV
Reported by D Zimmermann
3 February 2016
Red Data species: Vulnerable in Namibia



Southern Pochard - collision

Gammams sewage works
Wooden H-pole
Reported by N Thomson & G Middendorff
14 February 2016



Pied Crow - electrocution

Husab Mine – onsite power line network
33 kV line - transformer
Reported by C Binneman
23 March 2016



Pied Crow - electrocution

Husab Mine – onsite power line network
33 kV line – A-frame pole
Reported by A Amuthenyu & I Kalomho
5 April 2016



Egyptian Goose - collision

Gammams sewage works
Wooden H-pole (same as 14/2/16)
Reported by N Thomson & G Middendorff
10 April 2016



Teal - collision

Rooibank, Walvis Bay
33 kV line
Reported by P Cunningham
30 April 2016



Pied Crow - electrocution

Husab Mine – onsite power line network
33 kV line and transformer
Reported by A Amuthenyu & I Schröer, 6 May 2016



Black-chested Snake-eagle - electrocution

Husab Mine – onsite power line network
33 kV line, A-frame pole (jumpers)
Reported by I Schröer, 24 May 2016



Pied Crow - electrocution

Husab Mine – onsite power line network
33 kV line and transformer
Reported by I Schröer
7 June 2016



Red-eyed Bulbul - collision

Lithops-Husab 132 kV
Reported by A Amuthenyu, I Katupao, I Kalomho
27 June 2016



Unknown species - collision

Windhoek
66 kV line
Reported by K-H Wagner
8 August 2016

