



**Proposed continuous disposal of ash
at the TUTUKA power station**

SPECIALIST AVIFAUNAL IMPACT ASSESMENT

*SCOPING REPORT
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EXECUTIVE SUMMARY

Eskom Holdings SOC (Ltd) is proposing to continue disposing of ash at the Tutuka Power Station ash disposal facilities. Lidwala Consulting Engineers were appointed by Eskom Holdings SOC Ltd to undertake an Environmental Impact Assessment and Waste Management Licencing for the proposed project and the Endangered Wildlife Trust (EWT) was subsequently appointed as an avifaunal specialist.

In general, the study area has moderate to high sensitivity in terms of Avifauna. Of the 16 red listed species identified in the SABAP 1 data, only 9 species have again been recorded in the SABAP 2 data for the pentads examined, as well as one additional red listed species, the African Openbill. To date, the most important species identified that may be impacted upon are Blue Korhaan, Blue Crane, Southern Bald Ibis, Greater Flamingo, Lesser Flamingo, Secretary Bird, White Stork, Pallid Harrier, Lesser Kestrel, Caspian Tern and Botha's Lark. The greatest impact of the proposed project is likely to be that of habitat destruction, while leachate from fly ash, into water systems used by avifauna is also of concern. Possible impacts of associated infrastructure (e.g. roads, power lines, conveyors, pollution control dams, pipelines and pump stations) will be assessed upon completion of the scoping phase; however collisions are expected to be the largest impact of associated power lines. In terms of the possible collision impact with associated power lines should these be required, the greatest concern is the presence of a number of Greater and Lesser Flamingos in the area. Sensitive areas have been mapped, within which the above mentioned collision mitigation must be implemented.

It was concluded that the project has no fatal flaws in terms of avifauna at this stage, and the EIA phase may commence. Recommendations and actions for the EIA study include a detailed site visit, updating of SABAP2 data, a rating of impacts, and the sensitivity map will be "fine tuned" and revised if necessary.

DECLARATION OF INDEPENDANCE

Specialist Investigator

Andrew Pearson is employed by the Endangered Wildlife Trust's Wildlife and Energy Programme as a specialist investigator for conducting avifaunal specific specialist reports. Andrew has a Four Year BSc in Conservation Ecology, certificates in Environmental Law, as well as five years experience in the environmental management field. The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information.

Declaration of Independence

All specialist investigators specified above declare that:

- We act as independent specialists for this project.
- We consider ourselves bound by the rules and ethics of the South African Council for Natural Scientific Professions.
- We do not have any personal or financial interest in the project except for financial compensation for specialist investigations completed in a professional capacity as specified by the Environmental Impact Assessment Regulations, 2010.
- We will not be affected by the outcome of the environmental process, of which this report forms part of.
- We do not have any influence over the decisions made by the governing authorities.
- We do not object to or endorse the proposed developments, but aim to present facts and our best scientific and professional opinion with regard to the impacts of the development.
- We undertake to disclose to the relevant authorities any information that has or may have the potential to influence its decision or the objectivity of any report, plan, or document required in terms of the Environmental Impact Assessment Regulations, 2010.
- Should we consider ourselves to be in conflict with any of the above declarations, we shall formally submit a Notice of Withdrawal to all relevant parties and formally register as an Interested and Affected Party.

Terms and Liabilities

- This report is based on a short term investigation using the available information and data related to the site to be affected. No long term investigation or monitoring was conducted.
- The Precautionary Principle has been applied throughout this investigation.
- The specialist investigator, and the Endangered Wildlife Trust, for whom he/she works, does not accept any responsibility for the conclusions, suggestions, limitations and recommendations made in good faith, based on the information presented to them, obtained from these assessments or requests made to them for the purposes of this assessment.
- Additional information may become known or available during a later stage of the process for which no allowance could have been made at the time of this report.
- The specialist investigator withholds the right to amend this report, recommendations and conclusions at any stage should additional information become available.
- Information, recommendations and conclusions in this report cannot be applied to any other area without proper investigation.
- This report and all of the information contained herein remain the intellectual property of the Endangered Wildlife Trust.
- This report, in its entirety or any portion thereof, may not be altered in any manner or form or for any purpose without the specific and written consent of the specialist investigator as specified above.
- Acceptance of this report, in any physical or digital form, serves to confirm acknowledgment of these terms and liabilities.

Signed on the 5th October 2012 by Andrew Pearson in his capacity as specialist investigator for the Endangered Wildlife Trust's Wildlife and Energy Programme.



INTRODUCTION

Background

Eskom Holdings SOC (Ltd) is proposing to continue disposing of ash at the Tutuka Power Station ash disposal facilities. Lidwala Consulting Engineers were appointed to undertake an Environmental Impact Assessment for the proposed project and the Endangered Wildlife Trust (EWT) was subsequently appointed as an avifaunal specialist. For this scoping phase a short, high level site visit to the general study area was conducted on the 25th July 2012. This avifaunal study used a set methodology as well as various data sets. The focal species for the study were determined, and then, by looking at the focal species which could occur in the area, as well as assessing the availability of bird micro habitats, the possible impacts of the development were then assessed. In general terms, the impacts that could be associated with a project of this nature include habitat destruction, disturbance of sensitive bird species, and the contamination of water sources used by birds. Associated infrastructure such as powerlines may also pose collision and electrocution risks to avifauna.

Terms of reference

No specific terms were provided, and therefore the following standard EWT terms of reference were utilized for this study:

- Describe the current state of avifauna in the study area, outlining important characteristics which may be influenced by the proposed infrastructure or which may influence the proposed infrastructure during construction and operation.
- Identify Red Data species potentially affected by the continuous disposal of ash, as well as any associated infrastructure. Identify potential impacts (positive and negative, including cumulative impacts if relevant) of the proposed development on avifauna during construction and operation.
- Identify mitigation measures for enhancing benefits and avoiding or mitigating negative impacts and risks.
- Identify and address any other aspects related to avifauna in the study area that should be incorporated into the reports.

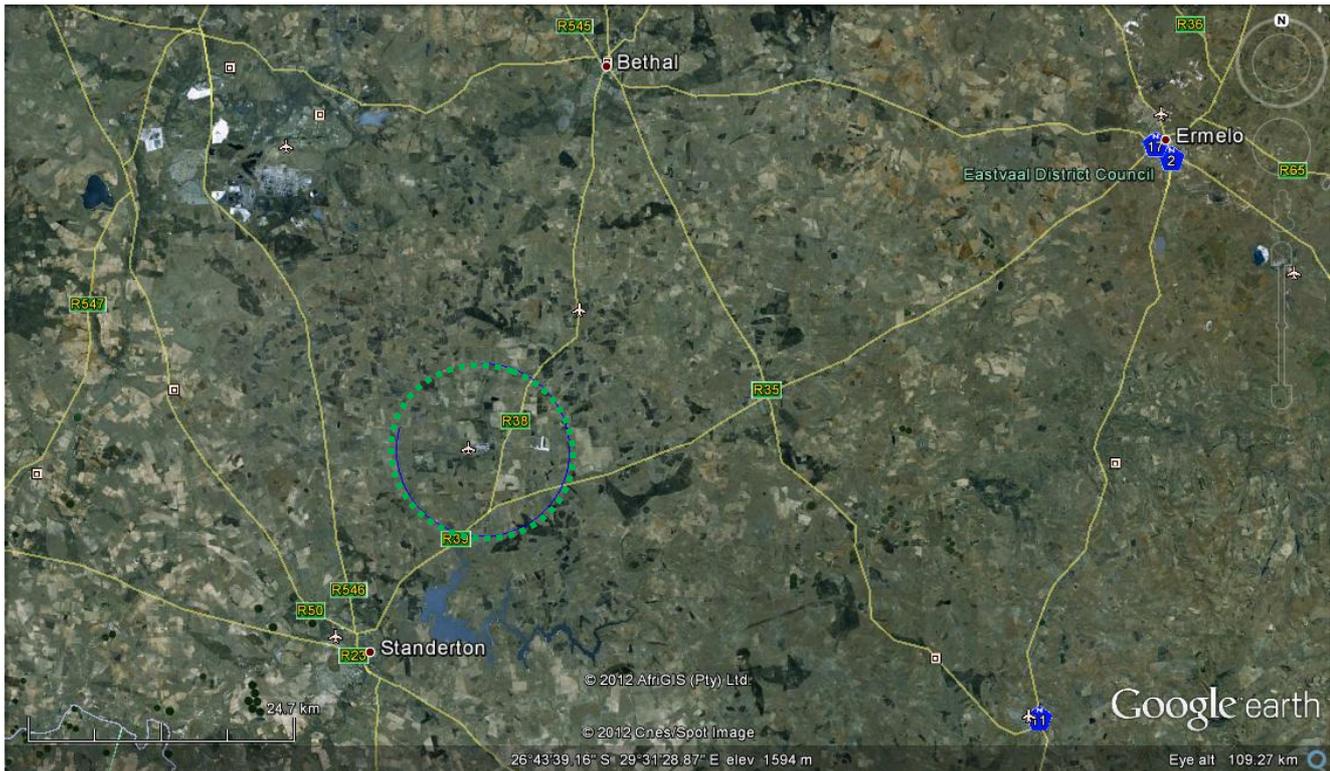


Figure 1: Google Earth image showing the broader study area (circled in green), which is an 8km radius from Tutuka Power Station, within which the scoping site visit took place. Major roads and nearby towns are also shown.

METHODS

Methodology

The methodology used to predict impacts in the current study was as follows:

- The various data sets discussed below under “sources of information” were collected and examined.
- The data was examined to determine the location and abundance of power line sensitive Red Data species as well as non-Red Data power line sensitive species in the study area.
- The general study area was visited to obtain a first-hand perspective of the proposed route and birdlife, and to determine which bird micro-habitats are present and relevant to the study. This involved driving the study area, taking photographs, and walking certain accessible areas. The properties, on which the proposed ash disposal facility is to be continued, were not accessible at this stage.

- 3 Observation Points (OP) were randomly chosen, all in the near vicinity of the proposed project. A 30 minute point count was conducted at each OP, recording all species seen or heard, as well as the numbers thereof.
- A desk top examination, using Google Earth imagery was done to assist in the identification of possible sensitive areas.
- The impacts of the proposed development on birds were predicted.
- Recommended mitigation measures for significant impacts were proposed.

Sources of information

The study made use of the following data sources:

- Bird distribution data of the Southern African Bird Atlas Project (SABAP – Harrison, Allan, Underhill, Herremans, Tree, Parker & Brown, 1997) obtained from the Avian Demography Unit of the University of Cape Town, in order to ascertain which species occur in the study area.
- The conservation status of all bird species occurring in the aforementioned degree squares was then determined with the use of The Eskom Red Data book of birds of South Africa, Lesotho and Swaziland (Barnes, 2000).
- The Southern African Bird Atlas Project 2 data for certain pentads in the study area was examined.
- Data from the Co-ordinated Waterbird Count (CWAC) project was also consulted to determine whether any CWAC sites exist in the study area (Taylor, Navarro, Wren- Sargent, Harrison & Kieswetter, 1999). Updated CWAC data were obtained from the Animal Demography Unit, University of Cape Town.
- The Important Bird Areas of southern Africa (IBA) project data (Barnes 1998) was consulted to determine its relevance to this project.
- A classification of the vegetation types in the study area was obtained from Mucina and Rutherford (2006).
- Land Cover 2009 (CSIR) data was mapped, in order to assist in identifying the dominant forms of land use in the area.
- Information on the micro-habitat level was obtained through visiting the area and obtaining a firsthand perspective.
- Electronic 1:50 000 maps were obtained from the Surveyor General.
- Satellite Imagery of the area was studied using Google Earth ©2012.

Limitations & assumptions

This study made the assumption that the above sources of information are reliable. The following factors may potentially detract from the accuracy of the predicted results:

- The SABAP-1 data covers the period 1986-1997. Bird distribution patterns fluctuate continuously according to availability of food and nesting substrate. (For a full discussion of potential inaccuracies in ASAB data, see Harrison, Allan, Underhill, Herremans, Tree, Parker & Brown, 1997).
- The site visit was conducted in late winter, over which time various species may not have been present in the study area
- During the site visit, it was not yet possible to access the actual proposed Ash disposal facility continuation site.
- Google Earth Imagery may not always reflect the true situation on the ground, as some images may be outdated.
- Bird behaviour can not be reduced to formulas that will hold true under all circumstances. However, power line impacts can be predicted with a fair amount of certainty, based on experience gained by the EWT through the investigation of hundreds of localities in southern Africa where birds have interacted with Eskom infrastructure since 1996.

DESCRIPTION OF AFFECTED ENVIRONMENT

Study area vegetation and Land use

While this report is an avifaunal specialist report, vegetation and micro habitats are very important in determining avifaunal abundances and likelihood of occurrences. As such, vegetation types classified by Mucina & Rutherford (2006) were examined within an 8 km radius of Tutuka Power Station. It was found that the only vegetation type present within 8 km of the power station is that of "Soweto Highveld Grassland". Land use data (CSIR2009) was also considered for the study area, and it was found that the major land uses in the study area are "cultivated: temporary - commercial dryland" and "unimproved grassland". The land use (Figure 2) and microhabitats were considered to determine what species may occur and where they are likely to occur.

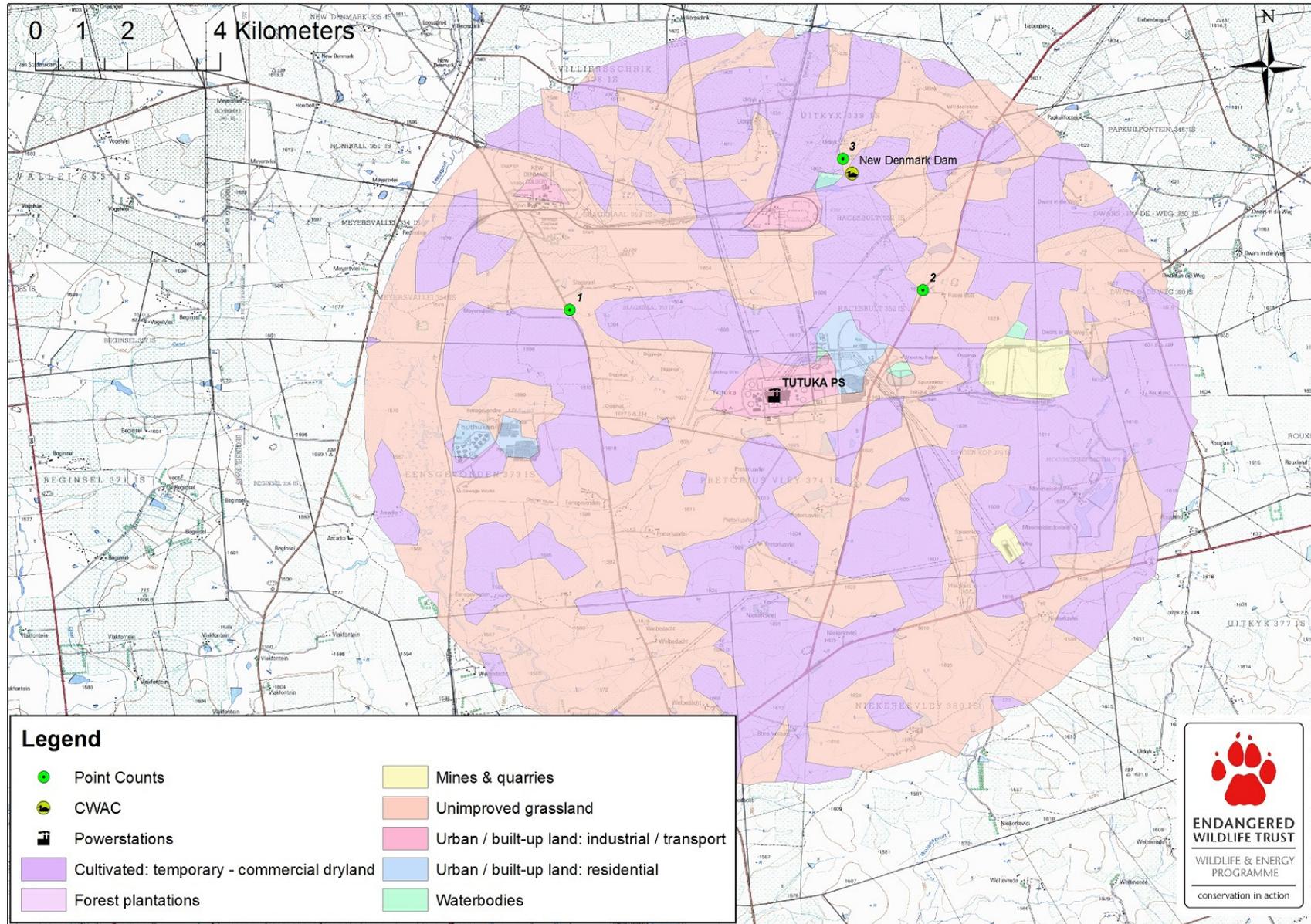


Figure 2: Land Cover (CSIR2009) in the study area. The positions of the Observation points where point counts were conducted during the site visit, as well as the location of the CWAC site is also shown.

Bird micro habitats

In addition to the description of vegetation, it is important to understand the habitats available to birds at a smaller spatial scale, i.e. micro habitats. Micro habitats are shaped by factors other than vegetation, such as topography, land use, food sources and man-made factors. Investigation of this study area revealed the following bird micro habitats.

Arable and/or cultivated lands

Arable or cultivated lands can represent significant feeding areas for many bird species in any landscape for the following reasons: through opening up the soil surface (Figure 3), land preparation makes many insects, seeds, bulbs and other food sources readily accessible to birds and other predators; the crop or pasture plants cultivated are often eaten themselves by birds, or attract insects which are in turn eaten by birds; during the dry season arable lands often represent the only green or attractive food sources in an otherwise dry landscape. Relevant bird species that may be attracted to these areas include most importantly the Blue Crane, Southern Bald Ibis, Blue Korhaan and White Stork. Marsh owls will also regularly forage over agricultural lands (Figure 4), especially in the late afternoon.



Figure 3: Agricultural lands observed in the study area.