



Savannah Environmental (Pty) Ltd
5 Woodlands Drive Office Park
Woodlands Drive, Woodmead
Johannesburg, Gauteng 2191
South Africa

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Independent Avifaunal Peer Review of the Ripponn Wind Farm: Avifauna Impact Assessment Report

Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus') was appointed by Savannah Environmental (Pty) Ltd ('Savannah') to conduct a peer review of the study entitled: "RIPPONN WIND FARM Blue Crane Route Local Municipality, Eastern Cape Province AVIFAUNA IMPACT ASSESSMENT REPORT", dated August 2021.

The aims of this peer review are as follows:

- An opinion regarding the independence of the assessment reviewed;
- Evaluation of the acceptability of the terms of reference of the specialist studies, including that of the alignment to the DEFF Protocols where applicable, as well as relevant Best Practice Guidelines;
- Evaluation of the suitability of the different assessment methodologies used for data gathering and analysis;
- Evaluation of the validity of the findings (review of data evidence);
- Evaluation of the suitability of mitigation measures and recommendations;
- Identification of any short comings to address the predicted impacts;
- Evaluation of the appropriateness of the reference literature and data;
- An indication whether a site inspection was carried out as part of the peer review or not;
- An indication whether the article is well written and easy to understand; and
- Conclusions and recommendations, if any.

INDEPENDENCE OF THE ASSESSMENT REVIEWED

The reviewer finds to reasons to question the independence of the avifaunal assessment.

REVIEW OF THE TERMS OF REFERENCE OF THE AVIFAUNAL REPORT

The project site is located within the Cookhouse Renewable Energy Development Zone (REDZ). Due to the location of the project site within the REDZ, a Basic Assessment (BA) process for environmental authorisation is being followed.

The terms of reference listed in the assessment in-line with those widely employed and are appropriate.

METHODS

The methods used for baseline avifaunal data collection were constrained through practical considerations resulting from the expansive size of the initial project area that required monitoring. The survey design was conducted over a larger area that was subsequently divided into separate projects, each with layouts being refined through an iterative process. As a result, single observer vantage points (VPs) were used to record flight activity. While this is not considered to be ideal, 5 VPs covering approximately 180° were monitored across the site ultimately resulting in 67% coverage of the proposed wind turbine generator (WTG) positions. The implementation of the

Verreaux's Eagle Risk Assessment (VERA) tool and use of the output of that model to inform the identification of high-risk WTGs unsuitable for commissioning indicates that a precautionary approach has been followed. The avoidance of those areas for development suitably addresses initial concerns regarding survey coverage.

The absence of significant Black Harrier (*Circus maurus*) activity and the apparently atypical, brief influx of Cape Vulture (*Gyps coprotheres*) reduces the expectation that the species-specific guidelines for these species and the recommendations therein should be implemented in their entirety.

The implementation of spatial modelling has been described, discussed and referenced and fatality rates have been estimated through collision-risk modelling. While these models make a number of assumptions a range of fatality estimates are presented for different avoidance rates and a comparison of these rates with proposed developments nearby has been made. These inclusions allow for the potential impacts to be contextualised and direct comparisons can be made to assess the potential risk, further this provides estimates against which operational monitoring and fatality data can be compared allowing for models to be tested. This is useful for informing and improving future impact assessments of wind energy facilities on avifauna.

Overall the methods used in the avifaunal impact assessment therefore appear to be appropriate and fit-for-purpose with gaps and limitations largely identified, acknowledged and addressed by the authors.

VALIDITY OF FINDINGS

The findings as presented in the results appear to be valid, however some of the conclusions drawn seem somewhat contradictory in places.

The impact ratings for direct mortality from collisions with power lines and collisions with WTGs were ranked separately as being of medium significance after mitigation, yet despite this the overall impact of the development was considered to be of low significance for the Ripponn WEF alone when included in the cumulative assessment (Table 12.9 [*sic* - should read 10.9], pg. 107). Similarly the assessment of residual effects in the conclusion (Section 12.6, pg. 116) stated that the Rippon WEF posed a non-significant risk of disturbance and collision and that the overall effect of the development will be of low significance. This conclusion appears to be contradictory and further explanation on this disparity seems warranted.

MITIGATION MEASURES

Collision risks associated with WTGs and fatality estimates calculated for priority species are concerning, particularly for Cape Vulture and Martial Eagle, even after WTG reduction.

Should the influx of Cape Vulture to the area observed during the monitoring period be an uncommon event exacerbated by drought-induced stock losses as suggested, a carcass management plan and the installation of perch exclusion devices could be very effective mitigation measures.

The risk of collisions with WTGs and fatality estimates calculated for Martial Eagle is an ongoing concern as these birds are resident in the area and hold a territory around an active. The removal of thirteen WTGs in proximity to the nest is an appropriate mitigation measure.

Given the relatively high collision risk calculated for Martial Eagle after the removal of the thirteen 'higher-risk' WTGs (0.99 collisions per year/1 year per collision/24.8 collisions over 25 years) there is concern that this has the potential to be a local population sink and pose a threat not only to the breeding pair and 'replacement' mates but also to their offspring.

The implementation of additional WTG collision mitigation measures as detailed in the assessment is therefore crucial. It is commended that the developer has committed to the implementation of shut-down-on-demand as a mitigation measure as this has the potential to be highly effective at reducing the collision risk not only for Martial Eagle but for all large priority species. Similarly, the

implementation of blade-painting seems well suited to the Ripponn site in addition to shut-down-on-demand as the reduction of the number of WTGs alone did not result in an adequate reduction in predicted collision mortalities in the reviewer's opinion. It is therefore the reviewer's opinion that blade painting should be considered for implementation on all WTGs within the higher sensitivity zones identified by the modelling across the Ripponn site rather than just those within 5km as stated by the assessment (as those WTGs were already identified for removal).

LITERATURE REVIEW

The literature referenced and discussed in the assessment was appropriate, relevant and up-to-date.

PEER REVIEW

This peer review was conducted as purely a desk-top exercise and no site visit was carried out as part of the peer review process.

GENERAL READABILITY

The general readability of the assessment adequately conveyed the assessment process and the iterative nature of the development's design and evolution of the layout.

CONCLUSIONS AND RECOMMENDATIONS

It is recommended that the mitigation measures for the proposed Ripponn WEF include blade-painting requirements for at least those WTGs within the areas indicated to be of higher sensitivity by the predicted distribution models for Martial Eagle as presented, rather than just those within 5 km of the nest which have already been identified as being unsuitable for development.

It is recommended that the conclusions be more robustly justified, particularly the statements that the development poses a non-significant risk of disturbance and collision to avifauna and that the overall effect will be of low significance. These conclusions contradict not only the reviewer's opinion based on the information as presented (e.g. collisions per species over the lifespan of the project), but also seemingly contradict the author's impact tables that score direct mortality risk from collisions with power lines and WTGs to be of medium significance.

In addition, it is recommended that the discussion for the cumulative impact section (Section 10.3.1, pg. 107 – 109) be expanded upon to provide additional context for readers and the Competent Authority regarding the potential impacts of the developments as a whole should all proposed developments in the area receive approval. It is the reviewer's opinion that the significance scores and ratings do not adequately reflect the cumulative impacts for WTG collisions as presented in the calculated collision risk model values. A quick extrapolation of those values over a 25 year lifespan of the cumulative projects makes it appear as if over 40 Martial Eagle, 11 Verreaux's Eagle and 321 Cape Vulture etc. would be at risk of collision in the absence of additional mitigation measures beyond WTG reduction. There are caveats that make these figures more or less likely to reflect the expected number of collisions, but it is the reviewer's opinion that this should be discussed in greater detail to reduce the opportunity for readers to interpret these values and draw conclusions that may otherwise be unintended, inaccurate or contradictory to those of the authors thereby reducing the opportunity for confusion.

Regards,



Dr Owen Rhys Davies (Pr. Sci. Nat)
Avifaunal Specialist

CURRICULUM VITAE

Dr Owen Davies Pr. Sci. Nat. (Ecology)

Senior Ecologist – Avifaunal Specialist

Email:OwenD@arcusconsulting.co.za



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Specialisms

- Avifaunal surveys
- Ecological surveys
- Field research
- Data analysis and assessment of ecological data

Summary of Experience

Owen is a Professional Natural Scientist registered with the South African Council for Natural Scientific Professions (SACNASP) and obtained his doctoral degree from the Percy FitzPatrick Institute of African Ornithology, a DST-NRF Centre of Excellence at the University of Cape Town. Owen has been involved in avifaunal monitoring activities for renewable energy projects since 2013. Extensive field research has given Owen experience in the techniques required for conducting biological surveys on a variety of taxa including observations, physical trapping and identification of small terrestrial birds, raptors, bats, small mammals, rodents, snakes, reptiles, scorpions and fish. He is also qualified to conduct observations and acoustic monitoring of marine mammals in the offshore environment. Data collection in a diversity of habitats and ecosystems, combined with formal training in field skills such as off-road driving, enables Owen to conduct ecological surveys across southern Africa. In addition, his skills in data analysis and scientific writing at the PhD level enable him to produce high quality assessments and reports.

Qualifications and Professional Interests

- **University of Cape Town, Percy FitzPatrick Institute of African Ornithology, 2010 to 2015**
PhD Zoology
- **University of Cape Town, Percy FitzPatrick Institute of African Ornithology, 2008 to 2010**
MSc Zoology (upgraded to PhD)
- **University of Cape Town, 2007**
BSc Zoology (Hons)
- **University of Cape Town, 2003 to 2006**
BSc Zoology
BSc Botany

Professional History

2019 to present - Avifaunal Specialist, Ecologist, field team leader, Arcus Consultancy Services South Africa (Pty) Ltd, Cape Town
2015 to 2017 - Ecologist, Avifaunal Field Team Leader, Arcus Consultancy Services
2014 to 2015 - Bat monitoring field assistant, Arcus Consultancy Services
2013 to 2015 - Avifaunal observer, Arcus Consultancy Services
2009 to 2013 - Research Assistant (birds) to Dr J. Fuchs (Curator of Birds at the Muséum national d'Histoire naturelle, Paris), throughout South Africa
2007 to 2013 - Research Assistant (birds) to Prof T. M. Crowe (Percy FitzPatrick Institute of African Ornithology, Department of Zoology, University of Cape Town), throughout South Africa
2011 - Research Assistant (birds) to Dr I. Little, Endangered Wildlife Trust, Uganda
2010 - Research Assistant (bats) to Asst. Prof Hassan Salata, Department of Wildlife (South Sudan), Northern Cape
2010 to 2011 - Research Assistant (small mammals) to Dr B. Smit, University of Pretoria, Northern Cape
2010 - Research Assistant to Dr H. Smit-Robinson, Birdlife SA, Western and Northern Cape

CURRICULUM VITAE

Project Experience

- Confidential WEF near Beaufort West, Western Cape Province (Avifaunal monitoring, data analysis and reporting)
- Confidential WEF near Lutzville, Western Cape Province (Ecological assessment and reporting)
- Umsinde Emoyeni WEF (Avifaunal assessment, data analysis and reporting)
- Confidential WEF near Molteno, Northern Cape Province (Avifaunal monitoring data analysis and reporting)
- Confidential Battery Energy Storage System (BESS) near De Aar, Northern Cape Province (Avifaunal assessment, Ecological Assessment, site-walkthrough and reporting)
- Confidential Grid Connection near De Aar, Northern Cape Province (Avifaunal assessment, Ecological assessment, site-walkthrough, data analysis and reporting)
- Confidential WEF near Yzerfontein, Western Cape Province (Avifaunal assessment, Ecological assessment, site-walkthrough, data analysis and reporting)
- Confidential WEF near Kuruman, Northern Cape Province (Ecological Assessment and reporting)
- Confidential WEF near Pofadder, Northern Cape Province (Avifaunal assessment and reporting)
- Confidential WEF near Nelspoort, Western Cape Province (Avifaunal assessment and reporting)
- Metsimatala Solar (Field team leader, bird observations, data analysis and reporting in collaboration with specialists)
- Kolkies WEF (Field team leader, bird observations, bat mast commission, data analysis and reporting in collaboration with specialists)
- Karee WEF (Field team leader, bird observations, bat mast commission, data analysis and reporting in collaboration with specialists)
- Gouda WEF (Field team leader, bird observations – post construction)
- Hopefield WEF (Field team leader, bird observations, data analysis and reporting in collaboration with specialists – post construction)
- Spitzkop West WEF (Bird observations, bat mast commission)
- Pofadder WEF (Bat mast commission)
- Cookhouse WEF (Bat mast commission and decommission)
- Komsberg WEF (Field team leader, bird observations, bat mast commission, data analysis and reporting in collaboration with specialists)
- Bokpoort Solar (Avifaunal assessment, bird observations, data analysis and reporting)

Publications

FJELDSÅ, J., DINESEN, L., DAVIES, O.R., IRESTEDT, M., KRABBE, N.K., HANSEN, L.A. AND BOWIE, R.C. 2021. Description of two new *Cisticola* species endemic to the marshes of the Kilombero floodplain of southwestern Tanzania. *Ibis*. <https://doi.org/10.1111/ibi.12971>

JUNKER, K., SPICKETT, A., DAVIES, O.R., JANSEN, R., KRASNOV, B. R. 2021. Gastrointestinal nematodes in two galliform birds from South Africa: patterns associated with host sex and age. *Parasitology Research*. <https://doi.org/10.1007/s00436-021-07254-0>

DAVIES, O.R, JUNKER, K, JANSEN, R, CROWE, T.M. & BOOMKER, J. 2008. Age- and sex-based variation in helminth infection of Helmeted Guineafowl (*Numida meleagris*) with comments on Swainson's Spurfowl (*Pternistis swainsonii*) and Orange River Francolin (*Scleroptila levaillantoides*). *South African Journal of Wildlife Research* 38 (2): 163-170.

JUNKER, K., DAVIES, O.R., JANSEN, R., CROWE, T.M. & BOOMKER, J. 2008. Nematodes of Swainson's Spurfowl *Pternistis swainsonii* and Orange River Francolin *Scleroptila levaillantoides* from the Free State province, South Africa, with a description of *Tetrameres swainsonii*, sp. nov. (Nematoda: Tetrameridae). *Journal of Helminthology* 82: 365-371.