

BIRDIE Project Newsletter

(SA's biodiversity data pipeline for wetlands and waterbirds)



The BIRDIE Project aims to develop a wetlands and waterbirds data-to-decision pipeline that will use statistical tools to extract policy-relevant information from key data. The data pipeline will have an online dashboard, backed by datasets, that will automate the production of important indicators for certain user needs.

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Reason for the BIRDIE Project

While an increasing amount of local biodiversity data is being collected for freshwater ecosystems – such as water quality, types of wetland plants in a particular location, or bird observations from a wetland or river system – the challenge being faced is in collating all such rough data in such a way that it can support decision makers.

This project will leverage two bird-related datasets: the Coordinated Waterbird Counts (CWAC) and Southern African Bird Atlas Project (SABAP). These data will be combined with other important informant layers (e.g. wetland threat status from the National Biodiversity Assessment and site data such as water quality) to create comprehensive data packages that feed the pipeline.

End users will be able to interrogate an online dashboard that automatically produces up-to-date indicators from the data.

The BIRDIE Project is funded by the JRS Biodiversity Foundation

The BIRDIE Project is an initiative of a consortium of institutions: the South African National Biodiversity Institute, the University of Cape Town (both the Centre for Statistics in Ecology, Environment and Conservation and Fitzpatrick Institute of African Ornithology), Sol Plaatje University, Seascope Belgium and the Royal Belgian Institute of Natural Sciences

Summary of project activities

There are many activities associated with this project, and they can be summarised as follows:

- Assembling, engaging, and linking key stakeholders to help define user needs
- Preparing data (both bird data and other auxiliary datasets) and identifying key pilot sites to test the pipeline
- Exploring and defining current best practices in data pipeline development and statistical routines, and define specifications for the architecture
- Developing and testing a modular freshwater biodiversity data-to-decision pipeline that automates the production of indicators and displays these outputs on a user-driven, scalable web application
- Integrating the pipeline and web application into SANBI's existing hardware and software systems to ensure interoperability with SANBI's National Biodiversity Information System (NBIS) and other platforms developed by partners in South Africa
- Training users and system managers through various capacity building activities
- Finalising the modular data analysis pipeline for converting raw data into decision-quality analytics and confirming its scalability

The BIRDIE Project plans to have a modular approach, where it will be possible to add additional biodiversity datasets, and to scale and apply the pipeline to other countries and regions.

Through this pilot project, partners will increase their technical capacity regarding wetland bird data and gain knowledge on how to best design a web application to be compatible across multiple platforms.

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Workshops to date

The BIRDIE Project team have held two detailed workshops and several other in-depth engagements to date. The first was a User Requirements Workshop held on 24 February 2021, attended by over 20 potential users of the data pipeline.

The aim of this workshop was to brief stakeholders on the project, gather information to augment the project team's understanding of potential uses of the pipeline, and discuss potential pilot sites.

Once the first pilot site of Barberspan was selected, an additional workshop was held with Barberspan managers to discuss data available for Barberspan and what specific uses the managers might have for the pipeline.

Barberspan – the first pilot site

The Barberspan is a large body of water located between Delareyville and Sannieshof in the North West Province. BirdLife South Africa has declared it an important national birding site, and the area is a pioneer in ornithological research. It is also a RAMSAR Convention-accredited wetland of international importance for migratory birds and waterfowl as 365 species have been recorded, including a number of rare migrants. Barberspan and the adjacent Leeupan are connected by a shallow channel, and form over 4 000 ha of shallow alkaline waters.



Freshwater resources and wetlands of southern Africa provide a host of ecological services and are of international importance.

Objectives of the data pipeline for Barberspan

The Barberspan managers and the project team have identified the following potential objectives of the data pipeline; and it is likely that most sites will have similar objectives:

1. Monitoring waterbird population trends at different spatial scales (national, provincial and site-specific)
2. Developing the indicator potential of waterbirds for assessing wetland health

Both of these objectives will support both local management decision making and assist users to comply with reporting processes at various scales. The Barberspan managers were noting that if trends in bird data could be attributed to certain issues (e.g. water quality), it would then strengthen motivations for the improved management of water quality.

Planned outputs of the BIRDIE project

In addition to the data pipeline and its web-interface that will be available to end users, the project will have the following outputs:

- Project reports and documents covering pilot sites, workshops, user interface, best practice guidelines, and project design to ensure all lessons learned are captured.
- A waterbirds trend report incorporated into other outputs like a bioregional plan, a state of biodiversity report, a RAMSAR Report, or an African-Eurasian Migratory Waterbirds (AEWA) report.
- Communication materials including conference presentations, scientific publications, newsletters, and social media.



Get involved

We hope that the BIRDIE Project will also cause an increase in citizen science data submissions. The data collected by citizen scientists is vitally important to keep feeding the data pipeline, and also supports Red List assessments for birds and reporting at the state, national, and international level.

The Coordinated Waterbird Counts (CWAC) and Southern African Bird Atlas Project (SABAP) are citizen science-based freshwater bird monitoring datasets housed at the University of Cape Town, wherein birders across the country submit their observations of birds to these platforms, thereby contributing to some of South Africa's longest-living biodiversity datasets. These datasets, where bird counts and data have been recorded over long timeframes, supply scientists with fascinating information about changes in species population sizes, migratory patterns, distribution ranges and more.

A focus for the next few years will be to develop a citizen science network to help with monitoring depression (pan) wetlands across the country – and interested citizens should contact the SANBI Freshwater Biodiversity Programme, and register on the CWAC or SABAP sites as observers:

<http://sabap2.birdmap.africa/howto>
<http://cwac.birdmap.africa/>

For more information on the project please contact Project Principal Investigator [Nancy Job](#) or Project Manager [Carol Poole](#)

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