USER STORIES

Conserving Birds using Geographic Information Systems

Who is BirdLife South Africa

BirdLife South Africa is a registered non-profit and public benefit environmental organization who is dedicated to the conservation of more than 800 bird species in South Africa.

The Challenge

Conservation of more than 800 bird species is a challenging task considering the high diversity of species and the large area they cover in South Africa. Birds are especially difficult to conserve because they are not restrained by political boundaries; they migrate vast distances to countries in the northern hemisphere and have many different requirements in terms of food, habitats and breeding.

The Solution

In order to effectively plan for how to best conserve birds and their habitats, BirdLife South Africa makes extensive use of maps and GIS (Geographic Information Systems). For example in November 2015 a revised edition of the Important Bird and Biodiversity Areas of South Africa Directory was published (Marnewick et al. 2015, see http://www.birdlife.org.za/conservation/important-bird-areas/documents-and-downloads). The Directory describes 112 Important Bird and Biodiversity Areas (IBAs), considered the most important sites for the conservation of birds. Extensive use was made of GIS mapping layers such as the protected areas network, wetlands and rivers, bird distribution (Southern African Bird Atlas Project), land cover; land use, and different vegetation layers. By using these combined layers, BirdLife South Africa's IBA Programme was able to identify new IBAs, amalgamate IBAs; and where gaps were identified, declare new IBAs. Ernst Retief Regional Conservation Manager Birdlife South Africa added "Esri South Africa makes a direct contribution to the conservation of birds in South Africa by making ArcGIS available to the organisation".

Benefits

Monitoring these 112 IBAs is essential to understand if conservation initiatives are successful to conserve birds, their habitats and to mitigate threats. The IBA network covers more than 14 million hectares and to monitor the species and habitats within this area is impossible for the small staff complement in the IBA Programme. The IBA Team makes use of the land cover and land use maps published in 1990 and 2014 to determine where changes have occurred within IBAs. The result of this study will highlight the areas where habitat change or loss is a concern. Recreational birders are requested to log the location of threatened bird species on a mobile app, BirdLasser, as well as additional information such as the number of birds seen and their behaviour. Since September 2015, when this project was launched, approximately 3,000 records were submitted each month. This dataset are then used by the IBA Team to determine where these species occur in IBAs as well as population numbers. This data can then be used to monitor the status of species over time and conservation actions can be designed accordingly. The vetting and analysis of the data is also done through the use of GIS.

Another example is the analysis of the 43,000 location points acquired through the tracking of 11 juvenile Secretarybirds. For the first time ever the movements of Secretarybirds were tracked after they leave their nesting area with some birds moving more than 800 kilometers from their nest sites! Valuable data about dispersal and habitat use were obtained and this dataset will now be analysed by overlaying the data with vegetation, land cover and land use map layers.

"BirdLife South Africa would like to thank Esri South Africa for making ArcGIS and its tools available to NGOs " - Ernst Retief Regional conservation manager BirdLife South Africa.

The Challenge

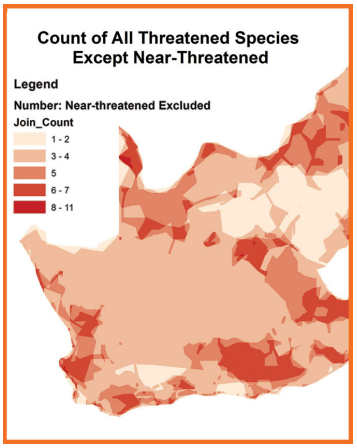
- Conservation of more than 800 bird species
- Bird migration

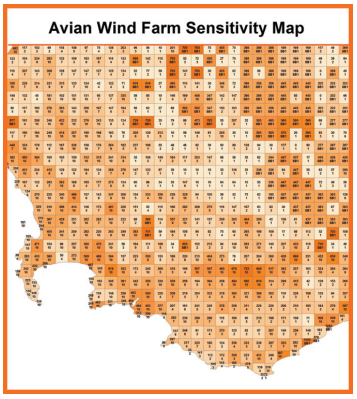
The Benefits

- GIS helps to monitor, track and visualize the bird population and distribution

Other ArcGIS Project solutions

- Designing of an Avian Wind Farm Sensitivity Map
- Drafting of ecological niche models for threatened bird species such as Southern Bald Ibis and Rudd's Lark,
- GIS implemented when commenting on Environmental Impact Assessment reports.





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BirdLife SOUTH AFRICA Giving Conservation Wings

IBA BIRDLIFE IMPORTANT BIRD AND BIODIVERSITY AREA