## Supplementary Materials

A review of the conservation status of Black Stork *Ciconia nigra* in South Africa, Lesotho and Eswatini

## SM Table 1: Maxent response tables for the variables used in predictive models.

The table includes the variable retained for each of the Breeding or Foraging models for Black Stork. \* denotes variables derived from the South African National Landcover dataset.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Breeding** |  | **Foraging** |  |
| **Variable** | **Percent contribution** | **Permutation importance** | **Percent contribution** | **Permutation importance** |
| Slope gradient | 59.1 | 78.3 |  |  |
| bio16 Precipitation of Wettest Quarter | 12.8 | 5 |  |  |
| bio14 Precipitation of driest month | 9 | 4.5 |  |  |
| bio11 Mean Temperature of Coldest quarter | 6.1 | 0.4 | 19.6 | 14.2 |
| bio15 Precipitation Seasonality | 3.3 | 0.3 | 2.1 | 2.6 |
| bio17 Precipitation of Driest Quarter | 3.3 | 1.6 |  |  |
| Drainage Lines | 2.4 | 1.4 | 25.6 | 18.9 |
| Digital Elevation Model Data | 2.1 | 1.1 | 1.2 | 13.2 |
| Soil pH | 1.9 | 7.5 | 2 | 2.9 |
| Dams 300m\* |  |  | 14 | 2.3 |
| Natural vegetation (1km radius)\* |  |  | 3.2 | 3.3 |
| bio1 Annual Mean Temperature |  |  | 6.1 | 0.1 |
| bio4 Temperature Seasonality |  |  | 2.8 | 0.4 |
| bio6 Min Temperature of coldest month |  |  | 3.4 | 12.3 |
| bio5 Max Temperature of warmest month |  |  | 1.7 | 0.7 |
| Normalized Difference Vegetation Index  : winter |  |  |  |  |
| Normalized Difference Vegetation Index  : summer |  |  |  |  |
| Mountain Aspect Eastness |  |  |  |  |
| Mountain Aspect Northness |  |  |  |  |
| Soil clay content |  |  |  |  |
| Terrain ruggedness |  |  |  |  |
| Heat Load Index |  |  |  |  |
| Bio:2, 3, 10, 12, 13 |  |  |  |  |

## SM Figure 1

Supplementary Figure 1: SABAP2 distribution of Black Stork for breeding (Yes) and non-breeding (No) seasons. Colours indicate reporting rate (RR) from pentads where the species was recorded. Black indicates no records, while grey indicates no data. This is also the background ‘presence’ data set used for creating breeding vs non-breeding season distribution maps using random forest predictive modelling.

Chart

Description automatically generated

## SM Figure 2: Probability surfaces from Maxent models for Breeding range and Foraging range

Map

Description automatically generated with medium confidence

Map

Description automatically generated

## SM Figure 3 The main response curves from Maxent model output (those contributing 9% or more)

|  |  |
| --- | --- |
| Breeding distribution model | Foraging distribution model |
|  |  |
|  |  |
|  |  |