**Supporting Information (Appendix 1)**

**1.0 Extraction of environnemental variables**

*Slope and Aspect*

For both slope and aspect, raster were created and downloaded from NASA DEM using the ee.Terrain.products bands in Google Earth Engine. Both raster coordinate system was then converted into UTM 37S on ArcGIS.

*Vegetation height*

To get information on vegetation height, the Global Canopy Height was extracted from the GLAD 2019 dataset and any non-forest categories were removed. Vegetation height was also projected to UTM 37S.

*Distance to occupied forest fragment*

The distance to occupied forest fragment was obtained by defining forest fragments using the JRC TMF 2022 dataset where all non-forest categories were removed. The Geodesic method was then used to calculate Euclidean distance at a 30m scale. However, the distance to occupied forest fragment was only calculated for Taita Apalis hence, all forest fragments that had no sightings of this species were removed. For this reason, this environmental layer will not be used in the analysis as it is non-informative for Taita Thrush.

*Enhancement Vegetation Index*

The Enhancement Vegetation Index (EVI) was extracted from the 8Day Landsat 5 & 7 products where EVI was calculated by hand following an equation on the bands. However, some compromises had to be made while extracting this environmental variable as individual monthly raster for each year were not available for the entirety of the survey duration. Two six-month rasters were therefore extracted each year on the 1st of January to the 2nd of July and the 3rd of July to the 31st of December.

*Climatic variables*

Climatic variables such as the maximum recorded temperature in the warmest month and the minimum temperature of the coldest month, along with precipitation of the driest and wettest quarters were extracted from the WorldClim V1 Bioclimate variables using Google Earth Engine. The data was then filtered using the Area Of Interest (AOI) and rasters were extracted, imported into ArcGIS and their coordinate system set to UTM 37S. After rescaling the temperature data to a factor of \*0.l, all rasters were resampled to 30m using Bilinear interpolation.

*Elevation*

Elevation values were not provided by the RSPB, instead values were extracted directly on RStudio using the package “elevatr”, which is a package written to standardise access to elevation data from web APIs. An elevation raster was created using “slope” as the template raster layer (Je, 2006).

**2.0 Multicollinearity**

**A screenshot of a graph

Description automatically generated**

**Fig 1.** Correlogram showing the correlation between all the environmental predictors, before being filtered for multicollinearity.

**3.0 Prediction maps generated with selected environmental predictors**

**A map of a continent

Description automatically generated with medium confidence**

**A map of a planet

Description automatically generated with medium confidence**

**Fig 2.** Maps showing predicted probability of occurrence of Taita Thrush and its associated standard deviation (SD).

**4.0 Prediction maps generated with different EVI and canopy height values**

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**Fig 3.** Maps showing predicted probability of occurrence of Taita Thrush and its associated standard deviation (SD) for min EVI and max canopy height values.

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**Fig 4.** Maps showing predicted probability of occurrence of Taita Thrush and its associated standard deviation (SD) for max EVI and min canopy height values.

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**Fig 5.** Maps showing predicted probability of occurrence of Taita Thrush and its associated standard deviation (SD) for min EVI and min canopy height values.

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**Fig 6.** Maps showing predicted probability of occurrence of Taita Thrush and its associated standard deviation (SD) for max EVI and max canopy height values.

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**Fig 7.** Maps showing predicted probability of occurrence of Taita Thrush and its associated standard deviation (SD) for average EVI and average canopy height values.