# Completeness of Digital Accessible Knowledge of the Birds of Western Africa and Priorities for Survey and Inventory

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## Abstract

Primary biodiversity data are widely used to model ecological niches and geographic distributions of species, assess the status of global biodiversity, and inform conservation decisions. This study identifies current gaps in the current knowledge of West African birds using Digital Accessible Knowledge (DAK), available for birds on Global Biodiversity Information Facility (GBIF) and eBird data portals. We assembled all bird data from the two portals up to 2016, we standardized and cleaned the data carefully, and calculated inventory completeness indices at 0.5º, 0.3º and 0.1º spatial resolutions across the region. Well-known sites were identified as those grid squares with completeness indices above 80% and >200 associated DAK records. We identified 81 well-known pixels at 0.1º, 73 at 0.3º, and 63 at 0.5º. Well-known sites were notably clustered around accessible areas (e.g., cities). Countries holding more well-known sites were Ghana, Cameroon, Gambia, and Ivory Coast. Our results show the biases and gaps in West African bird data, and identify areas to be prioritized in future surveys and inventories.

## Objectives

1. To identify current gaps in the current knowledge of West African birds.
2. To identify priority areas for future avian surveys, inventories and conservation across the region.

## Methods

Assembled all DAK records for West-central African birds from eBird and GBIF

Cleaned data, removing errors and duplicate records

Standardized and aggregate records to 3 spatial resolutions (0.1°, 0.3°, and 0.5°)

Calculated Completeness indices (C) for all pixels at every spatial resolution (see graph)

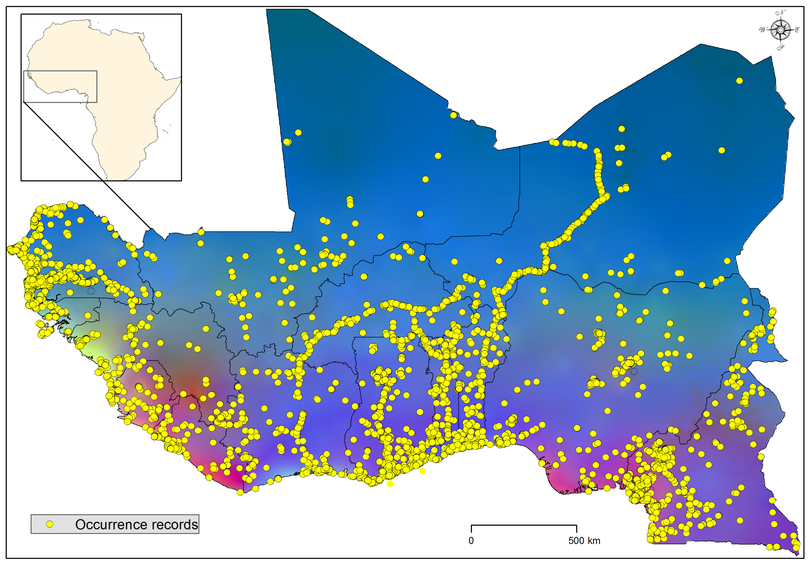
## References

Sousa-Baena, M.S., Garcia, L.C. & Peterson, A.T. (2014). Completeness of digital accessible knowledge of the plants of Brazil and priorities for survey and inventory. *Divers. Distrib.*, **20**, 369–381.

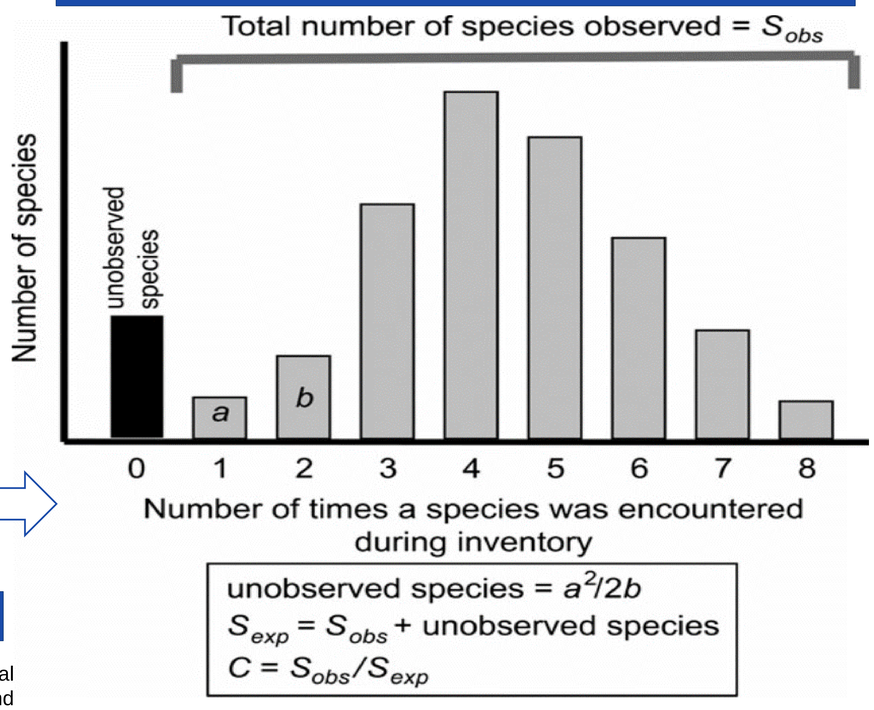
## Results

- Well-known sites identified:
  - 81 sites at 0.1º
  - 73 sites at 0.3º
  - 63 sites at 0.5º
- Well-known sites were notably concentrated around accessible areas (e.g., major roads, parks)
- Countries holding more well-known sites were Ghana, Cameroon, Gambia, and Ivory Coast (Figure 2)

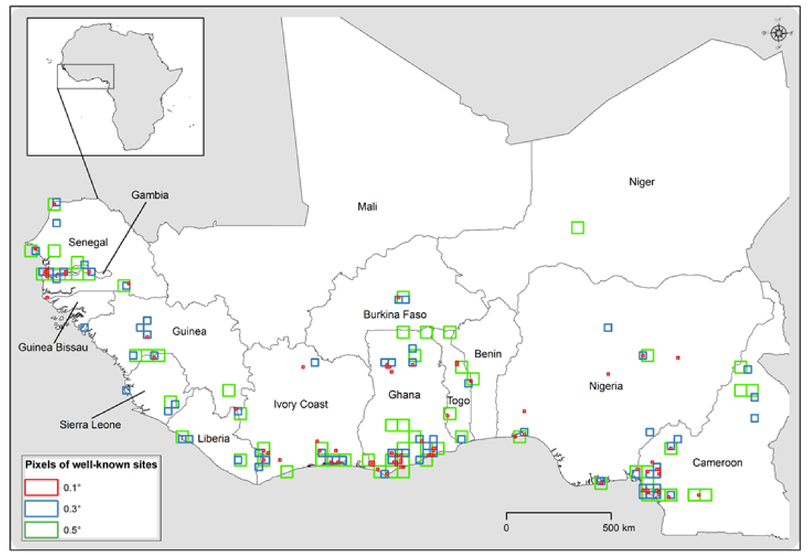
## Map of study area and distribution of DAK records



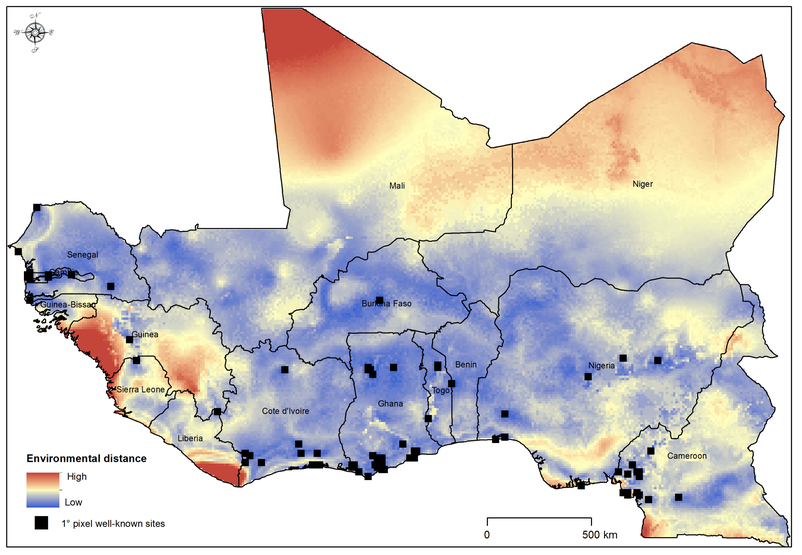

## Completeness calculation




## Map of well-known sites across the region at each spatial resolution for C ≥ 80% and ≥ 200 associated DAK records




## Map of environmental distances relative to well-known sites in environmental space




## Conclusions

We show the biases and gaps in West African birds data, with well-known sites concentrated in accessible areas, including cities and national parks, in Ghana, Gambia, and Cameroon. In addition, we identify areas to be prioritized in future surveys and inventories. Particularly of interest, are those areas that are very distinct in environmental space as shown in the map above. Thus, we recommend that future surveys and inventories prioritize these areas, as they may offer novel information on the avifauna of West Africa.