BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 3: e37685
doi: 10.3897/biss.3.37685

OPEN ACCESS

Conference Abstract

Primary Biodiversity Data Gaps Assessment and Data Use for Decision-making: A West African Experience

Benedictus Freeman‡, A. Townsend Peterson‡

‡ Biodiversity Institute, University of Kansas, Lawrence, Kansas, United States of America

Corresponding author: Benedictus Freeman (benedictusfreeman@gmail.com)

Received: 25 Jun 2019 | Published: 02 Jul 2019

Citation: Freeman B, Peterson A (2019) Primary Biodiversity Data Gaps Assessment and Data Use for Decision-making: A West African Experience. Biodiversity Information Science and Standards 3: e37685.
https://doi.org/10.3897/biss.3.37685

Abstract

Primary biodiversity data, data documenting presences of particular species at particular sites at a point in time, available in standard digital formats, provide the basis for many quantitative studies that can inform effective and reliable national, regional, and global biodiversity conservation decisions. However, these datasets are often unavailable, incomplete, or unevenly distributed across regions and landscapes. We assessed the survey completeness and gaps in current knowledge of birds of West Africa, using digital, accessible primary biodiversity data, obtained from the Global Biodiversity Information Facility and eBird. Additionally, using ecological niche modeling approaches, we modeled the current and potential future geographic distributions of a diverse suite of range-restricted and ecologically important bird species, and used the resulting models to identify priority areas for conservation and future surveys (Fig. 1). The survey completeness and gap analyses revealed marked spatial, seasonal, and temporal (historical) gaps and biases in the coverage of bird records across the region (Fig. 1). Well-surveyed sites were clustered around points of access such as major cities, roads, and national reserves or parks, mainly in Ghana, The Gambia, Senegal, Côte d'Ivoire, and Cameroon (Fig. 1). For our distributional analysis, we found broad present-day potential distributions with respect to climate. Future potential distributions, taking into account climate change processes, tended to be still-broader and more inclusive than present-day distributions, so climate-

change-driven range losses and gains were minimal. Our models identified Liberia, southeastern Sierra Leone, southwestern Côte d'Ivoire, and southwestern Ghana to have high climate suitability in the present and in the future for most species. These results illustrate the spatial and temporal biases and gaps in West African bird data, and emphasize the need to promote high-quality biodiversity data mobilization and publication in West Africa and by extension the developing world. To address these biases at the regional level, research institutions and individuals need to engage in more systematic planning and biodiversity research, taking into account the potential for spatial, temporal, and seasonal biases.

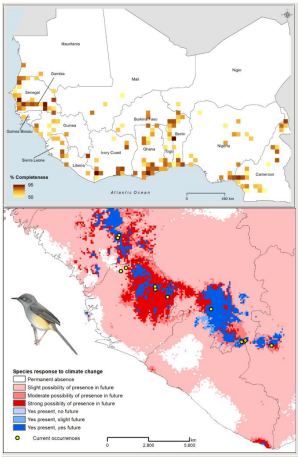

Figure 1.

Maps showing summary results from survey completeness and gap analyses at 0.5° spatial resolution (top) and an example result from the distributional analysis (bottom) for an endemic West African bird species for present and future climate projections.

Keywords

conservation planning, biodiversity inventory completeness, biodiversity informatics, climate change, range-restricted species, ecological niche modeling

Presenting author

Benedictus Freeman

Presented at

Biodiversity_Next 2019