Darwin Initiative Capability & Capacity: Final Report

To be completed with reference to the "Project Reporting Information Note": (https://www.darwininitiative.org.uk/resources/information-notes/).

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes.

Submission Deadline: no later than 3 months after agreed end date.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

Darwin Initiative Project Information

Project reference	DARCC020
Project title	Improved decision making through citizen science data
Country(ies)	[redacted]
Lead Organisation	Tropical Biology Association
Project partner(s)	Kenya Bird Map and Nigerian Bird Atlas Project
Darwin Initiative grant value	UKP199,339
Start/end dates of project	1 Apr 2023/31 March 2025
Project Leader's name	Rosie Trevelyan
Project website/blog/social media	
Report author(s) and date	Anthony Kuria and Rosie Trevelyan, May 2025

1 Project Summary

This project aimed to unlock the power of citizen science data to inform evidence-based management. By building the capacity of citizen scientists and managers in East and West Africa, we wanted to ensure that bird data collected by citizen scientists was effectively analyzed, interpreted, and communicated to support conservation management and planning.

The project was majorly based on long-term data gathered by the Kenya Bird Map (KBM) and the Nigerian Bird Atlas Project (NiBAP) — two leading national citizen science bird mapping initiatives. These projects served as a proof of concept, showcasing how citizen science data can be transformed into actionable knowledge, with the ultimate goal of inspiring similar efforts across the region.

The project had three specific aims:

a) Building capacity in citizen science data use

Through two practical training courses, the project enhanced the skills of citizen science managers and decision-makers from civil society and government, in:

- Citizen science data analysis and interpretation of results. This hands-on training exposed trainees to diverse tools and techniques for analysing citizen science data, with emphasis on R programme. It also illustrated the connection between species trends and environmental threats like land-use changes, invasive species, and climate change.
- Effective communication for conservation impact. A second course emphasized how to present citizen science results accessibly, and memorably for different audiences. Another

aim of this course was to strengthen connections between citizen science managers and decision-makers, particularly in Kenya and Nigeria.

These capacity gaps had been identified by stakeholders involved with the KBM and NiBAP as hampering the effective utilization of citizen science data for conservation planning in Africa.

b) Making citizen science data publicly accessible

To improve access to and use of citizen science data, the project developed the Kenya Bird Trends—a user-friendly, open-access online platform based on citizen science data by the KBM. The platform allows users to explore datasets, retrieve bird data, and generate insights to inform conservation action. The absence of such a platform had previously been noted as a major obstacle in connecting citizen science initiatives to policy impact. Kenya Bird Trends now bridges this gap by offering an intuitive gateway to credible, up-to-date data.

c) Bridging science-policy divide

Targeted "in-situ meetings and engagements" held in Kenya and Nigeria, brought together citizen scientists and managers, government agencies, and conservation practitioners to discuss how citizen science data could be integrated into national and local decision-making processes. These meetings were an opportunity to synthesize project's outcomes. They also helped strengthen partnerships, paving the way for future incorporation of citizen science data into institutional planning.

Stakeholders and scientific literature have pointed out that limited collaboration between citizen scientists and policy maker has been a barrier to effective knowledge exchange. This project took important first steps to tackling this issue, and deliver real-world impact through citizen science.

Impacting the region

The project directly benefited citizen scientists and decision makers from nine countries: five in East Africa and four in West Africa (see the map below), strategically expanding its impact and building a regional network of practice.

When we first drafted the proposal, we had included Somalia, Gambia, Senegal, and Cameroon as countries we would target because of the interest we had earlier received from them. However, when we advertised the courses, we didn't receive suitable applicants.

Map 1. Countries where project beneficiaries came from

2 Project Partnerships

Project partners- formal and informal and their roles

This project strengthened and developed new partnerships. The project – and its partnership- is the result of many year's informal discussions on how to make citizen science data work for conservation and in particular how to fill the capacity gaps in data analyses, communicating results, and advocacy. The project partners where therefore all known to each other but this is the first time all partners had formally worked together.

Other key players were the National Museums of Kenya who provided daily oversight on Kenya Bird Map (KBM) project activities but also co-led the project's in-situ meetings and engagements in Kenya. The A.P. Leventis Ornithological Research Institute (APLORI) also co-led project activities in west Africa.

All partners (formal or key players mentioned above) co designed the project and led or co-delivered the activities. This included reaching out to their network to identify trainees for the training courses as well as key government agencies and individuals to present the results of the partnership to and to deliver advocacy outputs. This is described more fully later in this report.

Representative of the UK's Foreign and Commonwealth Office in Nairobi were invited to project activities in Kenya but they could not make it.

Particular achievements, strengths and challenges

A strength of this broad, well networked, partnership was that the project reached a wide constituency who are now aware of the project's outputs, the role of citizen science in conservation and policy, and on the existence of the Keya Bird Trends platform.

Another benefit of the partnership was it gave us a stronger and more credible voice for engaging government. For example, Kenya Wildlife Service (KWS) hosted the launch of the project's Kenya Bird Trends (KBT). In his keynote address, the KWS Director General described the platform as "a significant milestone in the ongoing efforts to conserve the rich avifauna of Kenya".

The main challenges were to work with a broad multi-national partnership took time – particularly because this was a new project and partners are already busy. Use of web-based platforms helped overcome this challenge – and we also postponed the timing of some activities to ensure all partners could fully engage.

Future prospects

All members of the partnership are highly likely to continue interacting beyond the project end because of the shared ownership of the results and the new ideas and activities the project generated. For example, the Kenya Bird Trends platform - a flagship product- is now being permanently hosted by the Kenya Bird Map (hosted by National Museums of Kenya and Nature Kenya).

Making a wider community aware of the importance of citizen science and bird conservation

As mentioned already above, the project reached out to a wide network of stakeholders of both civil society and government. We trained a new cohort of citizen science managers from across Africa who report strong commitments to continue to analyse results from citizen science projects – and use them to inform conservation efforts

The project connected individuals, for the first time, from different institutions and countries, setting a firm foundation for cross fertilisation of expertise and knowledge in citizen science. Today, this new community continue to work and support each other generate new results from their citizen science data.

3 Project Achievements

3.1 Outputs

Output 1 ***(National citizen science managers with enhanced capacity to analyse and communicate citizen science data and produce policy-relevant and management guidance and enhance commitment of citizen science mappers)***

This output was fully achieved through Course1. This course included a face-to-face training (see Annex 9 - Course 1 Report) and an online R training Bootcamp (see Annex 10- Online R Bootcamp Report). The bootcamp targeted 10 participants from the face-to-face training who had sufficient R skills and enough data for the hands-on sessions.

Course 1 aimed to build participants' capacity to ask relevant questions and generate evidence using citizen science data. Key topics included planning for impact, understanding and analysing citizen science datasets, selecting appropriate analysis methods, step-by-step guidance on using R for analysis, and how to communicate scientific citizen science results clearly and effectively.

Output results (highlighted below) are not only inspiring individuals involved in gathering the data on the ground, but also building confidence of the authors to publish papers. The latter is particularly important given the low number of papers first-authored by African scientists. These results also have the potential to support policy and management decisions.

Achievement against output indicators

Indicator 1.1: (20 managers of at least 4 African national bird mapping projects (1/3 being women) trained in citizen science data analysis and on advocacy and communication policy influence (by Dec 23))

Fully achieved. Through Course 1, we trained 19 citizen science managers from 9 African countries and 19 institutions—just one short of the target of 20. Despite the male-dominated nature of the field (citizen science and data analyses), 42% of trainees were women, exceeding the project's target of 33%. Of the participants, 12 were involved in six national bird mapping projects, while others represented citizen science initiatives such as national waterbird counts, common bird monitoring, and the eBird platform. A full list of participants, including their affiliations and projects, is provided in Annex 11a) and also included in the training reports (Annexes 9 and 10).

All course1 trainees reported that their abilities as citizen science managers increased as a result of the training (post course assessment). Based on before and after scores, the trainees' knowledge increased by 35% in communicating citizen science results; and by 34% in analysing citizen science data. See Annex 12 for course 1's training assessment.

From the R bootcamp, the participants said they gained the most skills and knowledge in R Markdown (237.5% increase) followed by mapping with R (95%), Bayesian modelling (93%) and PCA & factor analysis (88%).

Indicator 1.2: (At least 4 advocacy pieces based on citizen science data analyses produced by the trained managers by Sep 2024)

The trained managers produced four strong outputs, meeting the target in number. However, instead of preparing explicit advocacy pieces, they developed advocacy-relevant scientific papers based on citizen science data. Three of these (also listed in Table 2 of this report) have already been published in international peer-reviewed journals:

- Assessing the susceptibility of raptor species to electrocution: A framework for Kenya (Journal of Environmental and Sustainability Indicators)
- Ecological consequences of urbanization in afro-tropical bird communities: present and future prospects (Frontiers in Conservation Science)

- Citizen science mitigates the lack of distributional data on Nigerian birds (Ecology and Evolution)

A fourth piece – a policy brief -, '*From watchers to policymakers: How Citizen Science can transform conservation*' (Annex 5(a) – DO NOT SHARE) is in preparation for submission to *Current Opinion in Environmental Sustainability* journal.

Indicator 1.3: (At least 4 communication pieces on the analyses of priority species by trained managers and shared with at least 5,000 African citizen science volunteers)

This indicator was significantly surpassed, with over 20 communication pieces produced—five times the project target (see Table 2, and Annex 5d for examples). These included:

- 3 conference posters and talks at the 2024 Association for Tropical Biology and Conservation conference in Rwanda; Student Conference in Conservation Science in UK, and the European Bird Census Conference in Latvia where a poster around the Kenya Bird Trends (output 3), won second best place poster
- At least 3 conference posters and presentations at major events such as the 2024 Association for Tropical Biology and Conservation (Rwanda), the Student Conference in Conservation Science (UK), and the European Bird Census Conference (Latvia), where a Kenya Bird Trends (Output 3) poster won second-best poster.

- Two webinar presentations, including one featured on the YouTube series Friday4birds.
- 5 articles on institutional websites including those of the Tropical Biology Association, Kenya's National Environment Management Authority, and A Rocha Kenya.
- 3 popular articles in local Kenyan newspapers, and a commentary on impact of urbanisation on birds published by Mongabay.
- A Radio broadcast in Nigeria and a TV segment in Kenya highlighting the launch of the Kenya Bird Trends platform (Output 3).
- At least 5 institutional social media posts (on FaceBook, X, and LindedIn) shared by Kenya Wildlife Service, National Environment Management Authority, Laikipia Wildlife Forum, and National Museums of Kenya.
- A local awareness campaign in Rwanda led by trainee Elie Sinayitutse (Nature Rwanda), which reached over 150 youth and highlighted the importance of vultures (see Annex 5d) and waterbirds.

The reach of these outputs far exceeded the target of 5,000 African citizen science volunteers. For example, the Kenya Bird Map platform has over 600 registered users, 167 members in its WhatsApp group, and more than 13,500 Facebook followers (see Annex 7). In Nigeria, the Bird Atlas Project reports over 500,000 Facebook followers, and the two published papers (by Ecology and Evolution, and Frontiers in Conservation Science journals) linked to the NiBAP have received over 2,200 views combined (See Annex 8).

Indicator 1.4: (4 conversation priority species trends analyses against likely causal threats with recommendations for conservation decisions produced and published by Sept 24)

This indicator was exceeded, with 5 papers produced based on trend analyses of priority bird species (see Table 2, and Annex 5d in this report). These outputs provide strong evidence for conservation action. Key contributions include:

- **Frank Juma (Kenya)** authored two papers on the decline of grassland birds, linking the trends to land use changes and climate impacts. One paper focuses on Nairobi National Park and surrounding areas—critical grassland bird habitats that are rapidly changing. A third paper is under review in *Environmental Monitoring and Assessment*.
- **Peggy Ngila (Kenya)** published findings on how forest cover loss is affecting forest-dependent birds, another key priority group.

The State of Kenya's Bird report 2025 [Annex 13] along with the paper - Historical Bird Atlas and Contemporary Citizen Science Data Reveal Long-Term Changes in Geographic Range of Kenyan Birds (published in Diversity and Distributions), present extensive analyses on trends in forest, grassland, wetland, migratory species, and birds of prey. The report builds on long-term research from the National Museums of Kenya and serves as an authoritative reference on bird status in Kenya.

Additional outputs supporting this indicator include:

- Two submitted papers: one on species richness and endemism of Nigerian birds and their relevance to climate-driven conservation (submitted to *Oryx; See Annex 5b*), and another on the distribution of the range-restricted Rock Firefinch (*Lagonosticta sanguinodorsalis*) in Nigeria (submitted to *Journal of Nature Conservation*; Annex 5c). A third paper (in preparation, reported in annex 14) explores how urbanization affects bird species richness and diversity.
- Trainees' contributions to (reported in Annex 14):
    - Vulture multi-species (2024-2034) – Action Plan for Kenya [pg2]
    - Kenya's Key Biodiversity Areas Status & Trends 2023. [pg2]
    - Waterfowl species trend analysis for some of the Ugandan sites. [pg5]

These outputs collectively reflect strong progress in generating and sharing evidence to support conservation decisions.

Output 2. ***(Decision makers with increased capacity on use of citizen science data for policy and management decisions)***

This output was partially achieved: while we successfully built the intended capacity, the action plans as originally outlined in the project were not delivered (see explanation below).

A training course (course2) on communicating citizen science data for conservation and advocacy strengthened the skills of 21 decision-makers and citizen science managers—43% of them women. Using real-life case studies, the course offered practical tools and techniques for sharing conservation successes in compelling ways. For example, we showcased how bird mapping data—particularly from the Kenya Bird Map and Kenya Bird Trends—is informing efforts to control the invasive Indian House Crow. Participants also gained skills in writing policy briefs based on citizen science research, building effective partnerships, and crafting strong advocacy messages (see Annex 16 for course report).

Our intention that government agencies would develop action plans were overambitious. Citizen science was still a new concept for many government agencies, and before they could consider integration—let alone producing formal action plans—it was essential to first raise awareness and foster understanding. This awareness was successfully achieved through course2 (See Annex 16-Course2 report) and our targeted engagements with government staff under Output 4 (See Annex 17 – In-situ meetings report).

We also learned that for action plans to be effective and gain government support, they must be led or actively involve a relevant government agency responsible for biodiversity data. Furthermore, integrating citizen science into policy and management is a complex, time consuming process, and one that extended beyond the timeframe of this project.

Nevertheless, as reported below, a number of actions did indeed come from this project.

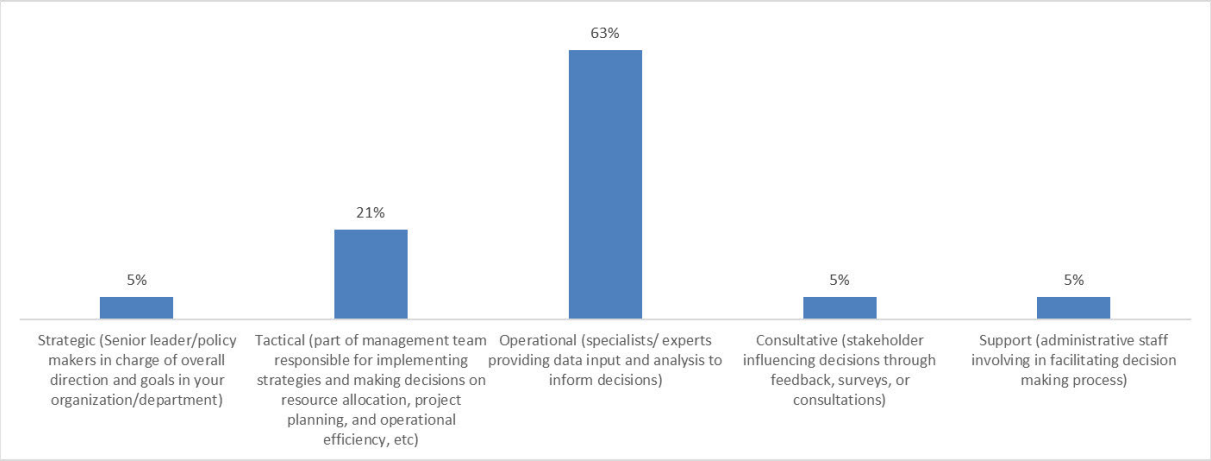
Achievement against output indicators

Indicator 2.1: (At least 8 decision makers from at least 8 government agencies from East and West Africa trained on how to interpret citizen science analyses and use them to inform decisions and policy on biodiversity conservation by March 2025)

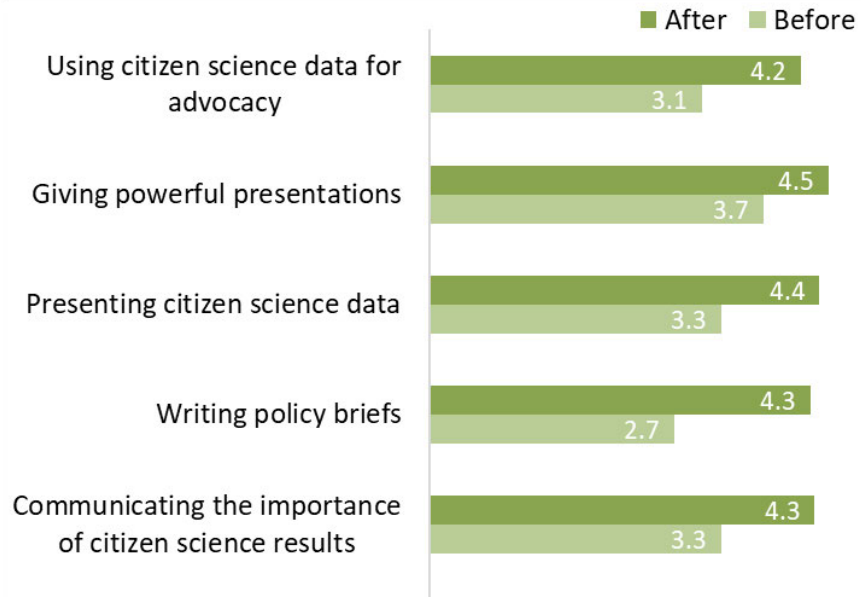
This indicator was fully achieved through both Course 2 and targeted in-situ meetings and engagements under Output 4.

Annex 11c (Course2 training register) shows **seven decision-makers from six government agencies**—five in Kenya and one in Nigeria—participated in Course 2. These included the Kenya Forest Service (KFS), Kenya Wildlife Service (KWS), National Museums of Kenya (NMK), National Environment Management Authority (NEMA), Wildlife Research and Training Institute (WRTI), and the Nigerian National Parks Service. In addition, a representative from the Nigeria Conservation Foundation, who plays an active role in conservation decision-making, also took part. In total, the capacity of **eight key decision-makers** was strengthened, enhancing the potential for citizen science data to influence policy and management.

The figure below shows a majority (63) of those trained on course 2, were experts providing data input and analyses to inform decision followed by tactical staff (21%).



Based on “before” and “after” training self-assessment (Annex 12), all the participants reported increased level of knowledge in different aspects of communication; with the most increase being on writing policy briefs, followed by using science data for advocacy then on presenting citizen science data (on a scale of 1 =lowest knowledge to 5= highest knowledge) as shown in the figure below



Based on the in-situ meetings and attendance records (Annex 17), four additional Nigerian government agencies were engaged:

- Federal Ministry of Agriculture (including the Department of Livestock & Wildlife Disease Surveillance)
- Federal Ministry of Environment (including the Department of Forestry Services)
- State House, Aso Rock
- National Environmental Standards and Regulations Enforcement Agency (NESREA)

Cumulatively, at least 105 government staff (decision makers) were engaged; each attending one of the 13 in-situ meetings and engagements under this project

In total, 10 government agencies were engaged, successfully achieving the intended output.

Indicator 2.2: (At least 2 new action plans produced by government environmental agencies showing how citizen science data will be integrated into management or policy decisions by January 2025)

This indicator was somewhat met. Although government agencies did not create specific action plans during the project period, the managers we trained made notable contributions to existing or new plans within their organizations.

- **Kenya**: Joshua Sese (Nature Kenya), who joined all courses under this project, reported that species distribution maps he developed using citizen science data were incorporated into Kenya's *Vulture Multi-species Action Plan (2024–2034)*. (See Annex 14, p.2 and the actionplan).
- **Nigeria**: During Course 2, Dr. Stella Egbe (Nigeria Conservation Foundation) shared how NiBAP data informed the *Strategic Action Plan for the Red-footed Falcon*, a key migratory species. The data also supported targeted conservation measures at Akassa, a designated Important Bird Area (see annex 5e).

Beyond these individual contributions, the integration of citizen science data into institutional frameworks gained momentum, supported by engagements under project output 3 and output4:

- The launch and official hosting of the Kenya Bird Trends (KBT) platform by the **Kenya Wildlife Service (KWS)** (output 3) provided plausible evidence of the project's future contribution to government decision-making. During the launch, the KWS Director General emphasized the platform's significance, stating it was "poised to revolutionize [KWS's] approach to avian conservation" and that it offered "a model that can be scaled to other African countries" (see annex 18, and see launch report**)**.
- The **National Environment Management Authority (NEMA)** acknowledged KBT's potential to support Kenya's reporting on international biodiversity commitments, including under the Convention on Biological Diversity, and that it aligns with global biodiversity initiatives such as the Kunming-Montreal Global Biodiversity Framework and the Aichi Biodiversity Targets (see feedba Annex 14 for feedback from NEMA).
- In **Nigeria** (as reported in Annex 8 and Annex 14), the Department of Livestock and Wildlife Disease Surveillance expressed interest in using citizen science data to monitor avian influenza. Similarly, the **National Environmental Standards and Regulations Enforcement Agency (NESREA)** recognized the relevance of NiBAP data in monitoring trade routes of CITES-listed species, which could strengthen enforcement. NESREA also showed interest in partnering with APLORI to support the rehabilitation of confiscated wildlife.

These examples highlight growing awareness and institutional interest in citizen science data as a result of the project. They suggest a strong foundation for future development of government-led strategies and action plans that embed citizen-generated data into environmental management and policy-making.

Output 3 (An open-access online platform enables bird citizen science data to be accessed and communicated to guide decisions)

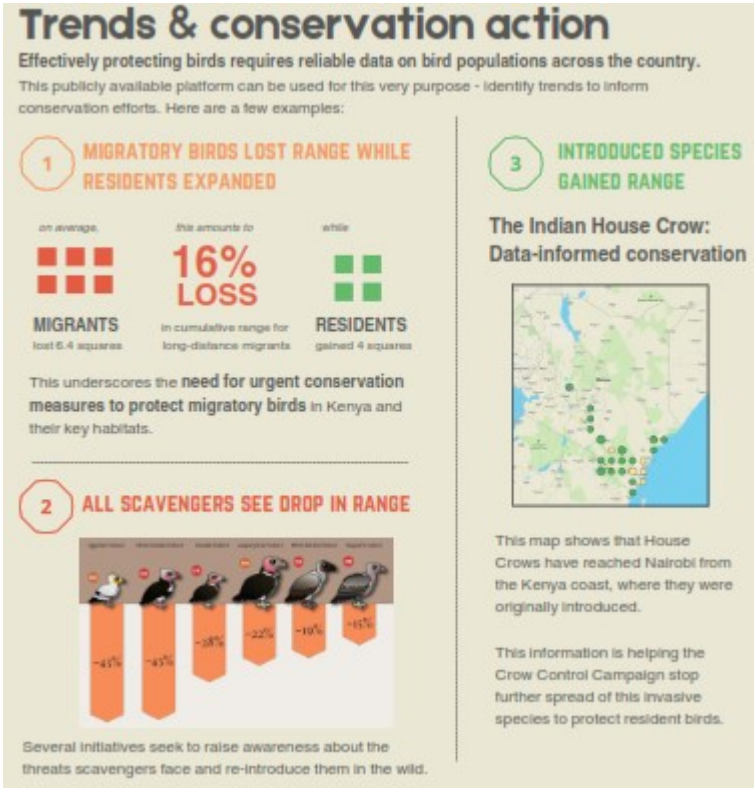
The **Kenya Bird Trends (KBT)** platform was officially launched in August 2024 at an event hosted by the Kenya Wildlife Service (KWS) (see launch report). The platform makes citizen science bird data publicly accessible, enabling decision-makers to engage directly with project outputs, including downloadable distribution maps for 1,068 bird species in Kenya.

The platform's results were published in the journal *Diversity and Distributions*, with ten of the thirteen co-authors being Kenyan or Kenya-based experts. These contributors represent key institutions, including A Rocha Kenya, The Bird of Prey Trust, KWS, National Museums of Kenya (NMK), Tropical Biology Association (TBA), BirdLife Africa Partnership (BAP), and the Kenya office of the Peregrine Fund.

All of these institutions—except BAP, which operates regionally—alongside Nature Kenya, the Cornell Lab of Ornithology, the Swiss Ornithological Institute, Wildlife Research and Training Institute (WRTI), and the NiBAP, have formally endorsed the platform by allowing their logos to be displayed on the KBT website.

This endorsement reflects strong local and international ownership of the platform and validates the credibility of its data. It also positions KBT as a trusted tool for evidence-based decision-making and lays the groundwork for its broader adoption and long-term sustainability.

As reported in output 2.2, at the government level, the Director of Kenya Wildlife Service said it was "poised to revolutionize [the Service's] approach to avian conservation" and that it offered "a model that can be scaled to other African countries" (see Annex 18 and also Annex14).



An excerpt from a publicity banner highlight THREE key findings from the Kenya Bird Trends Platform in the paper published by Diversity and Distributions. (View banner here)

Achievement against output indicators
Indicator 3.1*. (At least 50 individuals working in citizen science, and conservation are using the open access Online Platform by Feb 2025).*

Google analytic report of visits and user registration information (Annex 15) on the KBT platform demonstrates successful uptake and engagement: **by the end of the project on 31 March 2025,**

the platform had recorded 995 active users—significantly surpassing the initial target of 50 individuals (46% of platform users as of June 2025, were women)

The original plan to collect gender information from platform users was ultimately dropped. This decision was based on two key considerations: first, the project team and developer agreed that requiring formal registration—particularly with demographic data such as gender—could pose a significant barrier to engaging with the platform. Second, existing data used for the Kenya Bird Map from volunteer citizen scientists has been managed separately through the University of Cape Town which does not collect gender information. Moreover, we had concerns about people's perception of privacy of their data.

Platform usage was highest in Kenya and South Africa but also included users from several European countries and the United States (see report mentioned above). This international engagement reflects strong and growing interest in the platform among diverse stakeholders, including conservation practitioners, researchers, and decision-makers. Notably, usage from Europe appeared to be driven by interest in migratory birds, while usage from the U.S. and South Africa was likely linked to the integration of eBird data and KBM Map data—both of which align with well-established protocols South Africa Bird Atlas Project protocols.

Indicator 3.2. ***(Final Online Platform guidelines in data analysis are published online, and helping platform users access information they need for decision by Dec 2024).***

Rather than publishing static, standalone PDF guidelines, we decided to use the KBT website to provide user-friendly guidance directly on its homepage. This includes clearly written explanations and a linked YouTube video designed to help users navigate the platform and interpret data for decision-making. It will also be easier to update.

Additional technical guidance is available through a peer reviewed publication associated with the platform, which includes supplementary materials and analysis code hosted on GitHub:

- Kenya Atlas Comparison: https://github.com/Rafnuss/KenyaAtlasComparison
- Kenya Bird Trends: https://github.com/Rafnuss/KenyaBirdTrends

Raw citizen science data used in the platform is openly accessible via open-source
- African Bird Atlas API for Kenya Bird Map: kenya.birdmap.africa) and for
- the eBird Basic Dataset for Kenya: https://ebird.org/data/download (*EBD_relNov-2023*, 2023).

These resources collectively provide sufficient information and tools for users to replicate the analyses conducted on the platform. In addition, the platform hosts links to media coverage and research outputs from the project, further enhancing accessibility and transparency.

Indicator 3.3 ***(Threats' hotspots mapped (by trainees from course 1) in Kenya, and Nigeria and results made accessible on the online platform by February 2025.)***

Achieved – but we adjusted the means of verification to make it more meaningful (approved by DI.)

Once we had developed the platform, we discovered that there was insufficient data coverage to generate reliable threat hotspot maps as the initially planned means of verification.

In response, the team shifted focus to using analytical reports and peer-reviewed scientific publications to highlight threat-induced trends and distribution patterns. These outputs provided valuable insights, despite the limitations in spatial data.

Key outputs included (also listed in Table 2 and Annex 5a):

By Peggy (Kenya):

- Impact of forest cover loss on forest dependent avian species.

- Assessing the susceptibility of raptor species to electrocution: A framework for Kenya. This output on a separate publication by Peggy - Analyzing policy gaps in protecting avian species from electrocution and power-line collision in Kenya which, although not part of this project, benefited from expert input by project collaborators: Dr. Njoroge (National Museums of Kenya), Dr. Colin (A Rocha Kenya), and Kuria (TBA), following her engagement as a project data analyst.

By Bello (Nigeria):

- Ecological consequences of urbanization in Afrotropical bird communities: present and prospects

By Frank (Kenya):

- Predicting grassland bird distribution and abundance in Kenya using citizen science data

These outputs collectively contribute to the evidence base for avian conservation across diverse habitats and geographic regions.

Indicator 3.4. (By project end, at least 10 website visits every month are recorded demonstrating active usage of the online platform by the target audience (citizen science managers, decision makers, planners).

This new, and approved indicator was fully achieved. As with Indicator 3.1, the KBT platform analytics —including website traffic and user registration reports (Annex 15)—demonstrate active usage. Over the reporting period (Aug 2024-March/April 2025), the platform recorded 6,406 page views and 42 downloads, reflecting meaningful engagement from users. Monthly visits exceeded 100 visits every month.

Significant spikes in traffic were observed on key dates:

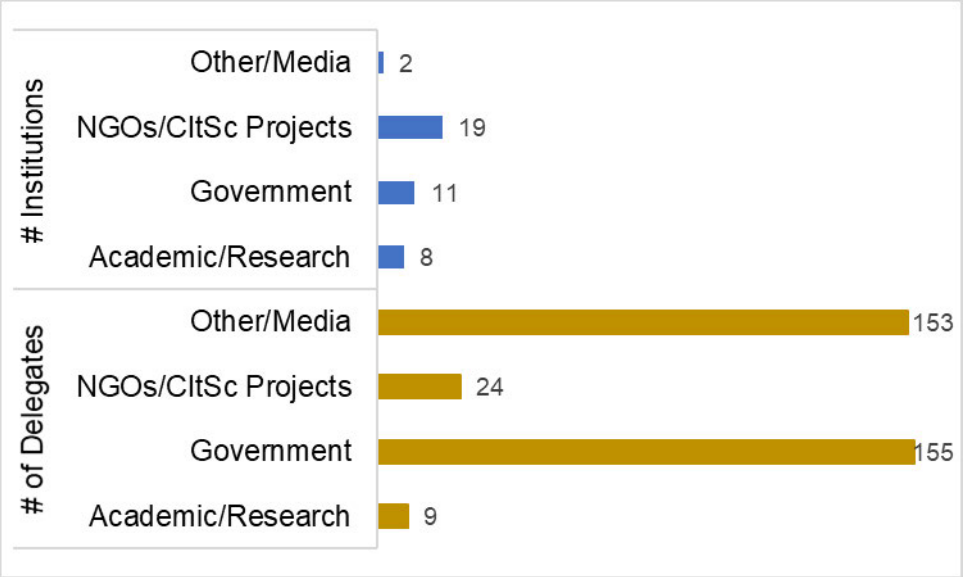
- 9 December 2024: A 458% increase in users—from 12 expected to 55.
- 9 February 2025: A rise from 1 expected user to 26 users.

These surges in activity coincided with the roll-out of in-situ meetings and stakeholder engagements (Output 4), indicating strong linkages between outreach efforts and platform usage.

Output 4 ***(In-situ meetings and engagements" brings together scientists and policy and management community)***

This output replaced the originally planned “symposium” with a more focused and strategic approach—facilitating in-situ meetings and engagements designed to strengthen the connections between citizen scientists and decision-makers. The updated approach emphasized fostering dialogue, sharing project findings, and sparking collaboration. This change received formal approval and included a revised indicator (4.1): shifting from ‘targeting 30 individuals’ to reaching at ‘least five government agencies’ in East and West Africa.

The output was partially successful. A total of 13 in-situ meetings and stakeholder engagement seminars were organised: 8 in Kenya and five in Nigeria (see the meetings raw reports). These events directly involved over 340 participants from 39 different institutions, including government agencies, academic bodies, and civil society organizations. Showcasing the project results – and the Kenya Bird Trends (KBT) platform in particular - was central to these discussions, that also highlighted the practical benefits of citizen science data in environmental monitoring and policy development. See Annex 17 for a summary report of the in-situ meetings and stakeholders engaged.



Number of participants and institutions engaged, disaggregated by institution type

While before-and-after knowledge assessments weren't conducted, the feedback and engagement levels suggest a strong interest and awareness among the stakeholders. Notably, senior officials from agencies like NEMA and KWS showed a clear desire to integrate KBT outputs into their workflows, such as in State of the Environment reports and national biodiversity assessments. (See Annex 14 for feedback from key government agencies and NGOs in Kenya).

The platform also helped clear up some misconceptions—many participants initially mixed-up citizen science with community-based conservation—and highlighted the valuable, decision-relevant insights it can offer. Overall, even though not all indicators were fully achieved, the output significantly raised awareness and established a solid foundation for ongoing engagement and future policy integration.

Achievement against output indicators
Indicator 4.1 ***(By project end, at least 5 environment/conservation government agencies have improved awareness of citizen science data's potential in environmental management and decision).***

Achieved but no means of verification as per project proposal. Through targeted in-situ seminars, the project engaged approximately 340 participants (36% women) from 39 institutions in Kenya and Nigeria. Among them, 105 individuals represented 11 government agencies (see Annex 17).

- **Kenya (4 agencies)**: Kenya Wildlife Service (KWS), National Environment Management Authority (NEMA), Kenya Forest Service (KFS), and the National Museums of Kenya (NMK)

- **Nigeria (7 agencies)**: Federal Ministry of Environment (including the Department of Forestry Services), Ministry of Agriculture (including the Department of Livestock & Wildlife Disease Surveillance), National Environmental Standards and Regulations Enforcement Agency (NESREA), Nigerian National Park Service (NNPS), and the State House, Aso Rock.

Although no formal pre- and post-meetings assessments were conducted, the engagements demonstrated significantly increased awareness and strong interest in citizen science data across agencies (see Annex 17).

In Kenya, KWS committed to integrating the Kenya Bird Trends (KBT) platform into management planning, biodiversity reporting, and conservation education. KFS expressed interest to collaborate on biodiversity mapping with KEFRI and NMK, and suggesting incorporation of data on forest birds in the KBT platform. NEMA recognized the platform's value for national environmental reporting, EIAs, and urban planning, suggesting integration of bird calls and indigenous knowledge.

In Nigeria, the Ministry of Agriculture, NNPS, and NESREA showed high interest in applying citizen science for species monitoring, enforcement, and habitat protection.

These developments (see the meetings raw reports) mark a significant shift, especially considering that citizen science tools were initially rated as "least effective" in early project survey on citizen science tools in Kenya.

Indicator 4.2 ***(By Mar 25, 2 new alliances formed between citizen science hubs, and government agencies on integration of citizen science data in management and reporting processes and guidelines)***

Partially achieved. While no formal alliances were established during the project period, meaningful steps were taken toward potential partnerships. In Kenya, the National Environment Management Authority (pers. communication)—the lead agency on environmental law—expressed commitment to spearhead the development of a national house clearing mechanism to consolidate biodiversity data. NEMA also indicated interest in incorporating the Kenya Bird Trends (KBT) platform into national environmental policies and reporting frameworks (See Annex 17). The Kenya Bird Map, building on the project expanded its partnerships by providing specialized data support to both the Dedan Kimathi University of Technology's Centre for Data Science and Artificial Intelligence (a government institution), and Nature Kenya's Dakatcha Bird research initiative (See Annex 7 – KBM Birdhub report).

In Nigeria, both NESREA and the Department of Livestock and Wildlife Disease Surveillance identified the NiBAP as a valuable partner for collaborative work in wildlife trafficking surveillance and avian influenza monitoring. (See Annex 8 – NiBAP Birdhub report).

Although formal agreements were not concluded, these expressions of interest represent important groundwork for future institutional collaborations. Relationship-building with government agencies typically requires sustained engagement over time; earlier and more prolonged interaction may have enabled stronger alliance formation within the project's duration.

Indicator 4.3 ***(A roadmap for scaling out online platform and future use of citizen science data for Africa, by end of project)***

Not achieved. The project could not deliver the promised roadmap because the project design shifted midway. Initially, we had planned to create the roadmap during a two-day regional symposium, where senior decision-makers and technical experts could discuss the broader, long-term needs for sharing citizen-science data. This symposium was also a key opportunity to forge new partnerships and strengthen existing ones between science and policy regarding the integration of citizen science data (Output 2).

When we switched from the symposium to smaller, in-situ meetings and engagements, it became difficult to develop the roadmap. This was partly because many attendees didn't have the institutional authority—or also the confidence—needed to draft binding data standards and create a framework to put the roadmap into action. Additionally, Kenya, through the Wildlife Research and Training Institute (WRTI), is working on a data-sharing policy, so it made more sense to wait for that process to conclude before diving into the roadmap for citizen science data. We suggest that the Kenya Bird Map and its host, the National Museums of Kenya, pursue this separately while learning from the experiences of this project. For Nigeria, we feel there's still a lot of work to do—especially in building a solid foundation for citizen science data and raising awareness of its potential— before reviving the idea at the next high level in the country's decision-making processes

3.2 Outcome

The project has set the stage for using citizen science data to guide conservation, making a clear impact in both Kenya and Nigeria. One of the highlights was the creation and launch of the Kenya

Bird Trends (KBT) platform—an exciting, interactive tool that's already helping with species assessments, like that of Jackson's Widowbird, and the European Roller, and steering real-world conservation efforts, including the Kenya Wildlife Service's work on managing invasive Indian House Crow populations.

Even though KBT platform is still in its early days, it's shown how citizen science data can be organized to support decision-making. The platform has sparked considerable interest from national institutions and presents a model that other countries can replicate, even in places where long-term biodiversity records are scarce.

Through 13 in-person meetings and stakeholder engagement events, the project connected with over 340 participants from 39 institutions, including 105 representatives from nine government agencies. This broad engagement has led to increased awareness and excitement around citizen science. The number of scientific publications that have come out of the project is a testament to this growing momentum. Agencies like NEMA, KWS, and KFS in Kenya, along with NESREA and the Ministries of Environment and Agriculture in Nigeria, have all shown a heightened interest. Notably, NEMA has made informal committed to incorporating the KBT platform into national environmental reporting and policy processes—an important sign of institutional support. In Nigeria, both NESREA and the Department of Livestock and Disease Surveillance have recognized NiBAP as a key partner, seeing citizen science as a valuable tool for filling knowledge gaps in biodiversity management.

On capacity building, this project has made impressive strides by training 33 individuals (45% being women) from nine African countries. This effort has directly boosted the capabilities of at least 13 citizen science initiatives and six government agencies (Indicator 0.1 – Achieved); and 16 civil society entities. The trainees have put their new skills to good use in areas like data analysis, visualization, communication, and species monitoring. Take John Masaba from Kenya and Nanchin Kazeh from Nigeria, for instance—they've both moved into academic research and have participated in international forums. Bello Danmallam from Nigeria has also made a significant impact, producing two peer-reviewed publications, several communication pieces, and delivering key presentations, including the pan-African "Fridays4Birds" webinar series. Others, like Michael from Uganda and Elie from Rwanda, have helped broaden the project's influence by conducting local training and sharing knowledge.

Thanks to these efforts, over 30 individuals have gone on to author scientific publications or conservation reports based on citizen science data (Indicator 0.2 – Achieved). This has resulted in at least 10 peer-reviewed journal articles and a variety of policy-relevant outputs, such as species distribution models, and contributions to conservation action plans aimed at both national and international audiences—an impressive feat for a two-year initiative.

The project has also gained significant visibility through media coverage, conference presentations, and social media interactions. The KBT platform even snagged second place at the European Bird Census Council conference, highlighting its international significance and quality.

While Indicator 0.3—ensuring active use of the platform by decision-makers in five African countries—was only partially met, the strong engagement in Kenya and the growing interest throughout the region show promising progress. Most importantly, the project has shifted perceptions: tools that were once seen as ineffective are now recognized as credible and valuable assets in conservation planning.

The project has really set the stage for boosting the role of citizen science in conservation, making a significant impact in both Kenya and Nigeria. One of the highlights was the creation and launch of the Kenya Bird Trends (KBT) platform—an exciting, interactive tool that's already helping with species assessments, like that of Jackson's Widowbird, and European Roller (South Africa, Alan, *per. comm.*) and steering real-world conservation efforts, including the Kenya Wildlife Service's work on managing invasive Indian House Crow populations (A Rocha Kenya, *per. comm*.).

Ultimately, the project has fostered a vibrant regional community of practice, catalyzed data-driven conservation, and firmly established citizen science as an essential resource for biodiversity management across Africa.

3.3 Monitoring of assumptions

We monitored project assumptions, throughout the project implementation. This allowed us to do some adaptive management where assumptions shifted. We describe below the assumptions that needed to change.

The assumption that "*project outputs (scientific papers) requiring peer review are accepted and published on time*" mostly proved to be accurate. Nine publications went through the peer review process and were published within the project timeline. These papers provide recommendations for conservation priority species, while also reinforcing the importance of citizen science data for decision-making.

Two further papers were also submitted during the project and are currently under review. However, our related assumption that "*publication fees for authors from developing countries would be fully waived*" turned out to be only partially true. While some journals did offer waivers, others provided only partial waivers or none at all. Consequently, we had to reallocate internal resources and seek extra institutional support to cover the publication costs. This experience underscores the need to plan for open-access publication fees in future projects, or to prioritize journals that reliably support fee waivers for authors from developing countries.

The assumption that "*participating government agencies are open to using citizen science data and collaborating with citizen science hubs*" only partially held true – but as we describe in lessons learnt, this is probably because there has not been enough time for people to respond to the information we gave them, given this happened in year 2 of the project which is also the last year. We did record that government agencies showed genuine interest in citizen science initiatives and recognized the importance of platforms like the Kenya Bird Map and the Nigerian Bird Atlas Project for generating data and raising environmental awareness. However, the practical application of citizen science data in decision-making is now likely to happen beyond the project period – which we are committed to following up on. As well as limited time, we learnt that there is limited institutional time and capacity to change – and so government agencies tend to favour data from other government departments or institutions they've been previously working with. Consequently, the project did not succeed in fostering any formal alliance, as expected nor deliver the planned roadmap for incorporating citizen science into national data systems.

Overall, the intended pathway to change —where greater adoption of citizen science data by the government would boost its credibility and influence policy— did not fully materialize as expected. Given the novelty of what we were doing, this is not surprising: we simply needed more time than the 2 year limit we were given. Nevertheless, members of government agencies have committed to using citizen science data and this is paving the way forward for the partners' next steps.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Project support to the Conventions, Treaties or Agreements

The project made contributions largely to national strategies such as Kenya's National Biodiversity Strategy and Action Plan (NBSAP). Although there were no new national policy frameworks formally inviting inputs, the project's activities supported both the generation and potential uptake of biodiversity data into national and international conservation processes. The project results are liked to feed into Kenya's commitments under the Convention on Biological Diversity (CBD), the Post-2020 Global Biodiversity Framework (GBF).

A key project output—the Kenya Bird Trends (KBT) platform—has improved national biodiversity knowledge management, aligning with CBD Article 7(d) on monitoring biodiversity and GBF Target 21 on improved data availability and access. Although direct integration of the KBT platform into national policy is yet to happen, the platform builds upon data from the Kenya Bird Map (KBM), which was used in the development of the Lake Nakuru National Park Management Plan (in press, KBM feedback) and two important national species conservation strategies, the:

- **Vulture Multi-Species Action Plan (2024–2034)** (highlighted elsewhere in this report)
- **Grey Crowned Crane Action Plan (2025–2034)** (see Pg. 7 of the action plan)

These plans involved key government agencies—Kenya Wildlife Service (KWS), National Museums of Kenya (NMK), National Environment Management Authority (NEMA), and Wildlife Research and Training Institute (WRTI)—all of whom had their technical capacities strengthened by the project.

The NMK reports that, together with the Nature Conservancy, it is using data from the KBM and Kenya Bird Trends (KBT) their ongoing collaboration 'Resilient Watershed Programs', and specifically under the River Yala Water Fund; the Upper Tana Nairobi Water Fund; and the Eldoret-Iten Water Fund actions.

The project also contributed directly to NBSAP target 34, which calls for recognition of communities' contributions biodiversity conservation. During the Kenya Bird Trends launch event, four community-based contributors to the KBM were publicly acknowledged, showcasing grassroots involvement in biodiversity data collection Trends (see KBT Report – Awardees). The Vulture Action Plan (p.44) explicitly recognizes KBM's role in enhancing public awareness, especially for vultures, and calls for continued support for the initiative.

In terms of national reporting, the project engaged Kenya's CBD focal point (NEMA), presenting project findings during in-situ meetings. While the 2022–2023 State of the Environment Report had already gone to print, NEMA committed to integrating KBT platform outputs into the forthcoming 2025–2026 report (confirmed by senior officials including the Deputy Director for Environmental Planning and Research Coordination, and the national IPBES focal point). This commitment ensures continued relevance and potential impact on national reporting obligations under the CBD.

The KBT platform and associated paper have also been cited in the IUCN evaluation of Jackson's Widowbird, facilitated by the BirdLife International Red Listing team. This aligns with CBD Goal 2 (identifying vulnerable species and habitats) and NBSAP Goal 5 (knowledge base and participatory planning), contributing to the scientific basis for species assessments at both national and global levels.

The transition of KBT platform management to the National Museums of Kenya (see management letter), the national custodian of bird data, strengthens long-term institutional ownership and sustainability of this data resource. This is consistent with NBSAP Goal 6, which focuses on mobilizing resources—technical, financial, and institutional—to support biodiversity conservation and reporting. By project end, NMK staff (Dr Peter Njoroge (project team member) and Oliver Nasirwa) were finalizing a presentation on status of birds in the Rift Valley lakes for the NMK UNESCO-NFit (Netherlands Funds-in-Trust) International Conference (6-9 May 2025), that integrated results from the project.

4.2 Project support to biodiversity conservation and multidimensional poverty reduction

a) Short-term

i) Individual capability and capacity

The project was successful in achieving its short-term capability and capacity objectives.
33 citizen science managers and decision makers (out of a cumulative target 28) from 9 African countries gained skills, knowledge and confidence in using and analysing citizen science biodiversity data in decision making, and reporting on climate change, development and on biodiversity. Forty

five percent were women. These managers and decision makers have formed a network which is still active to-day. This knowledge has laid the foundation for their future work to conserve biodiversity through their citizen science work. 100% said that their abilities as citizen science managers had improved as a result of the training. This is not only due to new skills but also strengthened confidence. For example, Andrea Marjorie Folasade Haffner, from the Sierra Leone bird atlas said *"The project gave me trainings and more inspiration. I can do it! It gave me confidence."*

We already have evidence that they are indeed already applying their skills. Already, 9 papers based on new analyses of citizen science data have been published – all of which include management and policy recommendations that will benefit biodiversity. Further, a good number of new reports on trends of birds species in Nigeria, Kenya and Uganda were produced by course trainees (indicator 1.4), this included the State of Kenya's birds 2025 report. These data are important for countries reporting commitments under the CBD and CMS for example.

In terms of influencing policy, steps have also been made because of our training on policy communication. For example, Nigeria developed a brief titled *"From watchers to policy makers: how citizen science can transform conservation",* which fostered collaboration between government and NGOs in efforts to mitigate illegal wildlife trade.

We believe that these short term impacts are notable given they all happened within the 2 year project period (and given the final training was done in year 2) . We are confident that these short term impacts will lead to even more tangible longer term ones.

ii) In-country capacity: the Kenya Bird Trends online platform

This was an ambitious short=term aim, which was to develop a new online platform to be used by government agencies to integrates bird trends and distribution in governmental planning.
This online platform brought together for the first time data on birds in Kenya that was hitherto inaccessible. The platform is demonstrating how citizen science data can support conservation planning and decision-making by showcasing the changes in birds' distribution in Kenya over the past 50 years attributed to land use changes and climate change.
Some of these aims have begun to be achieved within the life of the project and there are signs that more will be achieved after the project end. It is not surprising that some impacts will happen later since the platform took over 1 year to develop. Examples of how the platform has already been used to boost conservation and indirectly contribute to national and international policy include: . the Kenya Wildlife Service has used the platform along with Arocha Kenya to inform their efforts to cull invasive House Crow in coastal Kenya as means of addressing the disruptive impact they have had on local bird populations, tourism and agricultural industry. Kenya's National Environment Management authorly have also stated that they will uses the platform for their future CBD reporting.

b) Long-term

As written above we think there are good signs that citizen science managers we have trained (and that are trained by our trainees) will have an impact on biodiversity conservation through providing the data and information needed as evidence for guiding conservation and development decisions. All but one of our African trainees and the project data analysts we employed are still working in Africa so they are still in positions to continue to grow their impacts.

The project's trend reports produced so far can now be used to inform priority conservation efforts. We have shown for instance that Kenya's six vulture species have lost between 15% and 43% of their range, while migratory birds lost 16% of their range over the last 50 years. This evidence calls for targeted efforts to save these groups of birds and their habitats (and flyways). The vulture species action plan – that our trainees contributed to - shows the next steps needed to do this. We expect more such action plans to be produced in the coming months.

The Kenya Bird Trends Platform is a long-term legacy of this project. It received very positive feedback and has already been used to produce publications, and the action plans mentioned above.

Dr. Ndang'ang'a, Birdlife Africa's Regional Director said the Platform "targets ordinary people in the community, not necessarily scientists, but people with passion and gives them the opportunity to learn and engage with nature". We can confidently say the project is inspiring and creating conservation awareness, and– making people more aware of what is happening in their environment, and on birds – and what they need to do to reverse further decline of species and ecosystems.

At the policy level, government and policy related institutions are now planning to integrate planning and management between institutions and sectors- something which is currently not well integrated. Kenya's National Environment Management Authority in particular reported they are keen on integrating citizen science data in development planning. Dr Charles Lange, Kenya's National Environment Management Authority Deputy Director for Environmental Planning and Research Coordination confirmed the data from the platform "will guide environmental impact assessment, and improve the Kenya State of Environment Report". In the same vein the project results Project results can also support reporting under CBD, CMS, UNFCCC, and SDGs.

Scalability and replicability
Given the results the project delivered (and taking into account useful lessons learnt) it is certainly replicable for other taxa and indeed participants told is they are inspired to replicate this to other taxa such as insects and mammals. It is also scalable to other countries in Africa. Our external reviewer said "The project has built a clear foundation for citizen science in Africa. The Kenya Bird Trend platform has been a breakthrough and demonstrated what can be done with data in a novel and interactive way. People have seen what the KBT can do with the data and this has spurred interest and shown what is possible within Kenya and across the continent.
Already, our Nigeria partner (Nigerian Bird Atlas Project) has held initial discussion with potential adaptors of mapping actions in Cote d'Ivore and Rwanda. NiBAP, is also assessing its own dataset for ideas to replicate the online platform and make its data more publicly available.

4.3 Gender Equality and Social Inclusion (GESI)

GESI Scale	Description	Put X where you think your project is on the scale
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	x
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

During project design and execution, we considered the key bullets listed above – and the wider guidance in the Darwin GESI page. Further, the project activities were guided by the TBA's gender policy; the TBA strongly believes in gender equality and social inclusion.

Our project had, at minimum, all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women in particular. The field of citizen science management and especially data analysis has disproportionate numbers of males working in these areas. We focussed on equity when selecting applicants for our training courses and surpassed our original targets. For example, course 1 had 42% female participation and course 2 had 43% female participation which exceeds the gender ratio of females working in these areas. Indeed, the ratio of female applicants was 36%.

Importantly, the project lead for the Nigeria activities was female which means she was a good role model for the up-and-coming citizen scientists.

All our practical training activities were designed to give equal voices to people regardless of gender. We hosted project courses in secure environment and arranged accommodation for women in individual secure rooms. The venues for both courses were picked particularly because they were disability-friendly, which enabled the project's Kenyan financial manager to fully participate and contribute to the training programme.

4.4 Transfer of knowledge

The project's overall focus was around transfer of knowledge. We did this through training courses, meeting forums and through establishing a new online platform hosting data on bird distributions and population changes.

A total of 33 individuals benefited from capacity-building trainings both from Kenya and Nigeria as primary implementing countries and regionally, from Uganda, Ethiopia, Ghana, Sierra Leone, Liberia, and Rwanda. Some trainees have also passed on their knowledge to others (3 staff in Nature Uganda and over 70 students, rangers, and tour guides in waterbird data collection in Rwanda).

The new Platform aims to transfer knowledge in the form of data on Kenya's bird distributions and population changes, as well as to highlight the value of citizen science as an approach to collect valid information. Ultimately this knowledge is useful to underpin policy and conservation management decisions. We are monitoring this aspect.

Knowledge was also transferred to the wider scientific community beyond the project through the 8 published manuscripts which shared up to date information on bird conservation using citizen science data and explained the role of citizen science data in conservation decision-making.

4.5 Capacity building

While no partner staff specifically reported increased status due to the project, there were some impressive signs of professional growth throughout its duration.

Dr. Peter Njoroge, of the National Museums of Kenya (NMK), and member of the project implementation team, was appointed to both the National Biodiversity Action Plan Committee and the Advisory Committee of the Kenya Bird of Prey Trust. These new roles showcase his rising profile in Kenya conservation arena. Additionally, he was promoted from Section Head, to Head of the Zoology Department at NMK. While these advancements might be influenced by institutional factors, Dr. Njoroge's ongoing leadership and visibility through the project—like his co-founding

role in the Kenya Bird Map (KBM) and his vital contributions to project planning and execution—have played a significant part.

The project also made strides in supporting early-career professionals: John Kasaya, who worked as a communications intern with the KBM during the project, landed a Master of Science scholarship at the A. P. Leventis Ornithological Research Institute (APLORI). He credits his successful application to the valuable exposure and experience he gained during the project.

The broader project team included individuals from diverse gender, age, and institutional backgrounds. This diversity helped ensure inclusive participation and contributed to empowering, transformative capacity-building outcomes.

5 Monitoring and evaluation

Approved changes to project design:

Changes at the outcome level

1) **Split of Outcome indicator 0.1** (*By March 2025, 30 individuals working in at least 8 African citizen science projects, and environment/conservation government agencies are using citizen science results for conservation decisions by applying the capacity*) into 2 indicators

- Revised Indicator 0.1:
  "By March 2025, at least 8 African citizen science projects, and environment/conservation government agencies have improved capability and capacity in using citizen science evidence as their staff apply capacity from the project"

- NEW Indicator 0.2:
  "By March 2025, 30 individuals working in citizen science projects, and environment/conservation government agencies in East and West Africa are using citizen science results for conservation management and decisions as a result of the project"

3) Revised or new Means of Verification (MoV)

Indicator	Old MoV	New or revised MoV
0.1	Reports from bird map hubs and from government agencies"	Follow up surveys of citizen science projects (revised)
0.2	-	a) Follow-up surveys and reports from bird map hubs (NEW) b) Download requests (NEW)
0.3	b) Number of downloads and visits to the online platform	b) Visits to the online platform (Revised) c) Citations of project results (published papers, online platform) (NEW) MoV 0.3a) original kept

Changes at the Output level

a) Output 1

- Added "papers) (scientific) to the MoVs for output indictors 1.4. The final revised MoV 1.4: *'Published, trends analysis reports, and papers, and threat hotspot maps'*

b) Output 4:

- Replaced "symposiums" with "in-situ meetings and engagements"
  Revised text: "*in-situ meetings and engagements" brings together scientists and policy and management community*"

- Revised indicator 4.1 (*By project end, 30 decision makers, and citizen science managers from East and West Africa have improved awareness of citizen science data's potential in environmental management and decision*").

NEW TEXT: "*By project end, at least 5 environment/ conservation government agencies have improved awareness of citizen science data's potential in environmental management and decision*"

- Updated MoV 4.1 (Knowledge assessment before and after training; *attendance reports)*
  To: "*Meeting reports; attendance reports and Follow up surveys of engaged agencies*"

Other changes
a) Replaced the term "decision support tool" with "public online platform" in reference to the Kenya Bird Trends platform. This change affects text under

- Outcome indicators 0.3; Output 3; Output indicator 3.1 and 3.2, MoV 3.1; and under project activity 2.1.

b) Replaced "symposiums" with "in-situ meetings and engagements" throughout project activities

c) NEW assumption added: "Project outputs (scientific papers) that require peer-review are accepted and published on time"

About the M&E system
The M&E was largely helpful, and practical in providing feedback to both partners and stakeholders. We coordinated with our partners (and stakeholders) in quarterly reporting, and they actively contributed feedback on project progress, often including details monthly activities and engagements.

The partners, and project beneficiaries were also informed and meaningfully engaged in the final project evaluation, which was conducted by an external reviewer.

However, the initial requirement to integrate at least 5 Darwin standard indicators was challenging - , and especially given this was a capacity and capability project. The later reduction to 3 indicators, along with the support provided through NIRAS webinars, was a significant improvement and greatly appreciated.

Related, having to incorporate these standard indicators later in the project implementation placed additional demands on staff time. Some indicators were too prescriptive, making it difficult to properly align them with the project's logframe. In future, it would be more effective to integrate these indicators during the project design phase, allowing for better planning and alignment from the outset.

Project evaluation
The lead partner took overall responsibility for M&E but most of it was done through our partnership meetings, or via specific monitoring tools for specific activities. We recruited an external reviewer to do a final evaluation of the project.

Key evaluation findings (largely drawn from external review who had access to all our internal evaluation reports. See annex 19))

Overall evaluation from the external reviewers:
"*The project has been a success. The Kenya Bird Trend (KBT) tool has been ground-breaking. It has been welcomed by decision makers in Kenya such as National Environment Management Authority (NEMA) and Kenya Wildlife Service (KWS) and inspired many others in Kenya and beyond. The regional capacity building and exchange enabled by this project connected people with common interest to learn, share and support one another. Project outputs like citizen science publications have made citizen science more recognised and appreciated in Africa.*

The management of the project has been greatly appreciated, all of which was supported by good communication, great convening capacity, course delivery and valuable adaptive management."

The reviewers report that the project underscored the value of citizen science data in decision and policymaking. They report that although government departments did not yet create action plans they [government departments] now acknowledge citizen science data can be used in decision making.

The reviewers end by saying more work in this area should be encouraged and this is something we are now developing plans for.

Building capability and capacity
The three training events were evaluated internally and by external reviewers and all of them showed an increase in skills (before and after tests) with many examples of how skills were applied afterwards (follow up surveys and interviews).

Data analysis course and R bootcamp
The regional and online trainings were very well received as evidenced by the before/after surveys and by the follow up interviews by the external reviewer. 100% of trainees reported they would apply their skills afterwards, and we already have evidence that some of them have.

Communications course
The reviewers wrote that "*the communication course has been a clear highlight for course attendees, opening their eyes to ways of communicating scientific results to non-scientific audiences*" and "*Participants continue to apply the skills gained, particularly in simplifying scientific jargon to make their work more accessible and impactful across diverse audiences*"

Legacy and looking ahead
The reviewers wrote "*Out of [our] interviews …of project participants from across the continent.. came a true sense that we were interviewing pioneers in African citizen science, people who, despite challenges, were working to lay down the foundations and infrastructure in their respective countries to equip people to monitor wild birds through citizen science. This cohort clearly had much in common and valued the camaraderie and regional peer-support that this project afforded. We commend their commitments and pioneering work and wish them all well for the future*."

6 Lessons learnt

Overall, the project worked well and we aim to use it as a model for future projects on developing capability and capacity for citizen science managers in other regions and for other taxa.

Things that worked well

- A key to the project success was co-designing and co-working with strong project partners who all brought expertise, and passion for the project to succeed. Because of this partnership, the project was demand driven – filling a gap that the Kenyan and Nigerian citizen science community had identified over the past years. This meant we hit the ground running . The expertise from members of the partners'-affiliated institutions brought added value and greatly enhanced project delivery. Experts from these institutions acted as course facilitators, peer reviewers for project outputs, and led on-the-ground in-situ meetings and stakeholder engagements. Their participation also ensured a thorough and inclusive recruitment process for trainees, and the project's data analysts, and the developer of the Kenya Bird Trends (KBT) platform.
- Being able to adapt the project at the outset – in response to Darwin reviewers as well as using advice from our partnership – was important in ensuring we achieved our objectives. Specifically, we replaced the 'symposium' with 'in-situ meetings' and these really boosted project understanding. However, it also made it harder to deliver the intended roadmap for integrating citizen science. Without a structured setting like a symposium, the process looked fragmented, localized, and more resource-heavy. A hybrid approach—using in-situ meetings

for engagement coupled with symposia for synthesis—could have been a more effective strategy. Therefore, the Darwin “change request” system is very useful and helpful that it allows for adaptive management.

- The selection of participants for the training courses worked well because we ran an open call for applications and our partners were able to broadcast the calls to people working on citizen science that would not have heard about the project if TBA or any other partner had done it on our own. The Nigerian Bird Atlas Project (NiBAP), for instance, spearheaded an effective outreach campaign in West Africa, recruiting trainees from Ghana, Sierra Leone, and Liberia, while also boosting the project's visibility in Côte d’Ivoire and Rwanda, - countries with very young citizen science bird mapping actions and needing support (see the NiBAP BirdHub report).

- The training courses worked well because they were co-designed with the partners who understood the capacity needs, and because we created a training curriculum thar was tailor made and relevant to the trainees, using real-life case studies. This was particularly important for the R-stat bootcamp where all the statistics teaching was done around real citizen science data. Tailoring our training and creating a new R-stat bootcamp was necessary because the capacity in data analysis of the trainees was relatively lower than we had been led to believe by our expert advisors and by the trainees self assessments.

- Bringing togethers citizen science managers from different countries for joint training fostered peer-learning, promoting regional collaboration and the sharing of best practices, especially for bird monitoring projects. This network is still active today

- The success of project’s technical elements like KBT and data analysis can be attributed to the expertise and dedication of the core team, including the developer and analysts. Involving local experts in Kenya and Nigeria not only enhanced the quality of the outputs but also bolstered stakeholder confidence and ownership—essential for integrating citizen science approaches into mainstream practices.

- Boosting visibility through a range of media and having influential people championing the project’s cause. The online platform was launched by the head of Kenya’s Wildlife Service which gave us credibility as well as attracting media and a large audience. Further the fac that the project delivered 10 peer-reviewed publications (and a presentation at an international conference) boosted the project's visibility and credibility among the wider scientific community.

Main challenges we faced, and what could be done differently

- Engaging government for formal outputs: Trying to get government agencies to create action plans turned out to be a bit too ambitious in the time available (our meetings happened in the second year since they relied on the online platform being launched). For many of these agencies, citizen science is still a relatively new idea, which means they need to invest time and resources into building awareness and capacity. If we did this again we would add a third year (resources and grant requirements permitting) to allow a phased approach to engage with governments.

- Although the training courses worked well – ideally we would have liked a third course to embed the learning around citizen science data analysis. The capacity is relatively low with very few to no other courses of this kind in Africa . In addition we would ideally have liked some post-training funds to support project trainees. While this was not part of this project’s design given the budget ceiling, providing seed grants to trainees can be a strong incentive for catalysing citizen science initiatives. This challenge, however, did not handicap Elie (from

Rwanda) or Andreas (Sierra Leone) from catalysing some new citizen science action on the ground.

- While replacing the 'symposium' with 'in-situ meetings' was a successful change, it meant we did not get all stakeholders together in one place to develop the intended roadmap for integrating citizen science into management and policy. The in situ meetings were very productive, but without a structured setting like a symposium, the process looked fragmented, and required much more time from all partners. A hybrid approach—using in-situ meetings for engagement coupled with symposia for synthesis—could have been a more effective strategy.

In summary, these insights highlight the importance of strong African partnerships and being flexible and responsive to the realities on the ground. There is inevitably a constraint in what a new project can achieve in 2 years – particularly when involving governments. We think we have made good progress in 2 years and we expect further impact to be seen in the months and years ahead that will see citizen science being integrated into biodiversity monitoring and decision-making processes in Africa.

7 Actions taken in response to Annual Report reviews

Our yr1 review raised 5 issues, which we have addressed
a) Issues for discussion with BCF's Admin

- **Issues 1: (***Outcome Indicators 0.1 and 0.2 in the Annual Report Annex 1 appear to have been split out from a single Indicator in the Application form and are therefore harder to interpret. An update on that rationale would be useful*)

Our Response: we provided a detailed justification in our Change Request that resulted in the approval of the said changes

- **Issues 2: (***TBA has a safeguarding policy, but no detail on its applicability to the project is provided – nor is there a safeguarding focal point. Good to detail if project activities do not run any potential risk of safeguarding issues or whether steps are needed to redress this seeming gap.)*

Our Response: There have not been any significant risks associated with our project, warranting the application of safeguarding policy. However, any potential risk area, e.g. during a training event is handled case-by-case and we always ensure we conduct training in safe environments.

B) Issues discussed in this report

- **Issues 3 (***There is no indication of which fund-supported Treaties or Conventions are relevant. This should be apparent now, so outline detail would be useful in the Half Year Report.)*

Our Response: See section 4.1 1 for details. However, because this was a shot capacity and capability project, the number of treaties we could directly contribute to were limited. Further, key project outputs (the scientific papers and the Kenya Bird Trends platform) were achieved in the last six to three months of the project, meaning there has not been enough time to immediately impact national or international t*reaties or conventions* beyond what is detailed in section 4.1.

However, there are clear signs that once the platform become more widely used, its data will inform Kenya's reporting to the Convention on Biological Diversity; Ramsar Convention (see elsewhere in this report on use of project results to showcase status of birds in 3 of Kenya's Rift Valley Lakes, which are all Ramsar sites (Lakes Nakuru, Baringo and Bogoria); CITES (stakeholders in Nigeria report (elsewhere in this report), interest to engage project partners in

tracking the trafficking of endangered species); the Convention on the Conservation of Migratory Species of Wild Animals' (with the key highlight of migratory bird's 16% loss in range in Kenya over the last 50 years).

- **Issues 4 (***More detail would be useful on planned sustainability and legacy as part of an exit plan)*

Our Response: see section 9 for details

- **Issues 5 (***Darwin Initiative identity - it would be appropriate for a fuller response in the Half Year Report.)*

Our Response: See section 10 for a detailed account

8 Risk Management

No new risk arose in project year 2. However, we did amicably part cancel a contract (onboarded year 1), after it became clear that the consultant was unable to provide the quality of service we needed. It was greed that the 50% deposit we had already paid was fair compensation for the work done up to that point.

While this change did not affect the design of the project, we adapted by engaging a new consultant for a more general output showcasing how citizen science data can be applied across different areas in conservation. This resulted in the successful production of the State of Kenya's Bird Report 2025 (see Annex 13).

Additionally, we continued mentoring our project trainees, helping them apply the skills gained on project courses. This support played a key role in the publication of 11 papers under this project, — 8 of which have been published, and 3 submitted (under review). A further 2 papers were in preparation at the time of writing this report.

For trainees who needed extra support with the analyses of their citizen science data, we referred them to external resources like the online courses by Academic Data Analysts so that they could pursue further training independently.

See annex 6 for project's updated Risk register

9 Scalability and Durability

The project has left a legacy in the form of a cohort of citizen science managers who have new skills and confidence to analyse and report on citizen science data, and a platform that has been adopted by the Kenya Bird Map of the National Museums of Kenya.

All activities under the project were designed to raise awareness and/or develop capacity for the potential and current use of citizen science data for conservation. We did this through training courses, public fora and government meetings. Key adopters of the project's outcomes were involved as staff, as project "data analysts" and as trainees, which means that they are already in positions to continue the work of the project through applying their new skills, producing more communications and advocacy pieces and using and promoting the Kenya Bird Trends Platform.

Another design feature of the project is that the built capability and capacity will be maintained in-country because all the training and meetings were in-country and all participants African nationals. This means the project legacy can be applied and scaled in-country afterwards.

As a result of the above, the three key elements of the project that are likely to endure are

i) that citizen science managers from Nigeria and Kenya will continue to apply and further develop their skills in citizen science data analysis. Even though the project has ended, we are still receiving draft papers and advocacy pieces from our course trainees and project staff.
ii) the Kenya Bird Trends Platform has been fully adopted by the Kenya Bird Map and is still being used – again we recently received a paper that had been published using this data.
iii) Because TBA has now developed two new training courses for citizen science managers, we have already made plans to adapt and run them for citizen scientists working on other taxa, as well as for birds given the courses were oversubscribed. This will be another important legacy of this project.

As described above, the lead project partner staff are now planning to scale out this training using our experience, materials and widened network. The data analysts were chosen because they were already in positions (or could return to positions) where they will continue their jobs or studies and be able to apply their new skills. Further, the papers that they first authored will boost their careers and future employment potential.

10 Darwin Initiative identity

The project has used the Darwin Initiative identify in its large number of project outputs and communications – including posters, publicity pieces and the Kenya Bird Trends Platform itself – all of which used the phrase "*funded by the UK Government through the Darwin Initiative*" and displaying the logo, where possible. For the 10 scientific papers, we ensured that Darwin Initiative was in the acknowledgements as the funder. Additionally, we created promotion flyers, and roll up banners that also highlighted the initiative and its support.

Darwin branding was prominently featured across various communication materials and advocacy pieces, such as the State of Kenya's Birds 2025. The media outlets that acknowledged the Darwin Initiative's contributions included national TV and radio in Kenya and Nigeria, as well as popular articles in both national and international media (like Mongabay magazine and Kenya's Standard Newspaper), along with institutional websites, particularly the Tropical Biology Association and the Kenya Bird Trends websites. This was further supported by commentaries and presentations at global events, including the 2024 Association for Tropical Biology and Conservation in Rwanda, the 2025 Student Conference on Conservation Science in the UK, the TiBE conference in Portugal, and the 2025 European Bird Census Conference, as well as expert forums like the Africa-wide Friday4Birds webinars.

On digital platforms, the project utilized institutional websites and social media channels (Facebook, X/Twitter, LinkedIn) to share results and raise awareness about the Darwin Initiative. The Tropical Biology Association (TBA) actively engaged with and tagged the Darwin Initiative and Biodiversity Challenge Fund (BCF) in relevant posts. Social media campaigns surrounding key events—like the launch of the Kenya Bird Trends platform—were instrumental in enhancing the visibility of Darwin funding.

We noted that the Darwin Initiative is less well known in Nigeria and West Africa - and this project has now helped raised awareness in this region as well as among the general public in Kenya.

11 Safeguarding

[redacted]

12 Finance and administration

12.1 Project expenditure

Project spend (indicative) since last Annual Report	2024/25 Grant (£)	2024/25 Total actual Darwin Initiative Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	[redacted]			

	[redacted]			
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL	114102.97	104190.23		

Staff employed (Name and position)	Cost (£)
Rosie Trevelyan, Project Leader	[redacted]
Anthony Kuria, Co-PI and Finance Manager	
Basil Okoth Project Manager and Training Coordinator	
Talatu Tende, Project Coordinator at NiBAP (partner) & West Africa	
Sam Guchu, Project Coordinators for Kenya Bird Map; and John Kasaya/Faith: Communication interns	
TOTAL	

Capital items – description	Capital items – cost (£)
TOTAL	

Other items – description	Other items – cost (£)
Accrued project audit costs Staff time on M&E Actions (GBP4190.24); external project evaluation costs (GBP1800)	[redacted]

Teaching honoraria for external course 2 trainers (GBP1157.16) and costs for guest speakers and facilitators during 13 in-situ meetings (GBP2471.67)	
TOTAL	[redacted]

12.2 Additional funds or in-kind contributions secured

Matched funding leveraged by the partners to deliver the project	**Total (£)**
TBA rent contributions, use of office equipment and staff time and course teaching contribution	[redacted]
Kenya Bird Map office staff, and staff time including support to and supervsion of project outputs (papers)	
NiBAP office spacve and staff time put into project supervision	
Negotiated publication fees waivers	
TOTAL	

Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project	**Total (£)**
TOTAL	

12.3 Value for Money

The project delivered value for money in several ways

Keeping costs down

We held almost all project events (training, Kenya Bird Trends (KBT) launch and in-situ meetings) in Nairobi and Abuja—two key transport hubs with government offices right there. We used institutional facilities for the in-situ meetings at no or minimal cost, and mostly delegates, e.g. the 76 individuals who came to the Kenya Bird Trends launch, covered their own travel costs. We incorporated some monitoring actions into these meetings or conducted final evaluation via Zoom, which meant no extra trips were necessary. This approach kept our travel and venue expenses well under budget while still having senior government officials present.

Making data count

The project tapped into 50 years of heavily under-utilized citizen science bird records, coupling that with recent (10+ years) but also less utilized data by the Kenya Bird Map to create the Kenya Bird Trends—the first open, national citizen-science platform. With free, ready-to-use update scripts, a single analyst can refresh the database each year, and the code can be easily adapted for use in other countries without any licensing fees.

We also focused on people: we trained 33 managers from active citizen-science hubs – and government on ways to transform citizen science data into clear conservation insights and stories. This new cohort of well-trained individuals, along with a network of volunteer data analysts,

ensures that existing data continues to yield results without needing extra external funding. It is our believe that more publications will follow building on capacity build under this project

Measurable conservation outcomes
The platform has already supported several peer-reviewed papers that outline concrete management strategies for threatened grassland and wetland birds. These publications have elevated Kenya's and Nigeria's status as leaders in citizen science across Africa and provide decision-makers with reliable evidence they can reference in policy discussions. Since the analyses were based on data collected by the public, each paper achieved significant scientific impact at a minimal additional cost.

Ensuring benefits go beyond the grant.
All the KBT platform code, training reports, and datasets are freely accessible on GitHub and institutional servers, which keeps maintenance costs low and makes replication achievable. The community of practice that emerged from the project—comprising decision makers, university researchers, IT experts, and dedicated volunteers—continues to share their knowledge both formerly (through active collaboration) and informally (including by inspiring those who provide the data on the ground).

By addressing a crucial information gap, supporting local experts, and keeping costs minimal, this project transforms a small investment into a long-lasting, scalable advantage for evidence-based bird conservation throughout Africa.

13 Other comments on progress not covered elsewhere

No other comments

14 OPTIONAL: Outstanding achievements of your project (300-400 words maximum). This section may be used for publicity purposes

I agree for the Biodiversity Challenge Funds to edit and use the following for various promotional purposes (please leave this line in to indicate your agreement to use any material you provide here).

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
				Yes / No
				Yes / No
				Yes / No
				Yes / No
				Yes / No

Annex 1 Report of progress and achievements against final project indicators of success for the life of the project

Project summary	Progress and achievements
Outcome (Increased capacity among African citizen science managers and government agencies to use citizen science data for understanding and managing threats to bird biodiversity)	
Outcome indicator 0.1 By March 2025, at least 8 African citizen science projects, and environment/conservation government agencies have improved capability and capacity in using citizen science evidence as their staff apply the capacity from the project	Achieved –33 people (15 Female; 18 Male) were trained, representing 13 citizen science projects in nine African countries cumulatively. Supported by outputs 1 and 2, and evidence provided in section 3.2
Outcome indicator 0.2, By March 2025, 30 individuals working in citizen science projects, and environment/conservation government agencies in East and West Africa are using citizen science results for conservation management and decisions as a result of the project.	Achieved – Over 30 people directly linked with the project have authored papers and reports using citizen science data There is an increasing body of evidence that the KBT is being used for species assessments (Jackson's widow bird in Kenya; European rollers in South Africa)
Outcome indicator 0.3, By October 2024, a new public online platform enabling access to citizen science data and analyses is being used by at least 50 citizen scientists and decision–makers across at least 5 African countries	Partially achieved – The platform (Kenya Bird Trends) up and running, there is evidence that the information is starting to be used, and it may equally be taken up by key government institutions as a tool. However, the platform is yet to be adopted across at least 5 countries but have been used in Kenya and South Africa. Evidence provided in section 3.2, and Table 2 of this report
Output 1 (National citizen science managers with enhanced capacity to analyse and communicate citizen science data and produce policy-relevant and management guidance and enhance commitment of citizen science mappers).	
Output indicator 1.1, 20 managers of at least 4 African national bird mapping projects (a third being women) trained on citizen science data analysis and on advocacy and communication for policy influence (by Dec 2023))	Achieved - 19 people (42% being women) from 9 countries. The trainees represented 6 African national bird mapping projects. Evidence provided in section 3.1 of this report and Annex 9 (course1 report); Annex 11 (Training register); and Annex 12 (Training Assessment)
Output indicator 1.2, (At least 4 advocacy pieces based on citizen science data analyses produced by the trained managers by Sep 2024)	Partially achieved – 4 advocacy-relevant outputs produced, but not all were explicitly transformed into advocacy pieces.

	Evidence included in section 3.1 and Table 2 (publications) and Annex 5a) for a list of advocacy relevant pieces, and Annex 5(b) (policy brief – in prep)
Output indicator 1.3, (At least 4 communications pieces on the analyses of priority species by the trained managers and shared with at least 5,000 African citizen science volunteers)	Achieved – Over 20 communication pieces. The reach exceeds by several fold, the project target. Supported by evidence in section 3.1; Table 2 (publications) and Annex 5a) of this report for links to published communication pieces and Annex 7 and Annex 8
Output indicator 1.4, (4 conservation priority species trends' analyses against likely causal threats with recommendations for conservation decisions produced and published by Sep 2024)	Achieved – 8 species analyses completed, five of which have been published in international journals. Additional analyses are included in the State of Kenya's Bird report 2025, as contributions to the Kenya's vulture multi-species (2024-2034) – Action Plan, & Key Biodiversity Areas Status & Trends 2023; and Uganda's waterfowl species trend analysis for some of key sites & vulture monitoring (pers comms, Uganda) Evidence provided in section 3.1 and Table 2 (publications) and Annex 5a of this report for links to published trend analyses relevant papers and Annex 13
Output 2. (Decision makers with increased capacity on use of citizen science data for policy and management decisions)	
Output indicator 2.1. (At least 8 decision makers from at least 8 government agencies from East and West Africa trained on how to interpret citizen science analyses and use them to inform decisions and policy on biodiversity conservation by March 2025)	Achieved – from both course 2 and in-situ meetings and engagements (output 4) 10 government agencies were engaged to achieve the intended output. • 8 decision makers from 7 government agencies (5 from Kenya; 1 from Nigeria), and one NGO were trained on course 2. • 4 additional Nigerian government institutions (and 105 decision makers) were engaged through in-situ meetings and engagements Evidence provided in section 3.1 of this report and Annex 11 (Training Register); Annex 12 (Training Assessment), and Annex 14; and annex 16 for contributions from the in-situ meetings
Output indicator 2.2. (At least 2 new action plans produced by government environmental agencies showing how citizen science data will be integrated into management or policy decisions by January 2025)	Partially achieved. No new action plans were developed by government environmental agencies. However, project trainee contributed to key action plans • Kenya's **Vulture Multi-Species Action Plan for Kenya (2024-2034**) • new **Strategic Action Plan for the Red-footed falcon** – a priority migratory species in Nigeria • Conservation action at Akassa (an important bird area) Nonetheless, government agencies in Kenya, recognized the Kenya Bird Trends platform's potential for reporting the country's progress toward international biodiversity commitments. The Nigerian Department of Livestock and Wildlife Disease Surveillance also made a verbal commitment e.g., to use citizen science data to monitor bird flu. Evidence provided in section 3.1 of this report and Annex 5e, Annex 14; Annex 17; and annex 18.
Output 3. An open-access online platform/ decision support tool enables bird citizen science data to be accessed and communicated to guide decisions.	

Output indicator 3.1, At least 50 individuals working in citizen science, and conservation are using the open access online platform by Feb 2025	Achieved. As of April 2025, about 995 users had actively engaged with the platform Supported by evidence provided in section 3.1 of this report and Annex 15 that highlight reach and visits to the online platform and user register information for the period August 2024 to Apr 2025 TBA.
Output indicator 3.2, Final online platform guidelines in data analysis are published online, and helping platform users access information they need for decision by Dec 2024.	Achieved. However, instead of a pdf copy, the **guidelines were published online** on the Kenya Bird Trends website. Additional user-friendly guidelines for users are contained in the paper associated platform and on GitHub: i. Codes: https://github.com/Rafnuss/KenyaAtlasComparison ii. Website source: https://github.com/Rafnuss/KenyaBirdTrends. **Raw citizen science data** is available through the African Bird Atlas API for Kenya Bird Map (kenya.birdmap.africa)and through https://ebird.org/data/download for the eBird Basic Dataset for Kenya. See more details in section 3.1 and Table 2 of this report
Output indicator 3.3, Threats hotspots mapped (by trainees from course 1) in Kenya, and Nigeria and results made accessible on the online platform by February 2025	Achieved – However, MoV for this indicator changed to published papers because of previous assumptions on data. These papers (also uploaded onto the KBT website) include: • Ecological consequences of urbanization in Afrotropical bird communities: present and prospects • Assessing the susceptibility of raptor species to electrocution: A framework for Kenya • Impact of forest cover loss on forest dependent avian species in Kenya • Predicting grassland bird distribution and abundance in Kenya using citizen science data Supported by evidence provided in section 3.1 and Table 2 of this report.
Output indicator 3.4, By project end, at least 10 website visits every month are recorded demonstrating active usage of the online platform by the target audience (citizen science managers, decision makers, planners).	Achieved – Website traffic analysis shows 6,406 page views and 42 downloads, indicating active engagement • Over 100 visits per month between August 2024 and April 2025. Evidence provided in section 3.1 of this report and Annex 15.
Output 4. "in-situ meetings and engagements" brings together scientists and policy and management community.	
Output indicator 4.1, By project end, 20 decision makers, and citizen science managers from East and West Africa (and at least 5 environmental/conservation government agencies) have improved awareness of citizen science data's potential in environmental management and decision	Achieved – In-situ meetings engaged over 340 participants (36% women) from 39 institutions in Kenya and Nigeria. The delegates included • At least 105 decision makers from 11 government agencies engaged No before/after knowledge assessment carried out (MoV) Evidence provided in section 3.1 of this report and Annex 17; and the meetings raw reports).

Output indicator 4.2, By Mar 2025, 2 new alliances formed between citizen science hubs, and government agencies on integration of citizen science data in management, and reporting processes and guidelines.	Partially achieved – NEMA, custodians of environmental law in Kenya, discussing the possibility of integrating the KBT into national environmental policies. KWS also wishing to make use of the information. Evidence provided in section 3.1 of this report and Annex 17; and reports from the bird map hubs in Annex 7 and Annex 8.
Output indicator 4.3, A roadmap for scaling out online platform and future use of citizen science data for Africa, by end of project	Not achieved

Annex 2 Project's full current indicators of success as presented in the application form (unless changes have been agreed)

Project summary	SMART Indicators	Means of Verification
Outcome: Increased capacity among African citizen science managers and government agencies to use citizen science data for understanding and managing threats to bird biodiversity	0.1. By March 2025, at least 8 African citizen science projects, and environment/conservation government agencies have improved capability and capacity in using citizen science evidence as their staff apply capacity from the project.	MoV0.1 Follow up surveys of citizen science projects
	0.2. By March 2025, 30 individuals working in citizen science projects, and environment/conservation government agencies in East and West Africa are using citizen science results for conservation management and decisions as a result of the project.	MoV0.2a Follow up surveys and reports from bird map hubs MoV0.2b Download requests
	0.3. By October 2024, a new public Online Platform enabling access to citizen science data and analyses is being used by at least 50 citizen scientists and decision–makers across at least 5 African countries.	MoV0.3a User registrations MoV0,3b Visits to the online platform MoV0.3c Citations of project results (published papers, online platform)
Output 1: National citizen science managers with enhanced capacity to analyse and communicate citizen science data and produce policy-relevant and management guidance and enhance commitment of citizen science mappers	1.1. 20 managers of at least 4 African national bird mapping projects (a third being women) trained on citizen science data analysis and on advocacy and communication for policy influence (by Dec 2023)	MoV1.1 Training registers; and training assessment
	1.2. At least 4 advocacy pieces based on citizen science data analyses produced by the trained managers by Sep 2024.	MoV1.2 Advocacy pieces published
	1.3. At least 4 communications pieces on the analyses of priority species by the trained managers and shared with at least 5,000 African citizen science volunteers	MoV1.3 Communication pieces published

	1.4. 4 conservation priority species trends analyses against likely causal threats with recommendations for conservation decisions produced and published by Sep 2024	MoV1.4 Published, trends analysis reports, and papers, and threat hotspot maps
Output 2: Decision makers with increased capacity on use of citizen science data for policy and management decisions	2.1. At least 8 decision makers from at least 8 government agencies from East and West Africa trained on how to interpret citizen science analyses and use them to inform decisions and policy on biodiversity conservation by March 2025. 2.2. At least 2 new action plans produced by government environmental agencies showing how citizen science data will be integrated into management or policy decisions by January 2025	MoV2.1 Training registers; Knowledge assessment before and after training MoV2.2 Copies of action plans
Output 3: An open-access online platform enables bird citizen science data to be accessed and communicated to guide decisions	3.1. At least 50 individuals working in citizen science, and conservation are using the open access Online Platform by Feb 2025 3.2. Final Online Platform guidelines in data analysis are published online, and helping platform users access information they need for decision by Dec 2024. 3.3. Threats hotspots mapped (by trainees from course 1) in Kenya, and Nigeria and results made accessible on the online platform by February 2025 3.4. By project end, at least 10 website visits every month are recorded demonstrating active usage of the online platform by the target audience (citizen science managers, decision makers, planners).	MoV3.1 Register of users and visits to the Online Platform MoV3.2 Final guidelines as pdf and on website MoV3.3 Screenshots of reports being shared and uploaded on online platform MoV3.4 report of visits to the online platform
Output 4: “In-situ meetings and engagements” brings together scientists and policy and management community.	4.1. By project end, at least 5 environment/ conservation government agencies have improved awareness of citizen science data’s potential in environmental management and decision 4.2. By Mar 2025, 2 new alliances formed between citizen science hubs, and government agencies on integration of citizen science data in management, and reporting processes and guidelines.	MoV4.1 Meeting reports ; attendance reports and Follow up surveys of engaged agencies MoV4.2 Reports from bird map hubs and from government agencies

	4.3. A roadmap for scaling out online platform and future use of citizen science data for Africa, by end of project	MoV4.3a Copies of roadmap; MoV4.3b End of project report

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1 Organise training course1 on analysis, interpretation and presentation of citizen science data and results in December 2023
1.2 Follow up support and mentoring for four of the trainees from course1 (1.1)

2.1 Organise training course2 for decision makers on how to use and interpret citizen science outputs, and how to use the Online Platform.
2.2 Follow up engagement with national agencies on using biodiversity data in decisions

3.1 Contract a technician for the online platform and hold an online meeting with technician and selected end users to agree design, layout and content of platform
3.2 Online platform is developed with guidance from all project partners and launched
3.3 Users' guidelines finalised and published (online) for online platform

4.1 "In-situ meetings and engagements" on way forward for citizen science data happens and brings together citizen scientists and policy communities from East and West Africa. Outputs from 1,2 and 3 presented
4.2 Road map on way forward is outlined at "In-situ meetings and engagements" and finalised by TBA

Important Assumptions

1) Political/health crises do not stop citizen scientists continuing to collect citizen science data to update database

2) Participating government agencies remain open to using citizen science data and liaising with citizen science hubs (they've indicated they wish to use this data going forward).

3) Citizen science managers in target project countries and staff of government agencies are released from their duties, and are able to attend training events.

4) Partners continue to support open data-access, and free-sharing of results on the online platform

5) Online platform does not throw up technical barriers that slow down its creation and adoption

6) Project outputs (scientific papers) that require peer-review are accepted and published on time

Annex 3 Standard Indicators

Table 1 Project Standard Indicators

Please see the Standard Indicator Guidance for more information on how to report in this section, including appropriate disaggregation. N.B. The annual total is not cumulative. For each year, only include the results achieved in that year. The total achieved should be the sum of the annual totals.

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-A01	Number of people in eligible countries who have completed structured and relevant training	People	Men	11	3		14	18
DI-A01	Number of people in eligible countries who have completed structured and relevant training	People	Women	8	4		12	10
DI-A03	Number of local/national organisations with improved capability and capacity as a result of project.	Number	Local/national citizen science bird mapping projects	6	2		7	4
DI-A03	Number of local/national organisations with improved capability and capacity as a result of project.	Number	Local/national Organisations active in citizen science	3	6		6	4
DI-A04	Number of people reporting that they are applying new capabilities (skills and knowledge) 6(or more) months after training.	People	Men	8	7		15	20
DI-A04	Number of people reporting that they are applying new capabilities (skills and knowledge) 6(or more) months after training.	People	Women	3	4		7	10
DI-A07	Number of government institutions/departments with enhanced awareness and understanding of biodiversity and associated poverty issues	Number	government institutions/departments	0	10		10	5
DI-B05	Number of people with increased participation in local communities / local management organisations (i.e., participation in Governance/citizen engagement)	People	Men	0	537*			33
DI-B05	Number of people with increased participation in local communities / local management organisations (i.e., participation in Governance/citizen engagement)	People	Women	0	458*			17

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-B12	Number of policies developed or formally contributed to by projects and being implemented by appropriate authorities	Number	Advocacy pieces	0	4		4	4
DI-B12	Number of policies developed or formally contributed to by projects and being implemented by appropriate authorities	Number	New Action plans	0	0		0	2
DI-B12	Number of policies developed or formally contributed to by projects and being implemented by appropriate authorities	Number	New alliances	0	0		0	2
CI-C01	Number of best practice guides and knowledge products published and endorsed	Number	New online platform guidelines	0	1		1	1
CI-C05	Number of projects contributing data, insights, and case studies to national Multilateral Environmental Agreements (MEAs) related reporting processes and calls for evidence.	Number	Species trend analysis	0	10		10	4
DI-C15	Number of Media related activities	Number	Communication pieces	0	8		8	4
DI-C19	Number of other publications produced	Number	Threat hotspot maps	0	0		0	2
DI-C19	Number of other publications produced	Number	Roadmap for online platform scale out	0	0		0	1

**Based on gender ratio of 46 Female:54 Male platform users as of June 2025*

In addition to reporting any information on publications under relevant standard indicators, in Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Mark with an asterisk (*) all publications and other material that you have included with this report.

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Citizen science mitigates the lack of distributional data on Nigerian birds	Journal paper	Tende, T., Iniunam, A. I., Ivande, S. T, Awoyemi, AG; Danmallam, BA, Ringim, AS, Bako, LA, Ramzy, FJ, Kazeh, NW, A Izang,AI, Kumdet, PS, Ibrahim, JI, Haruna, MA, Eyos, K, Iki, ED, Chaskda, AA, Ottosson, U; 2024	Female	Nigerian	Evolution and Ecology, John Wiley & Sons, USA	https://doi.org/10.1002/ece3.11280
Assessing the susceptibility of raptor species to electrocution: A framework for Kenya	Journal paper	Ngila, PM, Chiawo, D, Owuor, MA, Wasonga, VO, Ellwood R, E, Mugo, D; 2024	Female	Kenyan	Environmental and Sustainability Indicators, Amsterdam, Netherlands	https://doi.org/10.1016/j.indic.2024.100400
Ecological Consequences of Urbanization on Afro-tropical Bird Communities: Present and Future Prospects	Journal paper	Bello A. Danmallam; Peggy M. Ngila; Iniunam A. Iniunam, Anthony Kuria, Talatu Tende, Samuel Ngugi, Peter Njoroge, Colin Jackson, Basil Okoth, Ulf Ottosson, Adams A. Chaskda, & Rosie Trevelyan; 2024	Male	Nigerian	Frontiers in Conservation Science, Frontiers Media S.A Lausanne, Switzerland	https://doi.org/10.3389/fcosc.2024.1503408
Effectiveness of Protected Areas in Conserving Avian communities amid human impacts in Nigeria	Journal paper	Bello A Danmallam, Talatu Tende, Anthony Kuria, Samuel T Ivande, Iniunam A Iniunam, Peggy M Ngila, Ulf Ottosson, Rosie Trevelyan, Adams A Chaskda, Shiiwua A Manu; 2025	Male	Nigerian	Conservation Biology; Blackwell, Malden, Massachusetts	10.1111/cobi.70069
Historical bird atlas and contemporary citizen science data reveal long-term changes in geographic range of Kenyan birds	Journal paper	Raphaël Nussbaumer, Améline Nussbaumer, Samuel Guchu, Richard Stratton Hatfield, Erustus M. Kanga, Gladys Nyakeru Kung'u, Anthony Kuria, Eliot Miller; 2024	Male	Swiss and French	Diversity and Distributions; Wiley-Blackwell, Finland	https://doi.org/10.1111/ddi.13935
The State of Kenya's Bird report 2025	Project Report	Peter Njoroge; 2025	Male	Kenyan	Project Report	https://drive.google.com/file/d/195zss5otM8mj-6A3G6bbyynoJzpGFoYr/view?usp=sharing
Impact of forest cover loss on forest dependent avian species in Kenya	Journal paper	Peggy Mutheu Ngila, Bello Adamu Danmallam, Iniunam Aniefiok Iniunam, Anthony Kuria, Rosie Trevelyan; 2024	Female	Kenyan	Scientific African, Amsterdam, Netherlands	https://doi.org/10.1016/j.sciaf.2024.e02463

Predicting grassland bird distribution and abundance in Kenya using citizen science data	Journal paper	Frank Juma Ong'ondo, Rosie Trevelyan, Anthony Kuria, Peter Njoroge, Samuel Guchu & Colin Jackson; 2025	Male	Kenyan	Frontiers in Ecology and Evolution, Lausanne, Switzerland	https://www.frontiersin.org/articles/10.3389/fevo.2025.1489795
Using geographic information systems and remote sensing technique to classify land cover types and predict grassland bird abundance and distribution in Nairobi National Park, Kenya	Journal paper	Frank Juma Ong'ondo; Shrinidhi Ambinakudige; Philista Adhiambo Malaki, Peter Njoroge, Hafez Ahmad; 2025	Male	Kenyan	International Journal of Geoheritage and parks, Beijing, China	https://doi.org/10.1016/j.ijgeop.2025.02.003
Kenya Bird Trends	Online platform	Nussbaumer, R., Nussbaumer, A., Guchu, S., Hatfield, R. S., M. Kanga, E., Kung'u, G. N., Kuria, A., Miller, E., Ndang'ang'a, P. K., Njoroge, P., Ogada, D., Shema, S., & Jackson, C.; 2024	**Male**	Swiss and French	Website, online	https://kenyabirdtrends.co.ke/
Using Citizen Science Data to Understand Land-use Change and Bird Distribution in Nigeria	Conference Poster	Nanchin Winifred Kazeh; 2025	Female	Nigerian	Student Conference in Conservation Science, Cambridge, UK	2025 Student Conference on Conservation Science
Monitoring biodiversity change in Kenya using historical atlas data and recent citizen science	Conference Poster	Raphaël Nussbaumer; 2025	**Male**	Swiss and French	European Bird Census Council conference, Latsvia	https://birdnumbers2025.lu.lv/fileadmin/user_upload/lu_portal/birdnumbers2025.lu.lv/abstract_book_250331.pdf
Citizen science plays major role in monitoring bird species in Kenya	Newspaper article	Améline Nussbaumer, 2024	Female	French	The Standard Newspapers, Nairobi, Kenya	https://www.google.com/amp/s/www.standardmedia.co.ke/amp/opinion/article/2001501043/citizen-science-plays-major-role-in-monitoring-bird-species-in-kenya
prime news coverage of the Kenya Bird Trends launch	TV Coverage	Anthony Kuria, 2024	Male	Kenyan	KTN TV, Nairobi	https://www.youtube.com/watch?v=kqGpOYpu7qI
Making citizen science data work for conservation in Africa	Website Article	Anthony Kuria, 2024	Male	Kenyan	TBA Website, Online	https://tropical-biology.org/253598-2/
Africa's growing cities are endangering birdlife	Commentary	Bello Adamu Danmallam, 2025	Male	Nigerian	Mongabay, USA	https://news.mongabay.com/2025/04/africas-growing-cities-are-pushing-birdlife-to-the-brink-commentary/
Experts call for bird data to boost Nigeria's biodiversity protection	Radio Coverage	Talatu, Tende; 2025	Female	Nigerian	Radio Nigeria, Abuja	https://radionigeria.gov.ng/2025/02/01/experts-call-for-bird-data-to-boost-nigerias-biodiversity-protection/

Innovative online platform that will keep Kenyan birds in the skies	Newspaper article	Nicholas Asego; 2025	Male	Kenyan	The Standard Newspapers, Nairobi, Kenya	https://www.standardmedia.co.ke/article/2001513008/innovative-online-platform-that-will-keep-kenyan-birds-in-the-skies?utm_cmp_rs=amp-next-page
Incorporating citizen science into conservation	Social Media post	Dominic Mutali; 2025	Male	Kenyan	Laikipia Wildlife Forum, LinkedIn, Online	https://www.linkedin.com/posts/dominic-mutali-943a14208_lwf-birdconservation-citizenscience-ugcPost-7300883525086384128-8CKO?utm_medium=ios_app&rcm=ACoAAA2GRMUBJWHC8CKDQR99T9wtWAF0_nYyRgo&utm_source=social_share_send&utm_campaign=whatsapp
Impacts of urbanization - citizen science data from the African Bird Atlas in Kenya and Nigeria	Webinar talk	Bello Adamu Danmallam; 2025	Male	Nigerian	Friday4Birds, online	https://www.youtube.com/watch?v=kIEEvzEz5r8
Birds, bats and butterflies fly up agenda thanks to Nigeria's citizens	Website Article	Anthony Kuria, 2024	Male	Kenyan	TBA Website, Online	https://tropical-biology.org/birds-bats-and-butterflies-fly-up-agenda-thanks-to-nigerias-citizens/
Project's in-situ meeting at the Kenya Forest Service	Social Media post	Kenya Forest Service; 2025		Kenyan	Facebook, Online	https://www.facebook.com/100064520599052/posts/1029030849257592/?rdid=tOiD8Es1WahpPYv8#
Kenya Bird Trends Launch at the Safari walk, Nairobi	Social Media post	Kenya Wildlife Service; 20214		Kenyan	X (Twitter), Online	https://x.com/KWSKenya/status/1827017760095809662?t=7ESz1BId0cBWi6QZUFBMgA&s=08
Welcome to Kenya Bird Trends	Social Media post	National Environment Management Authority (NEMA); 2025		Kenyan	NEMA Website, Online	https://ke.chm-cbd.net/news/welcome-kenya-bird-trends#:~:text=The%20Kenya%20Bird%20Trends%20Platform%20plays%20a%20vital%20role%20in,of%20endemic%20and%20migratory%20species.

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