

African Raptor Databank

AIM / PURPOSE / MISSION

To ascertain the conservation status of raptors and their habitats across Africa, and to help build the local expertise needed to monitor these indicator species in the future and implement a sound strategy for their effective safeguarding.

PHASES

The project will be completed in two phases. The first phase involves building a database over a period of five years (2013 – 2018). The second phase involves distribution modelling of each species in relation to the availability of its habitat and production of a conservation atlas for African raptors, online and hard copy.

PARTNERS

The project is managed by Habitat INFO and co-funded by The Peregrine Fund who act as the regional coordinators for East Africa (along with National Museums of Kenya). The Bird of Prey Working Group (Endangered Wildlife Trust, South Africa) acts as the regional coordinator for southern Africa, while the West African region is coordinated by Ralph Buij (Centre for Environment and Development Studies, Cameroon) and Joost Brouwer (NiBDab). A formal partner is still sought for the North African region. Data exchange mechanisms are being investigated with the following similar recording programmes: South African Bird atlas, Tanzanian Bird Atlas, G-bird, iSPOT. Pilot studies on distribution modelling have been / are being conducted at the Universities of Pretoria, Cape Town, Aberystwyth.

The project is also linked to proposed training and capacity building at Garoua Wildlife College (Cameroon) and the South African Wildlife College. Further training and the analysis of counts at migratory bottleneck sites to monitor raptors entering or leaving Africa are offered for the purposes of this project by Hawk Mountain Sanctuary (Pennsylvania, USA).

OBJECTIVES

1. to establish a secure and easy to use communal store for data and observations on African raptors across their distribution ranges
2. to use these observations to identify the exact habitat of each species and use the improving environmental datasets to assess the past, present and future conditions of that habitat and so improve our conservation assessments for each species
3. to use these observations to study seasonal and inter-annual movement patterns of raptors across Africa and help identify locations of risk to migrants
4. to use raptors to identify key habitat strongholds for their populations and by default populations of many other wildlife species in Africa both inside and outside protected areas

5. to build a community of raptor enthusiasts and experts across Africa who can lobby for the preservation of those habitat strongholds and key migratory sites.

DATA EXCHANGE AGREEMENTS

Recorders retain ownership of their data but grant those involved in the running of the ARDB the right to use their information in the building, analysis and reporting from a database of knowledge of African raptors. This relationship will be based on the understanding that the ARDB is developed for the purpose to help protect raptor populations in Africa and their habitats.

Contributing recorders will be able to request their own data and web tools will be put in place to facilitate these exports. Each request for data collected by others will be assessed to provide protection to sensitive features (below). Users of ARDB data must provide acknowledgement to 'African Raptor Databank'. Co-authorship on any publications must be offered to the data owners (recorders) when their records make up more than 10% of data contributions to the article. The ARDB will take all possible steps to put data validation and verification measures in place but the ARDB will not be held responsible for any inaccuracies that may escape these.

The ARDB will strive to maintain an open-door policy with other similar data gathering exercises in Africa e.g. bird atlases, G-bird, iSpot, as long as the purpose of these exercises is related to bird conservation. We aim to negotiate data exchange mechanisms which will synchronise ARDB data with these other schemes so there may be information flow both ways.

In consultation with regional experts, the ARDB will place restrictions on release for species or features that are considered to be sensitive. Observations that are considered sensitive will be protected from public view both in the database and also in any data exchange mechanisms with recorders or with schemes. This means for instance that recent / current nest observations and vulture data will not be released or that downgrading of the spatial resolution may be carried out for certain data release.

POLICY FOR CHARGES

The ARDB is managed by Habitat INFO which is a commercial company. However, the project is handled as non-commercial with various participating charities and education institutes and a lot of volunteer effort coming in from individuals and from personnel at Habitat INFO. It is best described as a 'citizen science' project and any funding received to the project is ring-fenced and used entirely for the development of the ARDB and the purpose of conserving African raptors.

Data will be freely shared across regional offices and with education institutes but to make the database sustainable Habitat Info will make charges for time spent servicing data requests to commercial operators. This revenue will be accounted for publicly, ring-fenced and used only on ARDB development. Grant funding will be sought to make the technological developments possible

The following users will normally be exempt from charges (although Habitat Info reserves the right to make charges in the event of requests that would take a large amount of staff time):

- School and University Students.
- Local natural history societies or groups.

- Members of the public.

DESCRIPTION OF PROJECT

Africa is the only continent which has a large land mass extending both north and south of the equator. It offers rich wildlife habitats ranging from rain forests through savannas to deserts. This continent has a richer diversity of birds of prey (or raptors) than any other: some 169 species occur regularly, 69% of which are endemic to Africa or its associated islands. These various species constitute more than 75% of all raptor species worldwide.

As top predators, raptors can be considered as key indicator species, because they live at relatively low densities (with large individual area needs), prey upon other animals, and they offer early warning of pesticide contamination of the food chain. An abundance and diversity of raptors invariably signals a largely undisturbed ecosystem, supporting an abundance of other wildlife.

Africa still affords large expanses of natural habitat supporting wildlife, but the situation is rapidly changing, with burgeoning human populations in need of land and natural resources. If transboundary land use solutions are not agreed upon soon and a network of protected sites adhered to, much of Africa's biodiversity may be lost.

Importantly, Africa affords winter homes to an estimated 5000 million birds from Eurasia to the north, including many hundreds of thousands of birds of prey. The threats to these migratory birds in Africa add to the many other threats that they encounter over their return journeys, extending up to 30,000 km each year. Recognising these facts, an international Memorandum of Understanding (MOU) was signed in October 2008 as part of the Convention on Migratory Species by range states (29 so far), providing a mechanism to afford greater protection for migratory raptors in Africa and Eurasia.

The MOU draws attention to the high proportion (51%) of migratory raptors in Africa and Eurasia that are globally threatened, near threatened or declining. Many resident African species are also considered to be in similar plight. Drastic declines have recently been documented for West Africa, but these declines passed unnoticed for three decades on account of a lack of local capacity for monitoring.

In an 'Assessment of the merits of a CMS instrument covering Migratory Raptors in Africa and Eurasia' by Defra (2007): habitat loss and transformation were given as the major driver of population declines, followed by shooting, accidental poisoning, electrocution from power lines, and disturbance. But there are fundamental deficiencies in our knowledge base for these birds and the assessment goes on to say that *'the data also clearly indicate that further surveys and monitoring programmes are needed over much of Africa, the Middle-East and Asia before the conservation status of many species can be reliably ascertained. Further surveys and monitoring should therefore be a major component of any action plan for raptors, and especially owls, in these regions.'*

A coordinated effort is needed across Africa to improve knowledge and provide support to countries in meeting their obligations under both CMS and CBD to conserve these taxa. This exercise is expected to benefit not just raptors, but the entire ecosystems on which they depend. Conservation interventions on behalf of raptors are likely to afford cascading benefits to other biodiversity

through multiple trophic levels. Monitoring raptors and their habitats thus affords a tool to countries for measuring the extent to which they are meeting international obligations.

The regular counting of raptors along roads across Africa and at migratory bottleneck sites are pursuits enjoyed by many bird specialists and conservation organisations in the region. We propose to coordinate these activities from regional centres in order to provide important indicators of population sizes and offer a tool for future monitoring of the state of African ecosystems. In this manner, and by building an accessible online database for African raptors at Habitat Info we will address the problem identified in the knowledge base.

The three regional centres will be: Centre for Environment and Development Studies (Cameroon), National Museums of Kenya with the Peregrine Fund, and the Bird of Prey Working Group (South Africa). We propose to use UK and regional expertise to initiate and run a series of training course modules for conservation personnel in raptor identification, monitoring and the use of GIS and innovative recording technologies. The courses will include guidance on how the results may be used to inform local policy, and will be carried out at the Garoua Wildlife College (Cameroon) and the South African Wildlife College. Further training and the analysis of counts at migratory bottleneck sites to monitor raptors entering or leaving Africa are offered for the purposes of this project by Hawk Mountain Sanctuary (Pennsylvania, USA).

The overriding problem for raptor populations in Africa is considered to be the loss of natural habitat and prey populations. Habitat Info houses datasets which permit accurate geographical assessment of habitats in Africa at a resolution that is now biologically meaningful to populations of birds of prey. These datasets permit the use of cost-effective methods to calculate raptor densities and distributions. Habitat Info is also well-placed to build upon the long tradition of biological recording in the UK with expertise managing databases at Local Records Centres. Analyses will include: habitat suitability models; the use of overlays of protected areas, 'levels of protection' and areas of development pressure to ascertain status and identify 'hotspots'; habitat fragmentation and connectivity analyses; and future climate space projections. We will conduct various analyses to identify solutions to other threats that African raptors face, notably contaminants and shooting.

Appropriate data will be made freely available through multiple web interfaces. In addition, relevant government agencies will be sent a report containing specific recommendations on priority areas for national and regional policy development and implementation within the African area of the CMS Birds of Prey MOU. A GIS 'constraints' layer will be supplied which defines areas of raptor habitat sensitivity for use by planners. Following publication of an 'Atlas' of raptor distributions across Africa, government agencies will be presented with a hard copies.

The principal legacies of this project will be enhanced capacity for monitoring African raptors, an enhanced knowledge base, and the implementation of new policies for conserving these species and their habitats. We shall direct significant resources to training and mentorship during the project and take steps to incorporate the training course material into existing college curricula so that the education aspects continue well beyond the term of the intervention. We will take care to try and ensure that the people attending training courses are those most likely to be in positions of implementing conservation policy e.g. protected area managers.

Further to this specialised training the whole project is envisaged as a citizen science contribution with free apps provided to work on any smart-phone across Africa. Africa has exceptionally good mobile networks and the next generation of phones are all likely to be smart-phones. We will engineer the apps to be simple to use and to work offline when a connection is not available. So the project really is available to anyone in Africa and will be especially appealing to children. With this wide reach we will be able to promote the importance of raptors and how they can indicate a healthy environment.

The project will equip each region with a network of experts, a regional database for future data capture and validation, and the technological capacity to maintain this. The continent-wide database will be made readily accessible through multiple web interfaces and in the form of published reports, and the atlas. This enhanced knowledge base will offer a new currency of conservation status for these taxa through the MOU instrument reporting to CMS. Population assessments will be based additionally and for the first time superimposed on accurate measurement of the geographic extent of suitable habitat. Results of this project may be used by government agencies, in their reporting to CBD, to indicate the effectiveness of their actions at protecting ecosystems within their care. Recommendations for priority conservation areas will be clearly communicated in an appropriate format to decision-makers in government agencies, and to non-governmental conservation organisations. These recommendations will identify nation-specific actions which complement one another in bringing about a transboundary and continent-wide strategy for ecosystem conservation.

Future data management will be streamlined by the development of key technologies (e.g. customised mobile recording) which promote the easy capture, storage and transfer of systematically-collected new data. Movement of standard data to and from the database will be by web interfaces, with measures for quality control. Model generation and other analyses will be automated by scripts so that future editions of an atlas, based on improved raptor and/or environmental datasets, may be produced with minimal effort. The Africa-wide datasets developed in this project will offer prepared data layers that may readily be used in the future for similar analyses of other threatened taxa. This represents a highly significant saving to future projects.

This will be the first project of its kind uniting all African raptor conservationists on a single coordinated project. There is considerable enthusiasm amongst the potential participants for doing so, and we would like to see the successful mobilisation of this enthusiasm in the course of this intervention lead to further similar cooperative work across Africa in the future.

Check out the ARDB resources webpage for help and tips along with the necessary resources to submit your existing records and get you out into the field recording the whereabouts of raptors by navigating to <http://www.habitatinfo.com/ardb/>.