

# 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). Kurt Eckerstrom and CMS (Raptors MoU) are helping with specific mobile phone applications, and the project benefits from belonging to the ESRI grant scheme. 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), Joost Brouwer (NiBDab) and Clive Barlow (Senegambia). North Africa is coordinated by Hichem Azafaf of Birdlife Tunisia (AAO). Data exchange mechanisms are being investigated with the following similar recording programmes: South African Bird atlas, Tanzanian Bird Atlas, The Namibian Avifauna Database, G-bird, iSPOT. Pilot studies on distribution modelling have been conducted at the Universities of Pretoria and Cape Town. The project will establish links for training and capacity building with wildlife colleges. 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 (live data observatory)
2. to use this live data observatory to continually assess the status of raptor populations in Africa and to rank the immediacy of the threats that they face notably: habitat loss, poisoning, trade etc.
3. 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
4. to use these observations to study seasonal and inter-annual movement patterns of raptors across Africa and help identify locations of risk to migrants

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

### **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 with facilitators in each of the four 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.

We also propose to train local wildlife enthusiasts and professionals in the identification and monitoring of raptors. We will do this in conjunction with local wildlife colleges and other institutions. 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).

An overriding problem for most 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 poisoning, pesticides and other contaminants, wildlife trade and shooting. We are developing mobile phone applications which can help report these problems in order to gauge the scale of each threat in each region.

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 resources to training and mentorship during the project and work with existing wildlife 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 any training courses are those most likely to be in positions of implementing conservation policy e.g. protected area managers.

Further to this training the project is envisaged as a citizen science contribution. We have released a free mobile phone app which works on Android smart-phones anywhere in Africa (offline) and we are currently developing an iOS equivalent. Africa has exceptionally good mobile networks and the next generation of phones are all likely to be smart-phones. 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.

*Have a look at 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/>.*