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Title:

MONITORING IMPORTANT BIRD AREAS IN KENYA: A *TWO-TIERED FRAMEWORK*

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Monitoring involves the repeated collection of information over time in order to detect changes in particular variables. It is a vital integral part of any conservation programme because it helps in assessing the effectiveness of conservation interventions and provides an early warning of emerging problems. The National Museums of Kenya, Department of Ornithology and Nature Kenya are co-ordinating IBA monitoring programme which builds on the existing monitoring initiatives by Kenya Wildlife Service, Forest Department and National Environment Management Authority. This monitoring framework implements article 7 of the Convention on Biological Diversity on identification and monitoring of biodiversity.

The two-tiered Monitoring scheme adopts a Pressure-State-Response Model to gauge trends in species populations and health of sites and habitats. The first tier is 'basic monitoring' taking place in all the sixty IBAs. A data collection form has been designed and approved by the participating institutions within IBA National Liaison Committee. These forms are filled in by staff in government agencies managing various IBAs as well as other site visitors and send to Ornithology department for data-basing and analysis. The second tier is the 'detailed monitoring' taking place in five of the 60 sites, which have well established and functioning Site Support Groups, whose members have been trained on identification of birds and other targeted biological indicators.

We discuss results of the monitoring scheme since 2001 where basic monitoring for 2004 and 2005 indicate that, on scale of between -3 and +3, state and pressure were -1 and -1.5 respectively while there has been a positive response of +1.5. There was a reduction of pressure and increase in response in 2005. In Kinangop grassland plateau, one of the detailed monitoring sites and home to the threatened Kenyan endemic (Sharpe's Longclaw *Macronyx sharpei*), population has declined by 50 % in one of the four sites (Murungaru) in the last five years due to intensive conversion of grassland to farmland.

This monitoring scheme is proving to be a useful tool in guiding management planning, policy evaluation, advocacy and fundraising for conservation action.

Key words; IBA, Monitoring, Basic, Detailed, Pressure, State, Response, Collaboration, Site Support Groups.

Introduction:

Important Bird Areas (IBAs) are sites of global importance for the conservation of birds and other biodiversity at global, regional and national levels. IBAs are identified using internationally agreed, objective, quantitative and scientifically defensible criteria. Sites qualify as IBAs if they hold: 1) globally threatened bird species, 2) birds with restricted distribution, 3) birds characteristic of a particular biome or 4) large numbers or congregations of bird species (Bennun and Njoroge 1999). Additional research and analysis has shown that Important Bird Areas are also Key Biodiversity Areas (KBAs, Eken *et. al.* 2004). Outstanding examples include the Eastern Arc and Coastal Forests of Kenya and Tanzania (Langhammer *et. al.* in press)

The Important Bird Areas programme for Kenya co-ordinated by Nature Kenya in collaboration with the Ornithology Department of the National Museums of Kenya saw the identification of a total of 60 IBAs, and five potential sites as priority sites for biodiversity conservation action in Kenya (Bennun and Njoroge 1999, see Figure 1). These IBAs represent 10% of the country's land area, covering almost all major ecosystems and taking into account the full network of Kenya's protected areas. The IBA process adds value to the protected areas network by bringing on board new sites within private land as sites that are of critical importance for biodiversity conservation. Overall 25 sites are not protected or only partly protected. On a number of these sites community based groups of concerned individuals, so called site support groups, have formed and are taking the lead in protecting the sites and monitoring their biodiversity.

Immense threats continue to jeopardise the existence of Important Bird Areas. To ensure IBA site conservation in perpetuity, Nature Kenya, the National Museums of Kenya and other key stakeholders and partners have initiated a suit of actions: 1). Developed and implemented a biodiversity monitoring framework to understand changes and provide feedback to conservation and policy mechanisms. 2). Mobilised government, non-government agencies and local communities to implement the national monitoring framework collecting, storing, analysing and disseminating data and information to key stakeholders and decision makers. 3). Developed and implemented a suit of site-based conservation intervention and programmes by and for local

communities for sustained action. 4). Developed and implemented actions that integrate and mainstream monitoring and general site action into wider national environmental policy and legislation. 5). Survey poorly known sites to promote better understanding and add new IBAs.

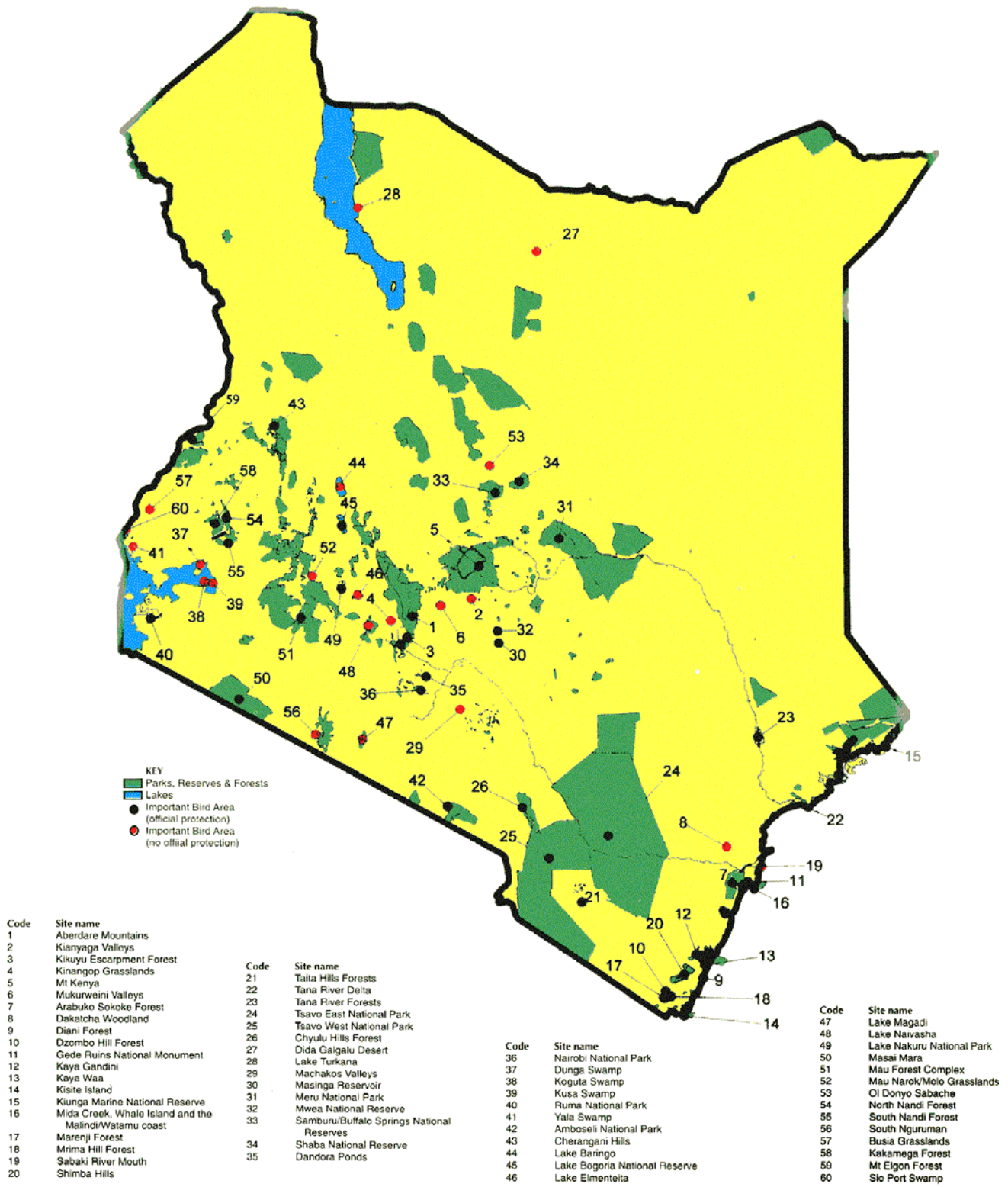
The focus here is on the IBAs conservation status based on routine monitoring coordinated by Nature Kenya (the BirdLife International partner in Kenya) and the National Museums of Kenya. The monitoring framework was developed by the Important Bird Areas National Liaison Committee (IBA-NLC) composed of some 24 government and non-government institutions: Government include: Kenya Wildlife Service (KWS), Forest Department (FD), National Museums of Kenya (NMK), Ministry of Lands, Ministry of Education, National Environment Management Authority (NEMA) and Universities. NGOs present in the NLC include: The African Wildlife Foundation (AWF), The World Conservation Union (IUCN), African Conservation Centre (ACC), Environmental Liaison Centre International (ELCI), Wildlife Clubs of Kenya (WCK) and World Wide Fund for Nature (WWF).

Initial funding for installation and sustenance of monitoring activity was through funding from UNDP through the GEF from 1999 to 2001, and from 2002 to 2007 through the Darwin Initiative for Survival of Species of the United Kingdom Government and the Royal Society for Protection of Birds (RSPB). The full commitment of countless numbers of volunteers and members of community based organisations, here referred to as 'Site Support Groups' (SSGs), have been very essential. The Department of Ornithology of the National Museums of Kenya provides technical assistance in the monitoring process. The Kenya Wildlife Service, Forest Department and National environment Management Authority (NEMA) have played a crucial role in coordinating dissemination, filling and collation of monitoring forms from field managers and offices (Otieno et al 2004, Musila et al. 2006).

A systematic framework for monitoring sites and species has been initiated building on existing monitoring initiatives by Kenya Wildlife Service, Forest Department and National Museums of Kenya. It adopts and pilots an Africa wide framework for biodiversity monitoring developed by BirdLife International partners in the region (Bennun *et. al.* 2005).

It will make an important contribution to informing conservation interventions at each site, to national reporting on the status of Kenya's biodiversity, and to the implementation of the Convention on Biological Diversity, in particular Article 7 relating to identifying and monitoring key sites (SBSTTA 1999).

Figure 1: Map of Important Bird Areas



Monitoring Framework for Kenya

The monitoring scheme in Kenya uses a two-tier approach that is based on the ‘pressure-state-response model’ (Otieno *et. al.* 2005): The first tier is the **basic monitoring** taking place in all the sixty IBAs where a data collection form for basic monitoring has been designed and approved by the participating institutions. The second tier is the **detailed monitoring** taking place in a subset (six) of the 60 sites. These are the sites with well established and functioning Site Support Groups (SSGs), whose members have knowledge on identification of targeted biological species (Bennun *et. al.* 2005). This monitoring scheme is designed to be a robust, appropriate and cost effective. The data so collected It should lead to accurate data collection, storage, analysis and application. This includes feeding into management planning, policy evaluation, advocacy, fundraising and conservation action.

The IBAs conservation and management objective is to ensure perpetual conservation of species, sites and habitats. Monitoring frameworks, systems and variables should provide information on the state, pressure and responses on species, sites and habitats. Because variables are many and resources to collect data on every variable are limited, a variety of general environmental and habitat indicators have been chosen as quick and rapid measures for the pressure, state and response as required by the Convention on Biological Diversity (CBD) (SBSTTA 1999).

Pressure: Indicators that identify and track major threats to the IBA e.g. increased human population, increased papyrus harvesting, over-fishing, logging, etc.

State: Indicators that refer to changes in site condition and biodiversity value. Some site conditions may include water level, water transparency, among others while biodiversity value indicators may include threatened bird species populations and species richness.

Response: Variables identify and track conservation actions, e.g. changes in legal status of a site (e.g. through gazettement), establishment of site support groups and funding of conservation programmes among others.

Figure 2: The Pressure-State-Response model

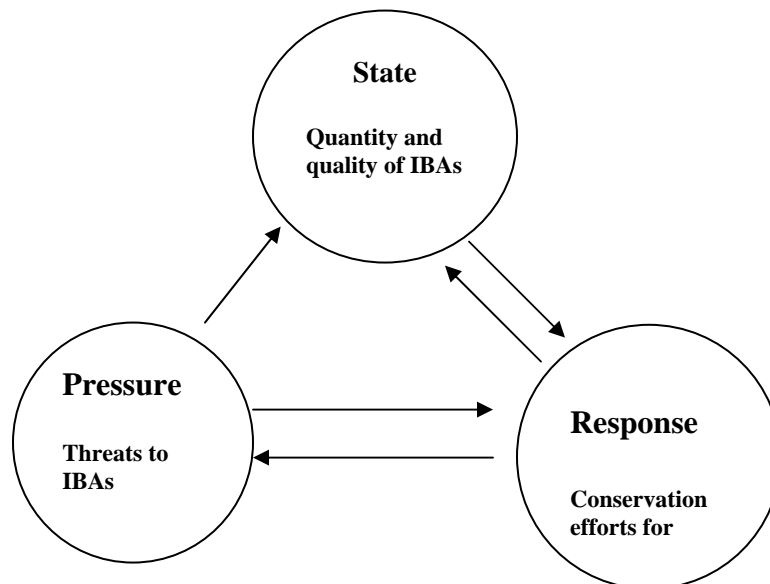
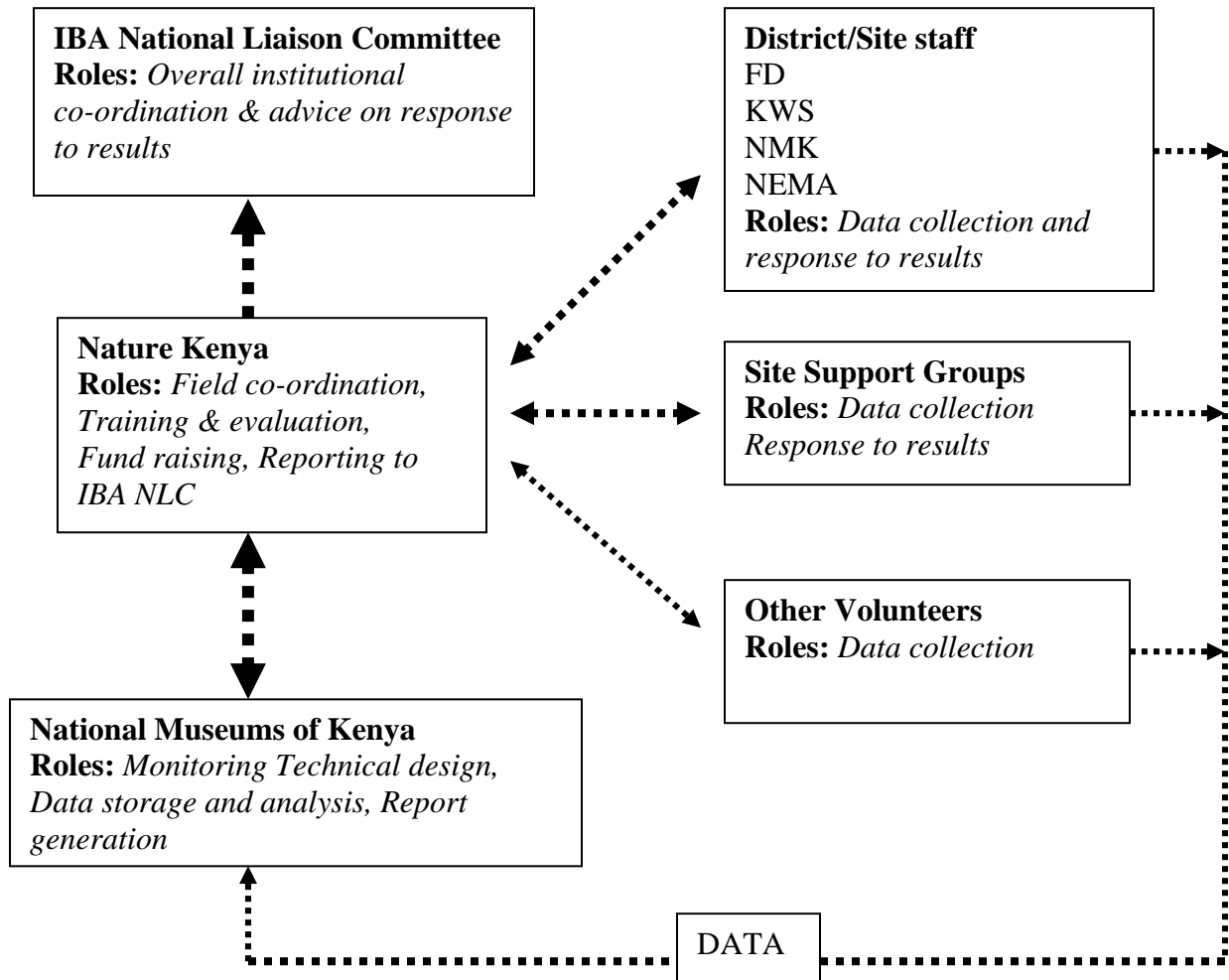


Figure 3: Institutional structure for IBA monitoring Scheme



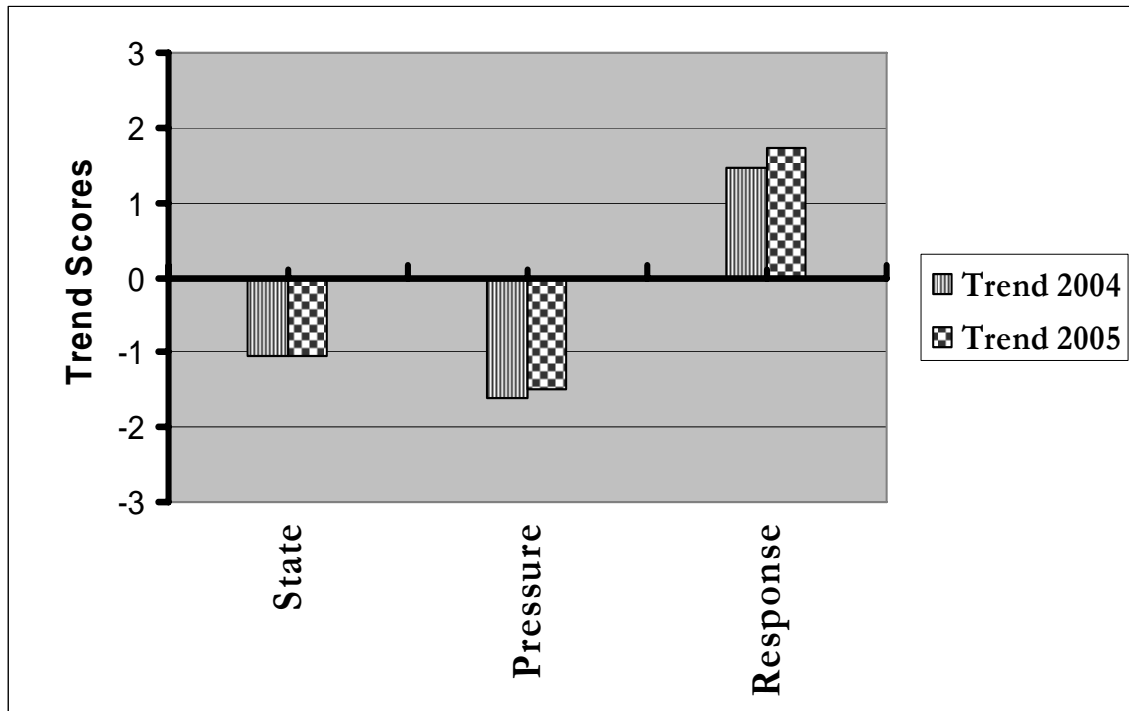
BASIC MONITORING

METHODOLOGY

The basic monitoring programme is being undertaken at all sites annually by representatives of the government agencies managing various IBA sites as well as members of site support groups and other volunteers. A standard form developed by the NLC is used and parameters of **pressure** or threats facing the site, the **state** of species and habitats on the site, and the **response** by managing agents are all assessed. The participating institutions at the moment are NMK, KWS, FD and NEMA. The institutional monitoring focal points channel data to NK/NMK for data-basing and analysis. Forms are received from all 60 sites and data collated, analysed to produce annual status reports produced which is circulated widely.

RESULTS

Figure 4: IBA Status and Trends Summary for 2004-2005 (N=60)



The state of the IBAs in 2004 and 2005 was the same with a slightly reduction in amount of pressure/threat in 2005. Overall there was a slight increase in the amount of conservation interventions being implemented in 2005.

The annual status and trends report for 2005 (Musila *et. al.* 2006) provides the following; Identifies threats at site levels, recommendations for highest priority conservation action, Identify institutional constraints and justifies resource allocation/mobilization.

Site-specific Status and Trends details are also available and these provide very useful information to identified research and funding priorities and guiding management planning processes. Results of this monitoring scheme forms part of national reporting to Convention on Biological Diversity article 7 on biodiversity survey and monitoring through the National focal point NEMA.

DETAILED MONITORING

METHODOLOGY

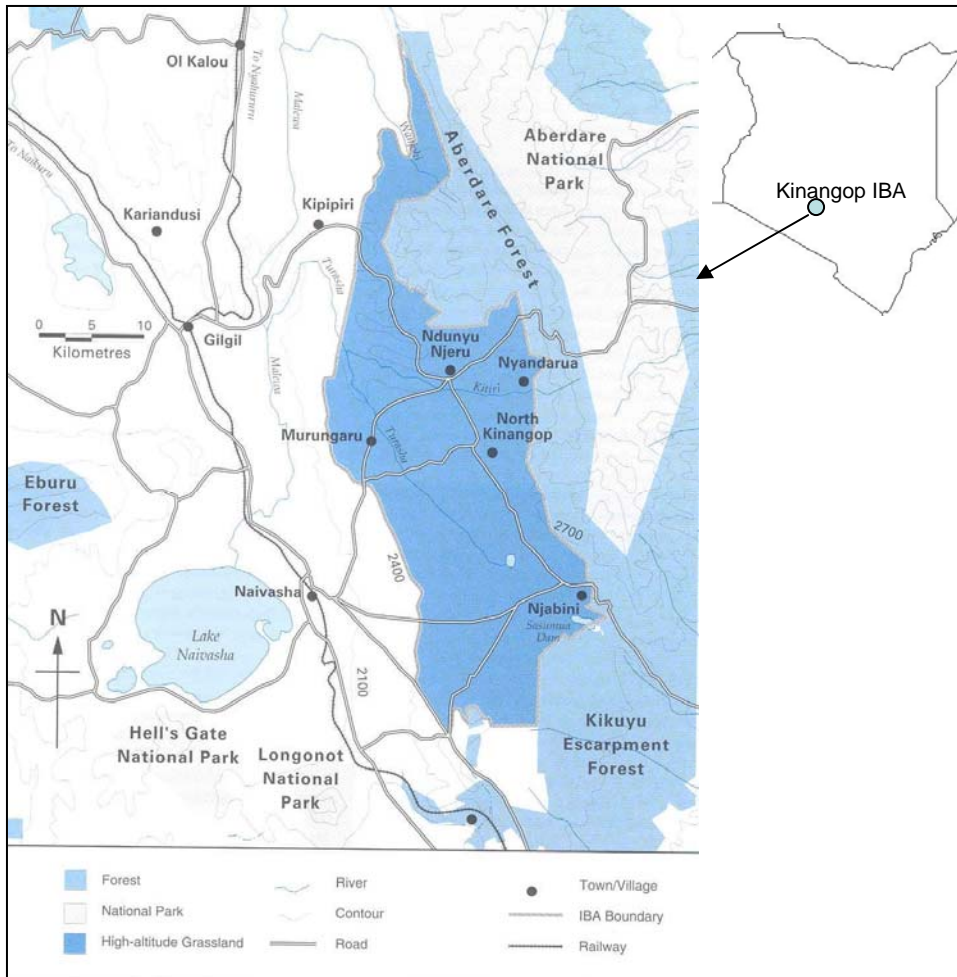
This involves collecting detailed data on birds, habitat structure and destruction. It follows statistically sound sampling protocols with appropriate indicators (BirdLife International 2004). Detailed monitoring protocols for different habitats have been

developed (Bennun 2002). Detailed monitoring is more expensive than basic and requires specialized training and equipment. Therefore it is only being carried out in five sites by site support groups whose members have received immense training on bird identification and systematic assessment of habitat parameters. These sites are, Kinangop Grasslands, Mukurweini Valleys, Dunga Swamp, Kakamega and Kikuyu Escarpment forests. This will provide critical information to inform efforts to prevent the extinction of Kenyan endemic species such as Sharpe's Longclaw and Hinde's Babbler (in Kinangop and Mukurweini respectively) and other globally threatened species.

Study area:

Data were analysed for one IBA site, Kinangop Grasslands Plateau, where detailed monitoring has been taking place since 2001. Kinangop IBA lies at 0°42'S, 36°34 E and 2,400–2,700 m a.s.l. in Central Province, Nyandarua District in Kenya. Covering a total of 77,000 ha, this IBA is Unprotected and mainly private land. It holds a total of seven Globally-threatened species and Restricted-Range species of birds (Bennun and Njoroge 1999). This IBA is a stronghold for Sharpe's Longclaw (*Macronyx sharpie*) a Globally Threatened Kenyan endemic bird species (BirdLife 2000). Main threats to this species include, habitat loss, as the grassland continue to be converted to agricultural land. Dairy farming is the most compatible land use with Sharpe's Longclaw conservation (Muchai *et. al.* 1997).

Figure 5: Map of Kinangop Grassland Important Bird Area



Objectives:

This detailed monitoring scheme seeks to answer the following questions: 1) How is the distribution of the species? 2) **How** are their populations **changing** over time? and 3) **How** is their **habitat changing** over time?

The design

The IBA is subdivided into four monitoring blocks, each with a total of forty sampling plots: High Quality, Poor Quality and Cultivated in the ratio of 20:10:10 respectively. Habitat quality is judged according to grass height and tussock density (Muchai *et. al.* 1997). A team of 4-12 observers walking c. 10m apart in a straight line across grassland plots flush birds from the grass. If members are few a rope is held between them to aid in flushing any hiding or feeding birds. Laminated photos of various habitat categories are carried to the field.

Data is collected by four sub-groups of Friends of Kinangop Plateau at each monitoring block i.e. Murungaru, Engeneer, Njabini & Magumu/Nyakio which spread across the entire plateau. All groups conduct monitoring simultaneously twice a year during dry (February) and wet (August) seasons. A monitoring sub-committee co-ordinates activities

and data flow to NK/NMK for storage and analysis. Follow-up and refresher training continues to be conducted for SSGs to ensure that they are familiar with the concepts and skills. This will boost their confidence and ensure that quality and consistent data is collected.

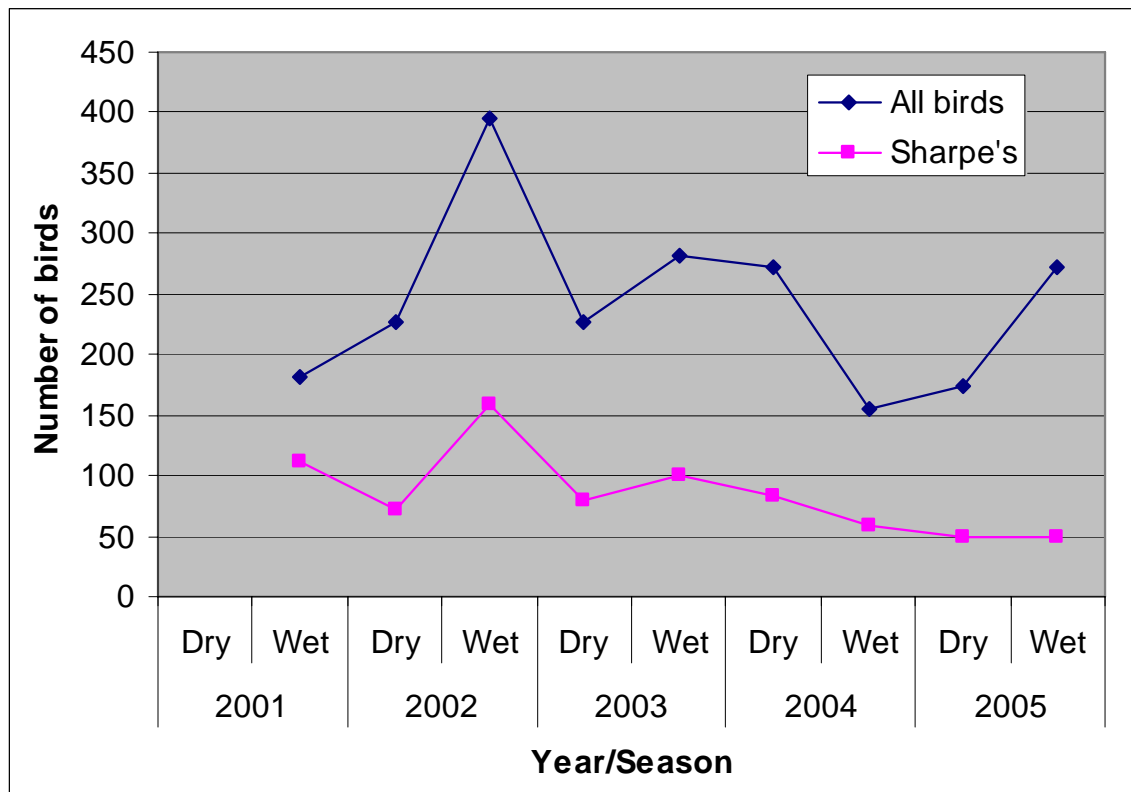
We analysed data for Murungaru sub-site where monitoring has been going on longer than the other sites.

Results:

Overall Sharpe’s Longclaw population in Murungaru is declining, 50% decline in five years. The birds seem to be more abundant in wet than the dry season, although this pattern has not been consistent since 2004. All birds combined showed no consistent pattern of increase or decline.

Results for basic monitoring in Kinangop indicated a Large Decline in State and increased Pressure although conservation interventions were on the increase. This has been reflected in the declining population of Sharpe’s Longclaw, perhaps due to the continued conversion of grassland habitats to cultivation. This shows consistency and complementarities between Basic and Detailed monitoring. It also implies that as a flagship species, Sharpe’s Longclaw is an appropriate indicator for habitat change in this site.

Figure 6: Trends in Sharpe’s Longclaw & Other Birds population at Murungaru sub-site of Kinangop Plateau



Discussion

Our experience indicate that making monitoring relevant to the needs of the partner institutions is key to achieving institutionalization. Also, involving local communities can be a cost-effective and sustainable way of collecting long term simple and robust data for monitoring species and habitats while strengthening partnerships between government agencies and communities. In the sites where detailed monitoring is ongoing immense conservation awareness has been raised to the wider community as a result.

The annual Status and Trends reports is a useful tool in identifying and communicates threats at site levels, provides recommendations for highest priority conservation action, identify institutional constraints and justifies resource allocation/mobilization. Specific recommendations provided in these reports can be used to inform site management planning processes, conservation action and identifying research and funding priorities. Results of both basic and detailed monitoring form part of national reporting to the Convention on Biological Diversity (CBD) through the national focal point NEMA.

As a result of the emerging declines in Sharpe's Longcalw population, a 90 Acre land has been purchased as a trial sanctuary for the species. Wool spinning activities have also been initiated in Kinangop to help promote sheep and cattle keeping instead of cultivation. In other IBA sites nature based enterprises such as bee keeping, butterfly farming and tree nurseries are being supported through various donors in order to enhance conservation of the sites while motivating the community conservation (Site Support Groups) conducting detailed monitoring.

However there have been conceptual issues for the monitoring scheme with some stakeholders agencies perceiving the exercise as extra work load. This in a way made institutionalisation of the monitoring scheme a slow process. Other challenges have been inconsistencies and gaps in data especially detailed monitoring largely due to high turn over of group members and also government staff at sites.

Overall immense capacity is built by participating in monitoring and the results will be very useful tools in gauging the health of our rich biodiversity sites.

Acknowledgements:

We thank the Darwin Initiative of the UK government for generously supporting this monitoring scheme. Our international collaborators Royal Society for the Protection of Birds (BirdLife International in the UK) and the BirdLife International Secretariat facilitated the initiation of programme in Kenya as a model for Africa countries. This project could not have been successful without the support of government institutions that manage various IBA sites namely; National Museums of Kenya, Kenya Wildlife Service (KWS), Forest Department (FD) and National Environment Management Authority (NEMA). The enthusiasm of Site Support Group members, especially the Friends of Kinangop Plateau whose data is presented in this paper has been a great encouragement.

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