Research & Monitoring by A Rocha Kenya
Activity Report for 2007

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Introduction

A Rocha Kenya (ARK) carried out research and monitoring activities around the Watamu / Malindi area during 2007 with a particular focus on the Arabuko-Sokoke Forest (ASF) but including the breeding colony of terns on Whale Island in Watamu Marine National Park, organising the local section of the National Waterfowl Counts under the National Museums of Kenya, and bird ringing in various sites under the auspices of the Ringing Scheme of eastern Africa. In Arabuko-Sokoke, these focussed on ornithological field work related to the unique and ecologically significant avifauna of the forest. In addition to regular Common Bird surveys, specific studies of the Spotted Ground Thrush *Zoothera guttata*, East Coast Akalat *Sheppardia gunningi*, and Amani Sunbird *Anthreptes pallidigaster* were conducted. Surveys were also conducted in the Dakatcha Woodlands Important Bird Area for the Endangered Clarke's Weaver *Ploceus golandi.* In 2007 ARK also collaborated with the Friends of Arabuko-Sokoke Forest with design surveys on the occurrence of snaring in the forest. Furthermore, on the A Rocha Kenya property, Mwamba Field Study Centre (plot 28), butterfly surveys were continued and a list produced.

With regard to the conservation impact of the A Rocha Kenya community conservation programme, ASSETS, an in-depth study was carried out with the communities participating with the programme to assess its effect on the conservation of Arabuko-Sokoke Forest.

Projects

Spotted Ground Thrush

In 2007 & 2008 ARK is undertaking a thorough survey of Arabuko-Sokoke Forest for the Globally Endangered Spotted Ground Thrush *Zoothera guttata*, an Afro-tropical migrant from southern Tanzania. The forest is a major site for the thrush on its non-breeding grounds in Kenya but little data has been collected as to its current status and distribution in the forest. This project aims to provide such information and to contribute to the conservation of this enigmatic species.

Point count transect surveys are being used to estimate the status and distribution of this low-density species in the forest. Habitat type and quality, cover, and human disturbance are also being measured. All field work for this project is intended to be completed by the end of December 2008 and is being carried out with funding from CEPF through Nature*Kenya*.

As of the end of November 2007 when the birds had left for their breeding grounds, thirteen 2-km long transects had been completed by Baya Albert, A Rocha Kenya Research Technician, and David Ngala (Friends of Arabuko-Sokoke Forest). All transects have been within the Mixed Forest habitat type which is the preferred habitat for the thrush. The surveys will start again in mid-April when the birds return.

To date, only two Spotted Ground Thrush have been observed. Both were observed together on 11th September 2007 on the Gede Nature Trail.

The fact that only two Spotted Ground Thrush have been observed thus far lends support to suspicions that the species density in the Arabuko-Sokoke Forest is on the decline.
Analysis of the density of Spotted Ground Thrush and the correlations of habitat type, quality, and common bird species with the occurrence of Spotted Ground Thrush have not been determined yet. Analysis will be performed after the completion of survey field work in December 2008.

East Coast Akalat

The East Coast Akalat *Sheppardia gunningi* occurs in southeastern Kenya, eastern Tanzania, northern Malawi and Mozambique. The small forested areas that it occupies are threatened by habitat fragmentation and deterioration, and the population is thought to be declining. As a result of these threats, the East Coast Akalat is classed as Vulnerable (BirdLife International 2006, IUCN 2006). Arabuko-Sokoke Forest is its global stronghold where the densities of birds are thought to be highest making ASF critically important for the survival of the species.

East Coast Akalats prefer areas where undergrowth is partially open with large amounts of dead wood and is found in areas with a high abundance of ground-dwelling arthropods (Nemeth & Bennun 2000). Because of its dependence on the structure of the forest and insects for food, ARK has chosen the East Coast Akalat as an indicator species for monitoring the effectiveness of the Arabuko-Sokoke Schools and Eco-Tourism Scheme (ASSETS) in the Cynometra and Mixed forest habitat of Arabuko-Sokoke. If, over time, the ASSETS programme is effective in conserving the habitat structure and biodiversity of the forest, the population and density of the East Coast Akalat should reflect this by increasing or, at the very least, remaining stable. Monitoring of the akalat will need to be repeated on an annual basis for many years in order to determine long term trends.

Point count transect surveys using call playback are used to estimate the population density in the forest. Field work comprising eleven transect surveys (105 points) for the East Coast Akalat was completed in 2007 and early 2008 by A Rocha Kenya Research Assistant Baya Albert and volunteer Dave Bruinsma. A total of 130 East Coat Akalats were observed from the survey points and an additional 6 incidental observations along the transects between points.

Transect locations were chosen so as to repeat nine of the ten transects surveyed by the Arabuko-Sokoke Forest Guides Association (ASFGA) in 2005. This will provide a better baseline to compare with the new data. However, in order to be effective for ASSETS monitoring, two additional transects were surveyed, located near ASSETS school locations for which there were no ASFGA transects in proximity.

Analysis of the density of the East Coast Akalat within the Arabuko-Sokoke Forest and its correlation to common bird species will be conducted in February 2008 and a full report written. In order to serve as a long-term ASSETS monitoring indicator species, East Coast Akalat surveys and analysis will need to be repeated on an annual basis.

Amani Sunbird

The Amani Sunbird *Anthreptes pallidigaster* has been shown to be sensitive to habitat changes and to prefer closed canopy (Fanshawe 1995). This species has a small and severely fragmented habitat, and the main stronghold for it is the Arabuko-Sokoke forest. ARK has chosen the Amani Sunbird as an indicator species for monitoring the effectiveness of ASSETS in the Brachystegia habitat of ASF. If, over time, the ASSETS programme is effective in conserving the habitat structure and biodiversity of the forest, the population and density of the Amani Sunbird should reflect this by increasing or, at the very least, remaining stable. Monitoring will need to be repeated on an annual basis for many years in order to determine long term trends.

Distance Sampling surveying for the Amani Sunbird takes place on transects of unequal length in the Brachystegia habitat of the forest. Where possible, transects run perpendicular to the forest boundary, some in close vicinity to primary schools currently involved in ASSETS, and others farther away from such schools. This distribution of transects is done in order to evaluate the impact of ASSETS. Using distance sampling methods, surveyors walk along transects very slowly (1km-1.5 km/hour) and record all observations of the sunbird.

The Amani Sunbird was surveyed by Davis (2005) in 1999, and those results will be used as a baseline for ASSETS. In the survey, a total of 103 birds were recorded over 63.572 km, giving an encounter rate of 1.6 sunbirds/km. With an area of 72 km^2, it was estimated that the Brachystegia habitat holds 2,818 individuals.

An initial survey for Amani Sunbird was conducted by ARK from 21 February to 10 March, 2007. Surveying took place along 10 transects of 1.8-3.5 kilometres in length. 33 Amani Sunbirds were observed. The second year of Amani Sunbird surveys are being carried out in Feb-April 08 conducted. The data from the 2007 field work and current field work will be analysed and the results compared to Davis (2005) and reports submitted to Kenya Wildlife Service, National Museums of Kenya and other partners.

Common Bird Surveys

Point count surveys of common bird species were carried out on a bi-monthly basis in ASF by ARK Research Assistant Baya Albert in 2007. In addition to determining common bird species occurrence and abundance in ASF, annual baseline data of bird density is a useful indicator of over-all ecological health. Occurrence and distribution of common bird species will also be analysed for correlation to the data of the rare species and indicator species also being studied by ARK (Spotted Ground Thrush, East Coast Akalat, and Amani Sunbird) to gain a greater understanding of the these species' distribution and ecological niches.

Counts are conducted on 2km transects at 10 points every 200m. All bird species heard or seen during a ten minute period at each point are recorded and their distance from the point is estimated (as being less than or greater than 25m from the point). There are 12 Common Bird transects throughout the forest, each surveyed twice per year.

Whale Island Tern Colony Monitoring

Counts of breeding terns were carried out on Whale Island in Watamu Marine National Park during the breeding season (July-September) and as many chicks as could be found were caught by hand and ringed. An estimate of 1,350 pairs nested in 2007 and 54 chicks were ringed with both a Ringing Scheme of eastern Africa ring and a large-character ring which can be read with a telescope at a distance for better chance of recovery information.

Mwamba Field Study Centre Butterfly survey

Over the past two years a comprehensive list accompanied by high quality photographs has been produced for the butterfly species found on Mwamba Field Study Centre property in Watamu. A total of 108 species have been recorded from just seven acres of land including some rarer species not expected in such a site.

Dakatcha Woodlands Clarke's Weaver surveys

Clarke's Weaver *Ploceus golandi* is a Globally Threatened species and one that is the only bird endemic to the Kenyan coast – and in fact to just Arabuko-Sokoke Forest and Dakatcha Woodlands to the north of the Sabaki River. However, it remains an enigmatic species with still no confirmed record of a nest or breeding record other than a few observations of adults feeding young.

ARK undertook surveys during the end of 2006 and 2007 to search for breeding Clarke's Weavers in the Marafa region – in the IBA called "Dakatcha Woodlands". Clarke's Weavers were found but no evidence of them breeding was noted – the search continues. Species lists and timed species counts were carried out for all other species on the counts, and also random transects doing rapid assessment of tree cutting were done. The data are currently being analysed for writing up.

National Waterfowl Counts – Malindi/Watamu section

These were organised and carried out on the usual sites that have now been covered since 1998. These include Malindi Harbour, Mida Creek, Sabaki River Mouth, Lake Chemchem, Lake Jilore, Mombasa Salt Works and the small seasonal pools near Sabaki. In 2007 a mid-night estimation of roosting terns at Sabaki River Mouth was also done giving an estimate of 45,000 birds roosting there after dark. The Tana River Delta was also covered for the second year running and had huge numbers of birds recorded at this extremely rich and important wetland site. A total for the whole count of 78,509 birds of 86 species were counted by 12 volunteers. Support was received from Turtle Bay Beach Club who provided transport for the counters.

Assessment of the effectiveness of ASSETS on community attitude towards forest conservation

From July to November surveys using carefully constructed questionnaires were carried out with community members adjacent to Arabuko-Sokoke Forest with particular reference to the Arabuko-Sokoke Forest Schools and Eco-Tourism Scheme (ASSETS). The output which was for a Masters degree, was very useful and interesting showing overall that ASSETS is indeed having a strong positive influence on the thinking and attitudes of those who benefit from it. A number of

recommendations were also made which are being followed up on. In 2008 239 children are being taken on for being awarded bursaries. A full report is being completed and will be posted on the website www.assets-kenya.org.

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