

# Surveys of the Amani Sunbird in Arabuko-Sokoke Forest, 2007-2011

**A Conservation Research Report**

by  
**A Rocha Kenya**

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## **Introduction**

The Amani Sunbird *Anthreptes pallidigaster* is used as an indicator for the general condition of the Brachystegia habitat of Arabuko-Sokoke Forest. It is chosen as an indicator species because it 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 global stronghold for it is Arabuko-Sokoke. As its habitat is under major pressure and deterioration, the Amani Sunbird is classed as Globally Threatened (BirdLife International 2006, IUCN 2006).

Surveying for the Amani Sunbird takes place on transects of unequal length in the Brachystegia woodland of the forest. Where possible, transects run perpendicular to the forest boundary, some in close vicinity to primary schools currently involved in the Arabuko-Sokoke Schools & Eco-Tourism Scheme (ASSETS), and others farther away from such schools. This distribution of transects is done in order to evaluate the impact of ASSETS.

ASSETS is a community conservation project run by A Rocha Kenya whereby benefits from eco-tourism are channelled to community members around the forest and Mida Creek in the form of bursaries for secondary school with the understanding that in return they will not cut trees or poach wildlife in the forest. The assumption is therefore that if ASSETS is having a positive conservation effect, there should be less forest disturbance / destruction and consequently a healthier biodiversity in the vicinity of ASSETS schools where the families are benefiting from the scheme.

## **Methodology**

Using distance sampling methods, surveyors walk along transects very slowly (1km-1.5 km/hour) and recording sightings of Amani Sunbirds, which are sometimes found in mixed species flocks with Little Yellow Flycatcher, Black-headed Apalis, Pale Batis, Collared Sunbird and Plain-backed Sunbird. When an Amani Sunbird is detected, surveyors measure the perpendicular distance of each bird from the path. Distance sampling is based on how detectable an object is in a given area, and can be used to estimate the density of objects in an area, based on distances that are measured in the field from detected objects.

The Amani Sunbird was first surveyed by Davis (2005) in 1999, and those results will be used as a baseline for these subsequent surveys. In his 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<sup>2</sup>, it was estimated that the Brachystegia habitat holds 2,818 individuals.

In this study, Distance Sampling surveys of the Amani Sunbird were conducted in 2007-2011. Surveying took place along 10-12 transects of 1.8-3.5 kilometres in length for the years 2007-09 and 21 transects in 2011. Transects were carried out between 7:00-10:00 am, walking at a speed of 1-1.5 km/hour.

## **Results & Discussion**

In the years 2007-2009, a total of 22.62-25kms were surveyed with numbers of Amani Sunbirds detected being 33, 46, and 51 (Table 1, Fig 1.). This gives a variation in encounter rate of 1.45-2.04 sunbirds per km. In 2011, greater effort was put to make sure a larger sample size of sunbirds was collected. Thus 36.6kms were covered and 75 Amani Sunbirds recorded.

The encounter rate for 2007 is 9.4% lower than Davis' results suggesting a slight decline in the species abundance but for subsequent years the number averages at almost 30% greater than his (Table 1.). However the sample size for 2001-2009 is significantly smaller than Davis' work and one needs to be careful in making a direct comparison. Data collected in 2011 are in the order of magnitude that will allow a full analysis by using Distance, the program created to manipulate data generated from the Distance Sampling methodology used in this study. This analysis is on-going and a full report will be written in due course.

Overall, whilst it would appear that there has been an overall increase in the abundance of the Amani Sunbird in Arabuko-Sokoke Forest, further analysis is needed of the data. More importantly, as has been achieved in 2011, the effort should be increased for future surveys to ensure that sufficient observations are made of the sunbird to allow for a more significant result using Distance.

<b>Amani Sunbird Survey - results</b>					
	<b>Davis 1995</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2011</b>
Transect length (km)	63.57	22.62	21.77	25	36.6
Total birds recorded	103	33	46	51	75
Encounter rate (sunbirds/km)	1.6	1.45	2.1	2.04	2.05
% difference to 1995 baseline	0	-9.4%	31.3%	27.5%	27.5%
Estimated density (sunbirds/km <sup>2</sup> )	36.6				
Estimated number of birds in ASF	2,818				

Table 1.

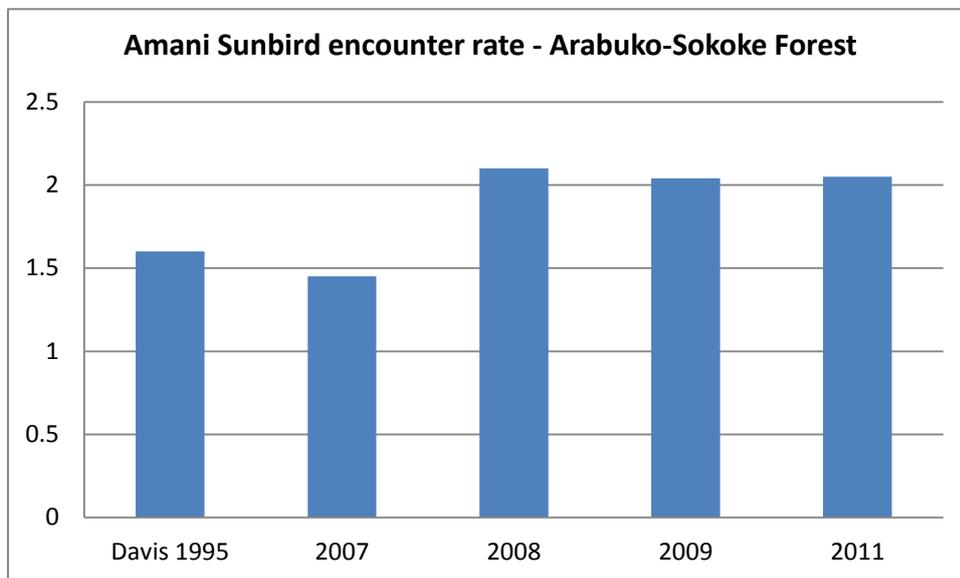


Figure 1.

## References

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