

# Notes on distribution and behaviour of the Rufous-winged Sunbird *Cinnyris rufipennis*

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## Summary

Rufous-winged Sunbird *Cinnyris rufipennis* is known only from Udzungwa Mountains in central Tanzania where it occurs in nine montane forests. Based on field surveys between 2011 and 2014, supplemented by observations made by all authors since the early 1990s, we provide a map showing its distribution and relative abundance. We estimate the size of the core areas where Rufous-winged Sunbird is common to c. 120 km<sup>2</sup> and the total range to about 200 km<sup>2</sup>. We also provide data that suggests that breeding takes place during the rainy season from November to February with the breeding area usually centred on a forest glade or tree-fall gap. Finally, we describe observations of presumed lekking courtship display with up to three males assembling in a clearing and excitedly hopping from branch to branch, singing aggressively at each other with a single female observing.

## Introduction

The Rufous-winged Sunbird *Cinnyris rufipennis* is endemic to the Udzungwa Mountains in Tanzania where it occurs in montane forest habitats in a restricted number of forests. Here we provide new information on its distribution and relative abundance. We also document new observations of its breeding and territorial behaviour including presumed lekking courtship display.

## Materials and methods

Observations were collected during field surveys in Udzungwa forests between 2011 and 2014 by FPJ and EAM. This includes visits to northern Mwanihana forest (13 days) in February 2011, northern Uzungwa Scarp forest (4 days with DCM) and Ndundulu-Luhombero forests (4 days) in February 2012, northern Uzungwa Scarp forest (13 days) in February 2013, Iyondo forest (10 days) in September 2013, Ndundulu-Luhombero (5 days) and Ukami forests (2 days) in November 2014. These distributional data and evaluations of relative abundance are supplemented by observations made by all authors since the early 1990s.

Species presence, relative abundance, behaviour and habitat were recorded during walks along forest paths. At a majority of localities observations were supplemented with mist netting and occasional play-back of calls and song were used to help locate this species.

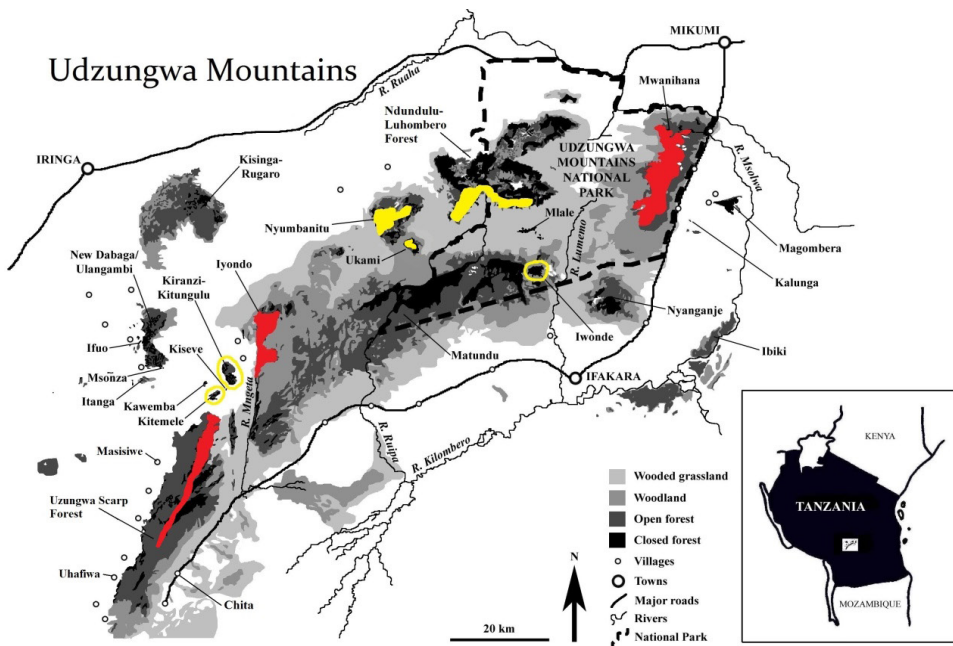
## Results and discussion

### *Distribution*

Forest cover on the Udzungwa Mountains is discontinuous with larger forest tracts

separated by woodland and grassland (Fig. 1). Rufous-winged Sunbird is known to occur in nine of these forest tracts: Mwanihana, Ndundulu-Luhombero, Nyumbanitu, Ukami, Iyondo, Kitemele, Kiranzi-Kitungulu, Iwonde and the Uzungwa Scarp forest (Dinesen *et al.* 2001, Butynski & Ehardt 2003).

Prime habitat seems to be tall, undisturbed montane forest. It breeds in tree-fall gaps and other natural forest openings, mainly between 1300 and 1700m altitude. It forages at flowering plants from forest understory to the canopy, and in glades and tree-fall gaps depending on the season and species of plant in flower.



**Figure 1.** World distribution of Rufous-winged Sunbird. Core areas are marked with red. Areas where it appears to be rare or seasonal are marked with yellow, and forests where it has been recorded too few times to assign a status are outlined with yellow circles. Note that Matundu and Nyang’anje are lowland forests. (Map based on Landsat imagery from Marshall *et al.* 2009).

The breeding range is likely to include Mwanihana, Ndundulu-Luhombero, Nyumbanitu, Ukami, Iyondo and northern Uzungwa Scarp forest. Outside the breeding season in March to September, Rufous-winged sunbirds wander extensively in search of food resources. Observations from Mwanihana Forest down to 600 m in July–August indicate seasonal elevational movement during colder and dryer months, and they are seasonally absent from some higher areas in cold months. In the non-breeding season they have been recorded at low densities in Kitemela and Kiranzi-Kitungulu where they must cross relatively open habitats to reach those forest islands (DCM pers. obs.).

#### *Relative abundance*

Rufous-winged Sunbird is generally common in parts of the Uzungwa Scarp forest,

Iyondo and Mwanihana forests. Populations in these core areas (Fig. 1) represent the bulk of this species' numbers. Despite extensive field work near Uhafiwa and Chita in the southern Uzungwa Scarp forest, the species has only been recorded once, in 2012. However, these two field sites were visited seasonally and are at the lower altitudinal limit of the species' typical distribution. The records from September 2012 were made in an extensive area of suitable breeding habitat on the ridge between the field sites that were not a focus of past fieldwork carried out in the area (EAM pers. obs.).

Most of the Ndundulu-Luhombero and Nyumbanitu forests are at higher altitude than the species' normal range. However, even between 1350 and 1600 m in that area, Rufous-winged Sunbird appears to be a low density species (Dinesen *et al.* 1993, 2001). In Nyumbanitu forest it was very rare between 1450 and 1500 m (Dinesen *et al.* 2001).

In late December 1994–January 1995, Rufous-winged Sunbirds were regularly observed in Ukami forest where it was assessed to be fairly common (Dinesen *et al.* 2001). But subsequently it was not recorded during two-day surveys in September 2007 (TJ) and November 2015 (FPJ).

In Kitemele, Kiranzi-Kitungulu and Iwonde it has been recorded too few times to assign a status.

#### *Range size*

A range size estimate for Rufous-winged Sunbird was derived from estimates of the closed-canopy forest area in the Uzungwas by Marshall *et al.* (2009). The extent of potential habitat between 1300 and 1700 m was measured using Google Earth Pro. The size of the three core areas (Uzungwa Scarp forest, Iyondo and Mwanihana forests) where the species is common is *ca.* 120 km<sup>2</sup>. The area of forests where it is less common/rare/seasonal (Ndundulu-Luhombero, Nyumbanitu and Ukami forests) is *c.* 70 km<sup>2</sup>. The remaining forest patches where the species has been recorded form less than 10 km<sup>2</sup> in total. Thus, the known total range of the Rufous-winged Sunbird is about 200 km<sup>2</sup>. This may be underestimated by up to 30% as these measurements do not take into account the very steep slopes that are a conspicuous feature of most Uzungwa montane forests (Jones 2013).

#### *Courtship display*

In mid-September 2013 observations were made in Iyondo Forest at 1500 m of presumed lekking behaviour similar to the courtship display of Blue-throated Brown Sunbird *Cyanomitra cyanolaema* and Olive Sunbird *Cyanomitra olivacea* (Brosset & Erard 1986, Fry & Keith 2000). Up to three males were repeatedly observed assembling in a clearing in a small open part of the forest with leafless branches and twigs at low height (3–5 m). Here the males hopped excitedly from branch to branch singing aggressively at each other at close range (Fig. 2). A single female was also observed visiting the assembly but it did not participate. After a few minutes of intense singing the males left, but returned to the same site after two to four h for another singing contest.

A few days later a similar behaviour was observed on a mountain ridge at 1850 m altitude in Iyondo Forest. Here two males participated in aggressive singing at *c.* 4 m height in a small tree with open branches and with a single female observing.

#### *Breeding and territorial behaviour*

Breeding was recorded during the rainy season from November to February. An active

nest was found near Kihanga Stream in the Uzungwa Scarp forest in November (EAM pers. obs.) and a female was observed feeding a juvenile in Ndundulu-Luhombero Forest in January (Dinesen *et al.* 1993).

In January–February 2012 pairs were observed aggressively defending clumps of flowering plants against other Rufous-winged, Olive, and Collared sunbirds. The areas defended were usually centered on a forest glade or tree-fall gap and probably contained breeding territories. At one such site at 1700 m in the northernmost part of Uzungwa Scarp forest, a pair of Rufous-winged sunbirds with two juveniles were observed over a two-day period. The forest glade was about 1000 m<sup>2</sup> and was mostly overgrown with dense 2–3 m *Psychotria* sp.



**Figure 2.** Three male Rufous-winged Sunbirds during courtship display in Iyondo Forest, Udzungwa Mountains, September 2013 (photo: Rasmus Gren Havmøller).

## Conclusions

Our records extend the known range of this Udzungwa endemic to include a larger area in Uzungwa Scarp forest and highlight the importance of this forest as well as Iyondo forest as two of the core areas for the species.

Among the core areas Mwanihana Forest is inside the relatively well protected Udzungwa Mountain National Park while Uzungwa Scarp and Iyondo forests are outside the National Park and designated as Forest Reserve and Nature Reserve respectively. These last areas lack law enforcement on the ground (Rovero *et al.* 2015), which has led to an alarming situation with widespread illegal forest destruction and hunting (Rovero *et al.* 2010, pers. obs.). Unless this situation is changed quickly and effective protection is applied in Uzungwa Scarp and Iyondo forests as a matter of urgency by the Tanzanian Government it is feared that the situation could soon become critical for the Rufous-winged Sunbird and the many other Udzungwa endemics which depend on these areas of montane forests.

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