

A survey of the conservation status of Prince Ruspoli's Turaco *Tauraco ruspolii*

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Summary

Prince Ruspoli's Turaco is endemic to Southern Ethiopia. Recent (2001) information suggested that its conservation status is worsening due to hybridization with the White-cheeked turaco *T. leucotis*. In February 2003 a survey was carried out to re-evaluate the current conservation status of this globally-threatened species. Although Prince Ruspoli's Turaco was still relatively widespread within its restricted range, habitat degradation occurred at an alarming rate between 1995 and 2003. Agricultural expansion was the main problem in the North of the area, while excessive grazing pressure and fires were more important in the South. Illegal felling of forest trees was widespread, especially near the largest human settlements. White-cheeked Turaco seems to have expanded its habitat between 1995 and 2003, encroaching into that of Prince Ruspoli's Turaco and hybrids of the two species were observed in edge habitats. Conservation measures must urgently be implemented in the region.

Introduction

Prince Ruspoli's Turaco *Tauraco ruspolii* is endemic to Southern Ethiopia (Borghesio & Massa 2000). Its very small range (less than 8,000 km²) and the difficult access to this remote area contribute to making this species one of the least-known African turacos. In particular, the current conservation status of this globally threatened species is not well known, but likely to be worsening.

Recent field work (Lernould & Seitre 2002) suggested that unexpected factors threaten the species and are in need of evaluation. Photographic evidence from the area of Kibre Mengist, at the western edge of Prince Ruspoli's Turaco range, showed that many turacos in this area were hybrids between *T. ruspolii* and *T. leucotis*. These observations are worrying, as they suggest that the genetic integrity of Prince Ruspoli's Turaco might be threatened by the introgression of genes of another species.

In February, 2003, Al Wabra Wildlife Preservation provided funding to carry out field work to reassess the conservation status of Prince Ruspoli's turaco. This article summarizes the results of the field work. For more detailed information the readers are referred to Borghesio *et al.* (2004a).

Study area and methods

The survey lasted from 12 to 23 February, 2003, and covered various localities within the range of Prince Ruspoli's Turaco (Fig 1). Between 12 and 13 February we visited Negele Borana, in the South-East part of the species' range. Near Negele, Prince Ruspoli's Turaco is known to occur in Mankubsa forest. We also visited Mi-esa, another locality about 30 km West of Negele, where patches of dry forest are also found.

We then proceeded to Genale (13-15 March), another well-known locality of Prince Ruspoli's Turaco (Borghesio 1997b). Here, the habitat is mainly riverine woodland and wide expanses of drier *Acacia* woodland.

Between 15 and 18 February we surveyed the area around Kibre Mengist. Here, wetter climate supports a forest where species such as *Podocarpus gracilior*, *Olea capensis* and *Aningeria adolfi-friedericii* are common. The forest gradually shades into *Acacia-Combretum-Terminalia* woodland. Cultivations are also widespread, as the wetter climate is more favourable to agriculture. Both Prince Ruspoli's and White-cheeked Turaco occur in this area (the former mainly in the woodland, the latter usually in the forest (Borghesio 1997b)).

From 19 to 23 February we visited Arero. The main habitat here is a dry *Juniperus procera-Olea europaea* forest, fringed by *Acacia* woodland.

Each area was searched for the presence of Prince Ruspoli's, White-cheeked and hybrid turacos. Local people were also interviewed in order to acquire information on the ecological problems and possible solutions to them.

Results

Neghele. Prince Ruspoli's Turaco was observed three times in Mankubsa forest, south of Neghele. All the observations were recorded in a small valley with extremely degraded remnants of *Juniperus* forest intermixed with *Acacia-Combretum-Terminalia* woodland.

At Mi-esa, turacos were searched unsuccessfully for one morning, despite the presence of apparently suitable habitat. Local people claimed that *T. ruspolii* was found there at some times of the year.

Forest habitats around Neghele were much degraded due to increasing demand for wood supply in the large town of Neghele, and high grazing pressure of domestic animals (Fig 2). Forest fires are also a major problem. It appears that the pressure on natural habitats is steadily increasing in the area. At both Mankubsa and Mi-esa the forest is criss-crossed by logging tracks. Moreover, a large number of people move on foot each day from the town towards wooded habitats to extract firewood. On the whole, attempts to stem the destruction of natural forest have been largely unsuccessful at Neghele.

Genale. Prince Ruspoli's Turaco was observed twice in this area. The first observation was of four individuals in a group about four km south of Genale town. Additionally, one individual was also recorded in a second area, about 31 km north of Genale River. Both records occurred in *Acacia-Combretum-Terminalia* woodland (Figs 3 and 4)

The general impression at Genale was that, compared with a previous visit in 1995, there had been some increase in cultivation, especially along the river, but further away from it the habitat did not look to have changed much. Good extents of habitat suitable to the species might still be present in the area.

Kibre Mengist. Prince Ruspoli's turaco was observed three times around Kibre Mengist (one individual in cultivated landscape with remnants of *Podocarpus* forest, one at the edge of a *Podocarpus* forest and a mixed group of 5 (three *T. ruspolii* and two *T. leucotis*) in *Acacia-Combretum-Terminalia* woodland (Fig 5). One hybrid *T. ruspolii* x *T. leucotis* was also spotted on 16 February, about 10 km South of Kibre Mengist.

Human activity increased significantly in Kibre Mengist area between 1995 and 2003. There was a general increase in the size of villages and towns, especially near Shakiso (15 km south of Kibre Mengist), where a gold mine attracts large numbers of settlers (Fig 6). Cultivated areas also expanded greatly at the expense of both *Podocarpus* forest and *Acacia-Combretum-Terminalia* woodland. Illegal logging was common in the forest (Fig 7).

Arero. Prince Ruspoli's turaco was recorded ten times at Arero, in groups of up to nine individuals. At Arero, Prince Ruspoli's turaco usually occurred in narrow valleys at the edge of *Juniperus* forest (Fig 8).

At Arero, grazing pressure in 2002 was much higher than in 1995, resulting in a very scarce re-growth of trees. This in turn poses the question of how it will be possible to preserve the forest as it will gradually age in the future. On the positive side, commercial logging was absent in the area, and trees were apparently only felled to satisfy the relatively low demands of the local, nomadic tribes. Agricultural areas are expanding, but only a small fraction of the land is currently under cultivated, as the main activity is still traditional, nomadic cattle- and goat-breeding. There were

traces of fires in many places, but, at least up to now, these seem to have affected only a minor part of the forest.

Discussion

This survey provided important new information, suggesting that the conservation status of the specie is worsening, and might be in need of reconsideration. The following issues seem to be of relevance:

Population trend. The contact rate of Prince Ruspoli's Turaco was very low. The low number of observations might in part be due to the dry conditions during the survey, rather than to population decreases. However, we fear that significant population decreases might have occurred due to habitat degradation. More field work would be needed to quantify this better.

Habitat changes. Compared with 1995 (Borghesio 1997a, b), human pressure and habitat destruction in the area increased substantially. In the northern, more humid region, around Kibre Mengist, agriculture has probably been the major driver of land-use change. Most places formerly covered by natural habitats in 1995 had been replaced by cultivated fields by 2003. In the drier Southern part (Genale, Neghele, Arero), the most noticeable changes were due to excessive grazing pressure of domestic stocks. Moreover, all major urban areas expanded across the survey area. This generated a growing demand for wood products (firewood, building poles, planks etc), which are extracted at an unsustainable rate from natural woodland and forest.

Within Prince Ruspoli's turaco range, forest habitats are highly threatened and have shrunk rapidly during the last few years. On the contrary, *Acacia* woodland, which is the most widespread habitat in the study area (Fig 1), seems to have suffered less dramatic changes, and it is likely that good expanses of this habitat are still present, especially where road access is poor.

The effects of these changes on Prince Ruspoli's Turaco are largely negative. The almost complete destruction of Mankubsa forest (Borghesio *et al.* 2004b) is very likely to cause the disappearance of the species from this area. At Arero, the situation is better, but the low

regeneration rate of forest trees (due to the destruction of tree saplings by grazing animals) will obviously pose a threat to forest persistence in the future. In the North, agricultural intensification is eroding the *Acacia-Combretum-Terminalia* woodland, where Prince Ruspoli's turaco was widespread in 1995 (Borghesio 1997b).

Hybridization with White-cheeked Turaco. One hybrid *T. ruspolii* x *T. leucotis* was observed in Kibre Mengist area. Our data do not allow estimating the proportion of hybrid individuals over the total population, but they confirm that the occurrence of hybrids is widespread and might be a serious threat to Prince Ruspoli's turaco, especially in the northern part of its range.

Possible conservation measures. Given the present rapidly worsening situation, it appears that urgent measures are needed to improve the conservation status of Prince Ruspoli's Turaco. The different socio-economic conditions between the Southern and the Northern part of the study area require that different approaches are taken. In the South, where the main economic activity is nomadic pastoralism, more emphasis should be put on lowering grazing pressure in forest habitats. In the North, attempts should focus on reducing agricultural expansion.

Given the increasing demand for wood products in the area, creating new tree plantations would also seem a high priority, but resources should also be allocated to post-planting management (pruning, watering, thinning etc), and, instead of choosing exotic species, emphasis should be put on reforestation with indigenous trees. These measures are necessary if tree plantations are to be accepted by local people as a source of wood. Consumption of firewood is certainly one of the main causes for habitat destruction in the whole of the survey area. The implementation of conservation strategies in South Ethiopia will be a challenging task, because the present level of human poverty in the area means that any attempt to conserve the environment by applying existing legislation (such as the ban of felling trees within natural forests) will simply fail (how can you fine somebody who has no money to pay?). Moreover, since exploitation of natural resources is presently the only source of income for many people, it is not known how possible (or how moral) it would be to prevent local people from continuing to use wild habitats, even in an unsustainable way.

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Figure 1. Map of the study area; the yellow spots are the currently known presence sites of *Tauraco ruspolii*, and the yellow line bounds its estimated range. The map is based on a LANDSAT satellite infrared image taken in January 2002, which shows forested areas in red and *Acacia* woodland in blue-green. The map shows that *Tauraco ruspolii* is an edge species that selects transitional habitats between forest and woodland

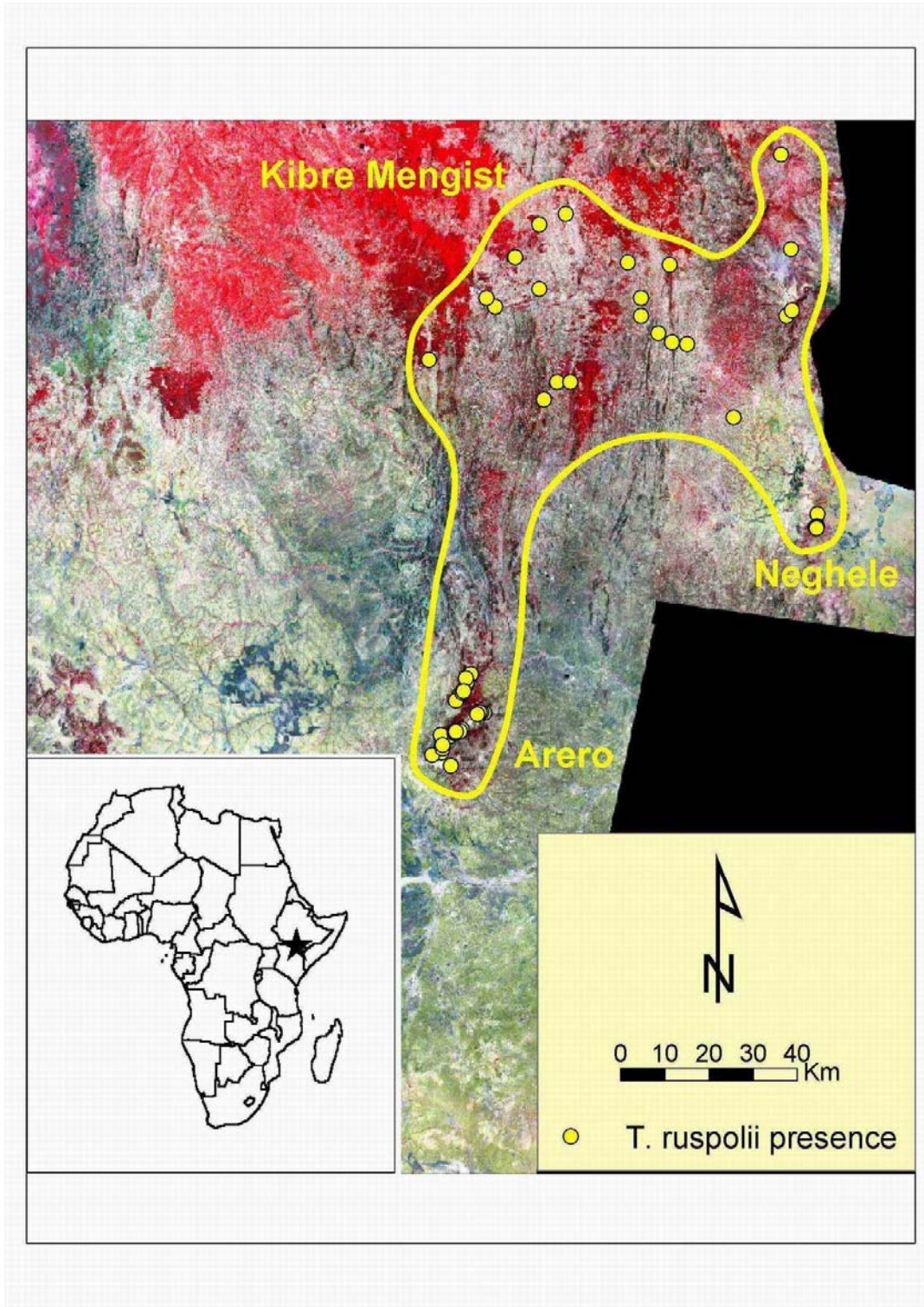




Figure 2. A forest remnant near Neghele, on the south edge of Prince Ruspoli's turaco range. Mankubsa forest was completely destroyed in less than 15 years, and Ruspoli's turaco presence in the area is severely threatened. The species was still observed in February 2003, in isolated tree groves that had been spared by deforestation.



Figure 3. A view of Genale town and the cultivated fields surrounding it. Despite much agricultural intensification between 1995 and 2003, Prince Ruspoli's turaco was still observed here in February 2003, along the narrow valleys that cut the hills, usually near temporary streams bordered by fig trees (*Ficus sycomorus*, *Ficus vasta* etc)

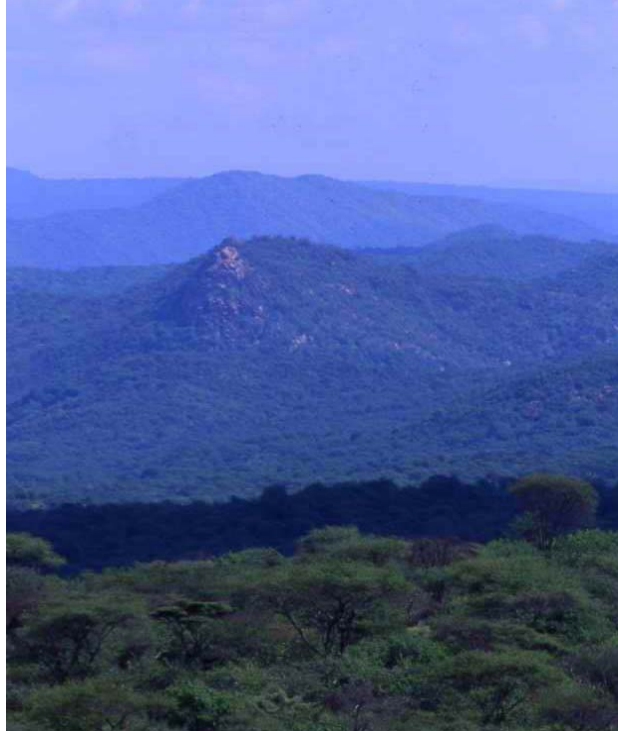


Figure 4. Dense *Acacia-Combretum-Terminalia* woodland around Genale, in the north-east part of *T. ruspolii* range. Prince Ruspoli's turaco occurs in this habitat, usually along streams where figs and other fruiting trees are abundant



Figure 5. A view taken just south of Kibre Mengist, in the north-western part of Prince Ruspoli's turaco range. This is a transitional habitat between *Juniperus-Podocarpus* forest and *Combretum-Terminalia* woodland; pastures and small cultivated fields are common. Prince Ruspoli's turaco can be common in this habitat (up to 10-20 individuals were seen in one day in 1995), but habitat changes are occurring fast and they seem to favor White-cheeked turaco (*T. leucotis*) over Ruspoli's. In the last years a marked expansion of *T. leucotis* has been observed at the expense of *T. ruspolii*, which raises much concern for the future of the species.



Figure 6. Gold mines are common around Shakiso area, in the north-western sector of *T. ruspolii*'s range. The gold rush has attracted people from all of Ethiopia and human population is steadily growing. Gold mining activities are damaging forest cover and stream vegetation, with unknown effects on the local fauna.



Figure 7. A severely disturbed forest south of Kibre Mengist. Pitsawing is frequent in these forests, which are being destroyed very rapidly.



Figure 8. Arero forest, in the south-western part of Prince Ruspoli's range, is the best known presence area for the species. Here, *T. ruspolii* is still abundant, and usually occurs along forest edges or in the glades. During the dry season, water sources are a good place to see it. Arero forest is a protected area, but enforcement of environmental conservation laws is still insufficient. Satellite images show that the forest decreased by 10% in the last 15 years, and rumors came that recent droughts attracted people from far away in the country in 2004 and 2005, thus further increasing the pressure on the forest habitat.



Figure 9. Group photo of the survey team, Arero forest, February 2003