

# The avifauna and forest vegetation of Mt. Mabu, northern Mozambique, with notes on mammals

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## Summary

Mount Mabu in northern Mozambique (peak at 1710 m) lies a short distance east of the taller Mt Chipirone (2054 m), and about 90 km SE of Mt Mulanje (3002 m) in adjacent Malawi. It is clothed in an extensive undulating mantle of forest from an altitude of about 950–1000 to 1600–1650 m, estimated to cover some 60–70 km<sup>2</sup>, making it the largest mid-altitude forest in Mozambique. The lower slopes are covered in transition woodland, riparian forest (down to at least 300 m), cultivation and neglected tea plantations. The latter have developed into tea forest, overtopped by *Albizia adianthifolia* and other indigenous trees. A multi-disciplinary survey of the main forest and foothills took place from 10–30 October 2008, and follows a short visit by Claire Spottiswoode and colleagues in December 2005 (Spottiswoode *et al.* 2008).

The limit between mid-altitude and Afromontane forest is clearly around 1350–1400 m, as shown by a sudden change in tree and bird species composition. With increasing altitude, the canopy height also decreases from about 40–45 m to nearer 25–30 m. Some large trees occur throughout (e.g. *Chrysophyllum gorungosanum*, *Cryptocarya liebertiana*, *Drypetes gerrardii*, *Parinari excelsa*, *Polyscias fulva* and especially *Strombosia scheffleri*, the most common species), while *Newtonia buchananii* drops out just above 1400 m, *Albizia adianthifolia* drops out just above 1350 m (to be replaced higher by *A. gummifera*), and *Olea capensis* appears at 1350–1400 m to become one of the most frequent canopy trees or emergents above 1400 m. *Podocarpus latifolius* is rare from around 1400 m, but *Pittosporum viridiflorum*, *Prunus africana* and *Rapanea melanophloeos* are quite common at the upper edges. An interesting Eastern endemic, *Maranthes goetzeniana*, a large 40 m tall tree, occurs fairly commonly from 1000–1400 m. It is unknown from adjacent Malawi.

Some 120 bird species were recorded in 2008, and the total list is 127 species, including 18 Afromontane (near-)endemic birds. Some of these occur only above 1350–1400 m altitude (e.g. Rameron Pigeon, Bar-tailed Trogon, Starred and Swynnerton's Robins, Namuli Apalis, Dapple-throat and Cape Batis). To the two Red Listed species discovered by Spottiswoode in 2005, another five can be added, the seven being: Southern Banded Snake Eagle *Circaetus fasciolatus* (Near Threatened, Eastern endemic for which Mabu represents a small range extension) occurs in small numbers and mainly below 1000 m; Spotted Ground Thrush *Zoothera guttata* (Endangered, Mabu being only the second likely breeding location in Mozambique after Namuli) is apparently rare; Cholo Alethe *Alethe choloensis* (Endangered) is common, especially above 1200 m and the population of over 1000 pairs makes Mabu, with Mulanje, one of the two most important areas for the conservation of the species; Gunning's Akalat *Sheppardia gunningi* (Near Threatened) is an Eastern endemic with an important population from 400–1350 m, although a proportion is to be found surprisingly in the tea forest and will disappear if the tea farms are reopened; Swynnerton's Robin *Swynnertonia swynnertoni* (Vulnerable) occurs not uncommonly above 1350 m, and this population partly bridges the gap between those of E Zimbabwe/S Mozambique and central Tanzania; Namuli Apalis *Apalis (thoracica) lynesii* (Near Threatened) thought to be endemic to Namuli (where it is very common) is rare and found only above 1400 m, but this discovery suggests the species may also be present on other adjacent mountains; Dapple-throat *Modulatrix orostruthus* (Vulnerable), for which Mabu represents a small range extension to the south-west (from Namuli), is rare and found only above 1400 m. Finally, the population of Green Barbet *Stactolaema olivacea* was identified as belonging to the distinctive race *belcheri*, which has recently become extinct on Thyolo Mountain through forest clearance, and is otherwise known only from Namuli (where it is few in numbers). The bird is common over a wide altitudinal range and Mabu forest holds by far the most important population. Other species of interest are Bronze-naped Pigeon *Columba delegorguei* and Grey Cuckoo-shrike *Coracina caesia*, known otherwise in the region only from Thyolo forest in Malawi (where now extinct or nearly so) and Mt Chipirone. Green Twinspots *Mandingoa nitidula* occur at high densities, up to at least 1550 m.

Among the mammals noted, primates are present in healthy numbers (Blue Monkey

*Cercopithecus albogularis*, Grant's Bush Baby *Galagoides (zanzibaricus) granti*), but antelopes (Blue Duiker *Cephalophus monticola*, Bushbuck *Tragelaphus scriptus*, etc.) and other ground-feeding species (e.g. hyraxes *Procavia* and *Heterohyrax*) are under heavy pressure from hunters using gin-traps.

## 1. INTRODUCTION

Of the few large massifs to be found in northern Mozambique, Mt Mabu (16°17'56"S, 36°23'44"E) rises to 1710 m, about 70 km ENE of the taller Mt Chipirone (2054 m), and is situated only about 90 km to the SE of Mt Mulanje (3002 m) in adjacent Malawi. The peak consists of a granite dome which, together with a few other granitic formations, rises above an undulating sea of forest, estimated from aerial photographs to cover between 60 and 70 km<sup>2</sup>. Most of the rain forest lies at medium altitudes, mainly between 1000 and 1400 m. There are smaller areas above 1400 m, and the higher levels reached by forest are around 1650 m; the overall forest cover above 1400 m is around 800 ha (J. Bayliss *in litt.*). The foothills are clothed in dense transition woodland and riparian forest, down to at least 300 m except where replaced by cultivation, and there are also several large tea estates in a state of neglect since they were deserted in the early 1980s. Tea has turned into a dense forest 12–14 m tall, usually overtopped by native trees, next to a few neglected *Eucalyptus* and other plantations.

Prior to the survey carried out in October 2008 by a multidisciplinary team of scientists, the birds of Mabu were known only through a brief visit by Claire Spottiswoode and Eric Herrmann on 10–14 December 2005 (Spottiswoode *et al.* 2008), during which some 50 bird species were observed in the low-altitude tea forest as well as in the main forest block up to 1220 m (C. Spottiswoode *in litt.*). From 10–30 October 2008, some 120 species were recorded, and the total bird list is now 126 species. Four nights were spent at the altitude of 550 m by the old tea estate manager's house ("tea house", 10–12 and 29 October) when riparian forest, mixed tea forest and other habitats in the vicinity were explored, and 16 nights in the rain forest, mainly around 1000 m ("main forest camp"), with four nights also at higher levels (near the summit at 1400 m, "summit satellite camp", and 1300 m NW of the main camp, "satellite forest camp"). The annotated bird list is preceded by an account of the main woody vegetation of the rain forest and other habitats, a discussion of the biogeographical and conservation significance of the forest especially as relating to birds, and notes on mammals seen or heard or reported by the local hunters. Plant nomenclature follows the Evergreen Forest Flora of Malawi (White *et al.* 2001) and bird nomenclature the Birds of Malawi (Dowsett-Lemaire & Dowsett 2006).

## 2. HABITAT CLASSIFICATION AND FLORISTIC DESCRIPTION (FD-L)

The following categories of forest can be recognized: lowland riparian rain forest (visited from 400–900 m), mid-altitude rain forest (980 to 1350–1400 m) and Afromontane rain forest (from 1350–1400 m to 1650 m). Other habitats include extensive transition woodland (400–900 m), mixed *Albizia/Camellia* tea forest (400–600 m), and secondary growth in old cultivation. Just below the peak at 1600–1680 m there is a limited area of montane shrubland; large boulders and rocky slopes are covered by scattered tufts of grass.

**Lowland rain (riparian) forest.** Although not visited at the lower limits of altitude, patches occurring well below the tea house (estimated altitude 300 m) were clearly dominated by *Albizia adianthifolia*, followed by *Macaranga capensis*. A few patches visited in the vicinity of the tea house (16°18'26"S, 36°25'39"E) between 400–500 m had the following large canopy species, the tallest reaching at least 40–50 m: *Albizia adianthifolia* (dominant), *Erythrophleum suaveolens*, *Khaya anthotheca*, *Macaranga capensis*, *Newtonia buchananii*, *Parkia filicoidea*, *Pteleopsis myrtifolia* and *Synsepalum cerasiferum*. Edge or pioneer species include *Bridelia micrantha*, *Harungana madagascariensis*, *Ficus exasperata*, *Ficus sur*, *Trema orientalis* and *Vitex doniana*. Understorey species include *Dracaena mannii* (to about 10 m), *Celtis gomphophylla*, *Clausena anisata*, *Ensete ventricosum* and lianes *Adenia gummifera*, *Dictyophleba lucida*, *Landolphia kirkii*, *Paullinia pinnata* and *Saba comorensis*, etc. There is the occasional strangling fig (*Ficus thonningii*, *sensu* White *et al.* 2001, and FD-L 2505 growing around a broken brick wall).

Much of the secondary growth adjacent to the tea contains exotics (*Grevillea*, *Delonix*, *Eucalyptus*, *Vernicia montana*) mixed with pioneer forest trees such as *Macaranga capensis*; a couple of *Ceiba pentandra* were planted near the tea house. *Ficus sycomorus* was seen in several places below 450 m, usually beside streams, and *Ficus lutea* was apparently planted near some houses (old road between tea house and main forest camp).

Lowland riparian forest examined at 800–900 m altitude near the path to the main forest camp (16°17'15"S, 36°24'39"E) has *Newtonia buchananii* as the principal emergent (*Khaya* is rare, both reach at least 45 m), canopy trees being *Albizia adianthifolia*, *Anthocleista grandiflora*, *Erythrophleum suaveolens*, *Macaranga capensis*, *Parinari excelsa*, *Synsepalum cerasiferum*, *Xylopia aethiopica*, with many *Pteleopsis myrtifolia* and *Vitex doniana* at the edges, and locally *Sapium ellipticum*. A large *Ficus bubu* with typical yellow bark and large figs growing on protuberances on the upper trunk and branches was standing near the main stream, its roots having completely engulfed the support. A 25 m tall *Aporrhiza paniculata* was found at about 800 m. The commonest understorey species are *Craterispermum laurinum* and *Erythroxyllum emarginatum*; others include *Dracaena mannii*, *Oxyanthus speciosus*, *Synsepalum magalismsontanum*, *Tabernaemontana ventricosa*, small trees or saplings of *Cryptocarya liebertiana* (one was flowering at a height of only 10 m and 10 cm DBH at c.900 m), *Cussonia spicata* and *Polyscias fulva* (from 850 m). *Oreobambos* bamboos are fairly common, and locally also the palm *Phoenix reclinata*, which grows much higher in a burnt gully below the peak. Tree ferns *Cyathea thomsonii*§§ occur on the main stream, the large *Marattia fraxinea* is frequent, and the shrub *Carvalhoa campanulata* grows in light gaps. The commonest canopy liana by far is *Millettia lasiantha*, found with various Apocynaceae (*Dictyophleba*, *Landolphia kirkii*, *Saba comorensis*), *Combretum paniculatum*, *Dalbergia lactea* and *Urera trinervis*.

On the path to the main forest at 900 m the forest on the ridge is drier, being dominated by *Syzygium cordatum* and *Xylopia aethiopica*. Close to a dry stream, a count within a radius of about 15 m produced one emergent *Newtonia* (30 m), with other large trees 20–25 m tall being 7 *Xylopia*, 3 *Albizia adianthifolia*, 2 *Syzygium cordatum* and 1 *Macaranga*. The understorey comprised *Craterispermum*, *Erythroxyllum*, *Oxyanthus speciosus*, *Phoenix reclinata*, *Synsepalum magalismsontanum*, *Tabernaemontana ventricosa*, saplings of *Cussonia spicata*, *Macaranga*, *Newtonia*, *Synsepalum cerasiferum*, *Syzygium cordatum* and *Xylopia*. Lianas in this small patch were mainly *Dalbergia lactea*, *Landolphia kirkii* and *Urera trinervis*.

**The tea (*Camellia sinensis*) forest.** Around 400–600 m the old tea plantation has turned into a dense cover of tea trees 12–14 m high with trunks often around 10–15 cm DBH and 2–3 stemmed. These are overtopped by native trees dominated by *Albizia adianthifolia*, locally forming a closed canopy. Other common trees include *Macaranga capensis*. At 500 m, just below the tea house, one large *Albizia* growing over tea measured 1.4 m DBH and was at least 35 m tall; another was strangled by *Ficus thonningii*.

**Transition woodland.** This was not examined in detail, but at the level of the tea house and on the lower sections of the main path to Mt Mabu the woodland is clearly dominated by *Pterocarpus angolensis*; common trees also include *Pteleopsis myrtifolia* and *Vitex doniana*, while *Pericopsis* and *Stereospermum* (conspicuous as in flower) were noted occasionally. This woodland is underlain by a carpet of *Aframomum*; clumps of *Oxytenanthera abyssinica* bamboo often grow at the ecotone between woodland and dry forest or near dry streams. With increasing altitude *Syzygium cordatum* becomes more common, until it is completely dominant above 800 m, forming pure stands (sometimes closed enough to be called forest). *Aframomum* remains common under *Syzygium*, and the number of low-level epiphytes (ferns and orchids, also *Rhipsalis*) at 800–950 m suggests a high level of humidity at most times of the year.

**Mid-altitude rain forest on Mt Mabu.** This occurs between 980–1000 m and 1350–1400 m altitude, as a sudden change in the dominant canopy species occurs around 1350–1400 m. At around 1000 m near the main forest camp (16°17'10"S, 36°24'01"E), tall trees reach an impressive height of 40–45 m and *Strombosia scheffleri* is the commonest species. The biggest in camp was between 45–50 m tall, with a DBH of 90 cm; a *Newtonia* nearer the stream was at least 50 m tall with a DBH of 1.4 m; there was also a very tall *Chrysophyllum gorungosanum* (over 45 m), a *Maranthes goetzeniana* (40 m, 35 cm DBH), a big strangler (*Ficus thonningii*), and in the subcanopy a *Blighia unijugata* (35 m, 33 cm DBH), a *Funtumia africana* (at least 35 m, 44 cm DBH, plus another to 25 m), several *Drypetes*

*gerrardii* reaching 30–35 m (one of 43 cm DBH) and a *Garcinia kingaensis* (22–24 m). *Zanthoxylum gillettii* occurs just above camp. Smaller trees in the understory include *Allophylus* sp., *Canthium* sp., *Oxyanthus speciosus*, *Rawsonia lucida*, *Tabernaemontana ventricosa*, *Vepris nobilis*, small saplings of *Cola greenwayi*, *Drypetes* and *Maranthes*. Canopy lianas are dominated by *Millettia lasiantha*, with *Acacia pentagona*, *Agelaea heterophylla*, *Combretum paniculatum*, *Dictyophleba lucida*, *Landolphia kirkii* and *Oncinotis tenuiloba* being common. Away from the stream gullies the forest canopy is usually closed, except for small gaps caused by tree-falls.

At about 1100 m altitude, beyond the big rocky stream (16°17'05"S, 36°23'44"E) on a gentle slope, the forest is equally impressive with the tallest trees (at least 40 m) including many *Strombosia*. There are also several *Chrysophyllum gorungosanum*, *Maranthes goetzeniana*, *Newtonia*, one or two tall *Cryptocarya liebertiana*, *Trichilia dregeana* and strangling figs (*Ficus sansibarica*), and in the subcanopy *Drypetes gerrardii*, *Garcinia kingaensis* and *Myrianthus holstii*. Smaller trees are *Drypetes natalensis* (also conspicuous along the stream, with arching branches), a small *Pavetta (gurueënsis)*, very common, *Rawsonia lucida*, *Rinorea ferruginea*, *Vepris bachmannii* and *Vincentella muelleri*. Small trees of *Diospyros abyssinica* start appearing just above 1100 as well as a common Apocynaceae (*Carissa bispinosa*). *Haplocoelum foliolosum* is common from at least 1150–1300 m; the first big *Tabernaemontana stapfiana* appear on the ridge at 1200–1250 m and Rubiaceae found at around 1100–1200 m include *Aulacocalyx diervilleoides* and *Tricalysia acocantheroides* (all the way to the top), and *Tricalysia pallens*. A Sapindaceae with 4 pairs of opposite leaflets (a tree 6–8 m, trunk with a knobby base but not fluted as in *Lecaniodiscus*; collected C. de Sousa s.n.) is widespread from 1150–1400 m.

Some wide gullies with permanent streams come down steeply from the 1300 or 1400 m ridges and contain more light-demanding tree species such as many *Albizia adianthifolia*, *Macaranga capensis*, *Newtonia* and *Polyscias fulva* (the latter becoming bigger and more frequent with increasing altitude); also found are *Anthocleista grandiflora*, *Funtumia africana* and medium-sized *Bridelia micrantha*, *Synsepalum magalismontanum*, *Xylopia aethopica* and small *Bersama abyssinica*. Enormous clumps of *Oreobambos buchwaldii* to at least 18–20 m tall are frequent all the way to 1400 m, as big as anything seen in Malawi. Tree ferns *Cyathea* sp. occur along streams to at least 1400 m, *Dracaena fragrans* is common in humid hollows and on some slopes. *Millettia* lianes are common to at least 1400 m, as are *Acacia pentagona*, *Adenia gummifera*, *Agelaea heterophylla*, *Combretum paniculatum*, *Oncinotis tenuiloba* and *Urera trinervis*.

At 1300 m on the way to the forest satellite camp (at 16°17'05"S, 36°23'21"E), a large *Cassia* was seen in flower (?*angolensis*) with an estimated height of 26–28 m and 50 cm DBH. The bark is very dark brown and granulose, and the round crown was in full foliage; leaves consist of about 12–20 strongly emarginate, alternate leaflets (FD-L 2550). Another one was seen near the summit path, and a very big one above the satellite bat camp, at least 40 m tall and 90 cm DBH.

Large strangling figs at 1000–1350 m belong to two species, *Ficus sansibarica* and *Ficus thonningii*; they are replaced by *Ficus scassellatii* at higher elevations.

**Fromontane rain forest on Mt Mabu.** This is found between 1350–1400 m and the upper edges of the forest (1600–1650 m). On the way to the summit satellite camp, there is a sudden change around 1350–1400 m as *Newtonia* drops out above this, *Albizia adianthifolia* is replaced by *A. gummifera* (first *A. gummifera* seen just below 1350 m), and *Olea capensis* becomes a conspicuous tall tree from 1350–1400 m. The ridge just above the summit satellite camp (16°17'31"S, 36°23'34"E) has several big *Newtonia*, *Olea capensis*, *Parinari excelsa* and *Polyscias fulva* (30–35 m tall), with *Aphloia* in light gaps under the *Polyscias*. A count of large trees within a radius of 10 m within the camp saddle produced 2 *Chrysophyllum*, 1 *Newtonia* and 3 *Strombosia* in the canopy; 1 *Cola greenwayi* (20 m), 1 *Craibia brevicaudata* (15 m), 5 *Garcinia*, 1 *Myrianthus holstii*, 2 *Tabernaemontana stapfiana* and 1 *Vepris nobilis* (15 m) in the subcanopy. *Maranthes goetzeniana* and *Zanthoxylum gillettii* occurred just outside the sample. Small trees common at this level are *Alchornea hirtella*, *Aulacocalyx diervilleoides*, *Canthium* sp., *Carissa bispinosa*, *Chassalia parvifolia*, *Clausena anisata*, *Diospyros abyssinica*, *Dovyalis macrocalyx*, *Dracaena laxissima*, *Drypetes natalensis*, *Erythrococca* sp., *Eugenia capensis* (saplings), *Lasianthus kilimandscharicus*, *Maytenus acuminata*, *Mostuea brunonis*, *Pauridiantha paucinervis*, *Pavetta gurueënsis*, *Peddiea africana*, *Psychotria zombamontana*, *Rinorea angustifolia*, *Rytigynia uhligii*, *Tricalysia acocantheroides*, *Vepris bachmanni*, *Vepris nobilis*, *Vincentella muelleri* and a common small *Memecylon/Strychnos* (2–4 m tall, FD-L 2538, round shiny leaves with a strong pair of basal veins but the rest of the venation inconspicuous).

Similarly, in the surroundings of the forest satellite camp (16°17'05"S, 36°23'09"E), forest between 1300–1400 m lies at the limit between mid-altitude and Afromontane. Small *Cassipourea malosana* and the understorey tree *Lasiodiscus usambarensis* appear around 1300 m; *Maytenus acuminata* is common between 1300–1400 m and is fertile when only 1–2 m tall. Tall *Olea capensis* grow on ridges from above 1340–1350 m next to *Chrysophyllum* and *Strombosia*; *Garcinia kingaensis* and *Tabernaemontana stapfiana* are very common in the subcanopy, while *Podocarpus* at just below 1400 m is uncommon and of small size. Degraded forest found around a clearing at 1420 m (16°16'47"S, 36°22'32"E) contained small *Apodytes dimidiata*, *Eugenia capensis*, *Garcinia*, *Nuxia congesta*, *Rapanea melanophloeos*, *Xymalos monospora* and saplings of *Toddalia asiatica*. *Xylopia parviflora* is common in the understorey between 1300–1400 m. Frequent small trees in the understorey also include *Canthium* sp., *Chassalia parvifolia*, *Lasianthus kilimandscharicus* and *Pavetta gurueënsis*, and there are a few clumps of *Mimulopsis solmsii*. Also at around 1350 m, two strangling figs (*F. sansibarica* and *F. scassellatii*) are found almost next to each other. *Anthocleista grandiflora* reaches almost 1400 m in a large clearing.

At the upper edge of forest at 1600 m on the way to the peak, the following trees were noted: *Olea capensis* and *Rapanea* slightly emergent (to 25 m or more), *Aphloia theiformis*, *Bersama abyssinica*, *Cassine aethiopica*, *Cassipourea malosana*, *Cryptocarya liebertiana*, *Faurea racemosa* (of small size, 6–8 m), *Macaranga capensis*, *Nuxia congesta*, *Ochna holstii*, *Pittosporum viridiflorum*, *Podocarpus latifolius* (of small size), *Polyscias fulva*, *Prunus africana* and *Syzygium guineense* subsp. *afromontanum* (bearing a clump of the pink-flowered mistletoe, *Agelanthus zizyphifolius*). *Albizia gummifera* occurs in light gaps inside the forest, and there are several large strangling *Ficus scassellatii* between 1450 and 1600 m. Understorey shrubs and small trees at 1550–1600 m include *Carissa bispinosa*, *Canthium* sp., *Chassalia parvifolia*, *Diospyros abyssinica*, *Diospyros whyteana* (at edges), *Dovyalis macrocalyx*, *Dracaena laxissima*, *Erythroxylum emarginatum*, *Eugenia capensis*, *Lasianthus kilimandscharicus*, *Maytenus acuminata*, *Mostuea brunonis*, *Pavetta gurueënsis*, *Rinorea angustifolia*, *Rytigynia uhligii*, *Tricalysia acokantheroides*, *Memecylon/Strychnos* (2–4 m tall, common, FD-L 2538) and *Vepris nobilis*, while *Vepris amaniensis* was seen in the area below the upper edge. Conspicuous lianas at forest edges and elsewhere include *Rutidea orientalis* and *Schefflera goetzenii*, which are already common around 1400 m, and *Canthium gueinzii*. A climbing *Psychotria* is *P. ealaensis* (also noted at 1400 m).

**Montane shrubland.** Very little time was spent exploring this habitat, which covers a few hectares below and around the peak. *Aeschynomene gazensis* is by far the dominant species, 0.5–2.5 m high, and was reaching the end of its flowering period. *Rapanea* is the most frequent small tree in sheltered situations, next to a few stunted *Syzygium cordatum*; *Tetradenia (Iboza) riparia* also occurs.

### 3. OBSERVATIONS ON FRUITING (FD-L)

One striking feature of the forest at this time of year was the near-absence of figs on large stranglers, which is in contrast to the situation elsewhere, e.g. in Malawi, when October is normally a productive month and large hornbills are breeding (Dowsett-Lemaire & Dowsett 2006). Of the many (more than 30) stranglers examined, only one *Ficus bubu* was in fruit (but immature), one *F. scassellatii* was in unripe fruit and another had ripe figs. Not a single *F. thonningii* nor *F. sansibarica* was fruiting. The ripe figs of *F. scassellatii* were taken by Silvery-cheeked Hornbills and Green Barbets, but observations were of short duration. Bronze-naped Pigeons are also usually fond of figs, unlike Ramerons.

Of other large trees, *Olea capensis* were generally flowering, except for a few trees at the upper edge at 1600 m that were out of phase and fruiting (with attendant Rameron Pigeons, 23 Oct). *Cryptocarya* were also in flower, and *Polyscias* were near the end of the fruiting season (one of the favourite fruits of Ramerons, seen eating them on 22 Oct). *Aphloia* were in young, fully formed fruit (already consumed by Green Barbet, Stripe-cheeked Greenbul, 22 Oct). At the lower altitude of 900 m, several *Xylopia aethiopica* were in ripe fruit, the arils being eaten occasionally by Green Barbet, White-eared Barbet, Golden-rumped Tinkerbird and Little Greenbul. One pair of Green Barbets was breeding there, in a territory including many fruiting *Xylopia*, and the local *Syzygium cordatum* (some flowering) will provide an abundance of fruits for the middle of the rainy season. At 1600 m, a tall *Syzygium guineense* had just finished flowering. The fruiting of *Pittosporum* (common at 1600 m) was

over, with some old capsules still visible on the trees. One big *Ochna holstii* seen at 1600 m had unripe fruit (23 Oct).

Some Apocynaceae climbers were fruiting (especially *Landolphia kirkii*, a mammal-eaten fruit), and *Tabernaemontana stapfiana* were also bearing full-grown fruits in several places. The lianas *Schefflera goetzenii* had unripe fruit (as on Namuli at this time of year) and *Urera trinervis* had ripe fruit. Stripe-cheeked Greenbuls were also seen taking the ripe, orange berries of the climber *Rutidea orientalis*. Several *Garcinia kingaensis* were flowering and forming young fruit (this species does not flower every year). There were many old fruits of *Myrianthus holstii* on the forest floor, and some "flowers" were seen on the trees (maturation is expected in the rains). Some *Drypetes gerrardii* had fully-formed fruits, not yet ripe. The plumed seeds of *Funtumia africana* were flying around in many places in the forest and open pods were seen on trees. Of the smaller understorey species, fruiting is usually spread out, with very few ripe fruits at any time – this was true of species of *Tricalysia* and *Coffea*, and also *Vincentella muelleri* and *Maytenus acuminata*. Others were generally flowering or with flower-buds (*Canthium*, *Carissa*, *Chassalia*, *Erythroxylum*, *Lasianthus*, *Lasiodiscus*, *Pavetta*, *Rinorea* spp., *Tabernaemontana ventricosa*), suggesting that the rains will be a productive time. Their main dispersers appear to be greenbuls of the genus *Andropadus*.

#### 4. BIRD SPECIES OF BIOGEOGRAPHICAL AND CONSERVATION IMPORTANCE

A full annotated list of bird species is presented below. The forest on Mt Mabu is especially important for the following Red Listed species (BirdLife International 2008) and the *belcheri* population of Green Barbet:

Southern Banded Snake Eagle *Circaetus fasciolatus*. **Near Threatened.** Several territorial pairs inhabit lower levels of the forest, including the foothills. It is an Eastern endemic, found mainly in coastal forest and unrecorded from adjacent Malawi, hence its discovery at Mabu represents a small range extension.

Green Barbet *Stactolaema olivacea belcheri*. This barbet is an Eastern endemic with a very patchy distribution on the eastern side of Africa from coastal Kenya to Natal. This well-marked race was until recently thought to be confined to the forests on Thyolo and Namuli Mountains. The former has been eliminated by recent deforestation (Dowsett-Lemaire & Dowsett 2006) and the numbers on Namuli are rather small, at most 30–40 pairs (Dowsett-Lemaire 2008). First discovered on Mabu by C. Spottiswoode in 2005, this barbet occurs over the full altitudinal range of forest, and locally down to 750 m. Thus Mabu harbours the most important population to date, of the order of several hundred pairs (probably over 500 pairs; individual territories often cover about 10 ha).

Spotted Ground Thrush *Zoothera guttata*. **Endangered.** A rare thrush of mid-altitude forest in tropical Africa (i.e. a sub-Afromontane endemic), common only in the temperate forests of eastern South Africa (Chittenden in Hockey *et al.* 2005). It is known to have movements down to the coast in the off-season (although the populations in S Malawi appear to be resident). In Mozambique until recently it was known only from a couple of winter records on the coast (Parker 2005), but was discovered in the breeding season on Namuli (Dowsett-Lemaire 2008). Its numbers on Mabu are probably very low, but the near-absence of song in October means that proper evaluation of densities will have to await further study.

Cholo Alethe *Alethe choloensis*. **Endangered.** Confined to mid-altitude and lower Afromontane forests in SE Malawi and adjacent N Mozambique. Populations in Malawi have decreased due to deforestation (especially bad on Thyolo Mountain, the lower slopes of Mulanje and at Lisau and Soche); they have also decreased on Namuli through the near-eradication of mid-altitude forest. Figures proposed for Namuli by Ryan *et al.* (1999) are far too high as the bird is rare in the cooler forest of Manho, the largest block of forest on Namuli (Dowsett-Lemaire 2008). The species occurs over a wide altitudinal range on Mabu (950–1650 m), but is rather uncommon below 1200 m. Vocal activity in most of October was low owing to the drought, and population estimates are difficult to propose, although the order of magnitude should be around a 1000–1500 pairs. It is possible there are more Alethes on Mabu than on the whole of Mulanje (where the area of suitable forest covers c.5000 ha). In any case Mabu can be considered as extremely important for this species.

Swynnerton's Robin *Swynnertonia swynnertonii*. **Vulnerable**. This Afromontane endemic was known only from the forests of eastern Zimbabwe and adjacent Mozambique (including Gorongosa), and the central highlands of Tanzania (mainly Udzungwa, with few in the East Usambaras). Its discovery on Mabu partly fills the gap between the Zimbabwe/S Mozambique and Tanzanian populations, as Mabu is about 350 km NE of Gorongosa. On Mabu it is confined to the higher-altitude forest above 1340–1400 m and is not uniformly distributed as it favours dense understorey. The area of forest above the contour line of 1400 m is about 800 ha, so the total population may be of the order of 100-200 pairs.

Gunning's Akalat *Sheppardia gunningi*. **Near Threatened**. An Eastern endemic with a patchy distribution from coastal Kenya to coastal Mozambique, and an inland population on the northern lakeshore of Lake Malawi and the eastern scarp of the Viphya Plateau. First discovered on Mabu by C. Spottiswoode in 2005, it is now seen to occur over a wide altitudinal range from 400–1350 m. It is surprising that this species has adapted to pure tea understorey under forest canopy (as has another understorey species, the Blue-mantled Flycatcher *Trochocercus cyanomelas*), and a substantial part of the population will be destroyed if the tea farms are reopened. Large numbers will, however, survive in the natural forest at low and middle levels if it receives adequate protection. The patchy habitat makes density estimates difficult, but there are probably several hundred pairs. In May 2009 L. Fishpool discovered the species on Mt Inago, in forest patches at the altitude of 1050-1450 m. Inago (peak 1961 m) is 45 km to the north-east of Namuli peak and 180 km NE of Mabu. The fairly richly coloured underparts and measurements of the Mabu birds (wing-lengths 71.7 mm, n=4, Appendix 2, compared to 71.3 mm, range 67.5–74.5 mm, n=9, from Malawi; RJD) suggest that these birds are more closely related to the race *bensoni* of the northern Malawi lakeshore than to coastal races, despite the fact that the nearest population to Mabu is situated on the Mozambique coast at c.18°S.

Namuli Apalis *Apalis (thoracica) lynesi*. **Near Threatened**. Until now this form of Bar-throated Apalis was considered endemic to the forests of Mt Namuli, being replaced in SE Malawi by the yellow-bellied form *flavicularis*. Unlike at Namuli where it is very common, it is distinctly rare on Mabu, found only above 1400 m. Two of the three males heard or seen were unmated, which suggests that the population is not thriving. Possibly a warm microclimate combined with a very tall forest canopy are not favourable for this montane species, which prefers short-canopy forest and rich shrubland. The population is certainly small (a few dozen pairs, up to 100?). But the occurrence of this taxon on Mabu means that other high-altitude forests in this part of Mozambique are likely to harbour it, including a couple of high peaks next to Namuli, and the southern section of the Namuli plateau (to the south of the Malema dambo, with many forest patches around 1500 m), and possibly even Mt Chipirone, the upper parts of which remain largely unexplored. It was not, however, discovered on Mt Inago by L. Fishpool in 2009, where the altitude of the main forested area is rather low (below 1500 m).

Dapple-throat *Modulatrix orostruthus*. **Vulnerable**. This Afromontane endemic was thought to reach its southern limit of distribution from the highlands of central Tanzania on Mt Namuli, but its presence on Mabu extends its range by some 160 km to the south-west. Although quite common on Namuli, on Mabu it is rare and highly localized and limited to the Afromontane forest above 1400 m. The species normally favours understorey with a dense layer of saplings under closed canopy; the disturbed canopy in parts of the forest, caused partly by temporary habitations during the civil war, may in part explain its rarity. Only three territorial birds were located (as with the Namuli Apalis), one of which did not even react to tape playback. One bird (paired) which we followed for 3 hours covered an area of at least 5–6 ha. Overall numbers must be low, of a few dozen pairs or up to 100.

Table 1 below shows the known distribution of Afromontane and selected Eastern bird species on the five main massifs of the region, from north to south: Namuli, Mulanje, Thyolo, Mabu and Chipirone. Records from Thyolo in southern Malawi are largely historical, as the forest was almost totally destroyed in the early 2000s. Records from Chipirone are based on Benson (1950) and Spottiswoode *et al.* (2008). The mention of Cabanis's Greenbul (race *placidus*) comes from a specimen duly collected by J. Makawa (R. Dean & R. Prys-Jones *in litt.* 2009) but missed from the 1950 publication. Chorological status follows Dowsett-Lemaire & Dowsett (2006).

**Table 1. Afromontane (near-)endemic and selected Eastern endemic bird species present on Namuli, Mulanje, Thyolo, Mabu and Chiperone Mountains. NF (not forest) after the species name means the habitat consists of grassland, rocks, montane shrubland or forest edges. Other species are found in forest.**

<b>Afromontane species:</b>	<b>Namuli</b>	<b>Mulanje</b>	<b>Thyolo</b>	<b>Mabu</b>	<b>Chiperone</b>
Red-tailed Flufftail (NF)	?	x	-	-	-
Rameron Pigeon	x	x	x	x	x
Cinnamon Dove	x	x	x	x	x
Cape Eagle Owl (NF)	x	x	-	-	-
Scarce Swift	x	x	x	-	-
Bar-tailed Trogon	x	x	x	x	x
Moustached Green Tinkerbird	-	x	-	-	?
Blue Swallow (NF)	-	x	-	-	-
Grey Cuckoo-shrike	-	-	x	x	x
Eastern Mountain Greenbul	x	x	-	-	-
Stripe-cheeked Greenbul	x	x	x	x	x
Cabanis's Greenbul	x	x	x	x	x
Olive Thrush	x	x	x	-	x
Orange Thrush	x	x	x	-	x
Cholo Alethe	x	x	x	x	x
Starred Robin	x	x	x	x	x
Swynnerton's Robin	-	-	-	x	-
Olive-flanked Robin	x	x	-	-	x
Cape Robin (NF)	x	x	-	x	-
Cinnamon Bracken Warbler (NF)	-	x	-	-	-
Evergreen Forest Warbler	x	x	x	-	x
Yellow-throated Warbler	x	x	x	x	x
Wailing Cisticola (NF)	x	x	-	-	-
Bar-throated Apalis	-	x	-	x	-
Namuli Apalis	x	-	-	x	-
Cape (Malawi) Batis	x	x	x	x	x
White-tailed Crested Flycatcher	x	x	x	-	x
Dapple-throat	x	-	-	x	-
Eastern Double-collared Sunbird	x	x	-	-	x
Olive Bush Shrike	-	x	-	-	-
Bertram's Weaver (NF)	x	x	x	x	x
Red-faced Crimsonwing	x	x	x	-	x
Sweet Waxbill (NF)	x	x	x	x	x
African Citril (NF)	x	x	x	-	x
<b>Sub-Afromontane species:</b>					
Spotted Ground Thrush	x	x	x	x	-
<b>Selected Eastern Species:</b>					
S. Banded Snake Eagle	-	-	-	x	-
White-eared Barbet	x	x	x	x	x
Green Barbet	x	-	x	x	-
Eastern Green Tinkerbird	x	-	-	-	?
Gunning's Akalat	-	-	-	x	-
White-winged Apalis	x	x	x	-	x
Green-headed Oriole	-	-	x	x	x

The biggest and tallest massif, Mulanje, has the highest number of Afromontane species, 31 (if one includes the Spotted Ground Thrush), and Namuli comes a close second (27). A few non-forest species are not recorded (nor expected) to occur on Mabu, such as the Red-tailed Flufftail *Sarothrura affinis*, Blue Swallow *Hirundo atrocaerulea* and Cinnamon Bracken Warbler *Bradypterus*

*cinnamomeus*, and these absences can be explained by the reduced size of grassland or shrubland habitats. Although the Namuli massif has more extensive open habitats, these same birds are also missing there (the flufftail almost certainly so, cf. Dowsett-Lemaire 2008): the dominant type of grassland on Namuli gets water-logged and there are apparently no suitable breeding banks for Blue Swallow; the montane shrubland is floristically impoverished and of limited extent for a species such as the Bracken Warbler.

The total number of Afromontane birds on Mabu is presently 18 species. A few high-altitude montane forest birds seem to be absent (e.g. Olive-flanked Robin *Cossypha anomala*, White-tailed Crested Flycatcher *Elminia albonotata*, Eastern Double-collared Sunbird *Nectarinia mediocris*) all of which are recorded from the higher-altitude forests of Mulanje, Namuli and Chipero. The absence of the Evergreen Forest Warbler *Bradypterus lopezi* is more surprising as it is common in mid-altitude forest throughout SE Malawi and on Chipero where it reaches its southern limit of range (Dowsett-Lemaire 1989), but elsewhere in Malawi it can be rare in this forest type (e.g. Ntchisi). Even more surprising is the apparent absence of Orange Thrush *Zoothera gurneyi*, as this species is also common in mid-altitude forest in the region. It is unlikely to have been overlooked as it is very vocal from the months of at least September, even in dry weather (and it is unknown to the local hunters, see species account of *Zoothera guttata*). It is possible that further exploration of the high-altitude sections of Mabu forest (the largest area of which we were unable to visit) will reveal the presence of some additional discreet Afromontane species such as Red-faced Crimsonwing *Cryptospiza reichenovii*. The intra-African migrant Scarce Swift *Schoutedenapus myoptilus* might have been missed as this noisy bird normally arrives by October, but could have been delayed by drought.

Many of the Afromontane birds listed in Table 1 reach their overall southern limits of range within this region: seven (Bar-tailed Trogon, Cabanis's Greenbul, Olive-flanked Robin, Evergreen Forest Warbler, Eastern Double-collared Sunbird, Bertram's Weaver and African Citril *Serinus citrinelloides*) reach the most southerly massif of Chipero. Mulanje represents the southern limit for Moustached Green Tinkerbird, Eastern Mountain Greenbul and Cinnamon Bracken Warbler, while Dapple-throat, which skips Malawi altogether, reaches Mabu, an extension from Namuli.

A small cluster of species (Afromontane or Eastern or otherwise) are shared between Thyolo, Mabu and Chipero: E. Bronze-naped Pigeon, Grey Cuckoo-shrike and Green-headed Oriole. They all reappear on Mt Gorongosa, some 300–350 km to the south-west (Oatley & Tinley 1989). Mt Chipero remains under-explored, especially the higher levels not reached by Spottiswoode *et al.* (2008): in addition to identifying the green tinkerbird, a form of Bar-throated Apalis (the yellow-bellied race of Mulanje or Namuli Apalis) should be sought in Afromontane forest. The presence of Gunning's Akalat on Mabu suggests that the local microclimate is fairly warm. The distribution of some lowland forest species on Mabu also supports this assumption: White-throated Nicator, Red-capped Robin and Blue-mantled Flycatcher all reach the altitude of 1400 m, whereas on the wet, southern slopes of Mulanje they do not ascend above 800 to 950 m. On Namuli the Nicator does not ascend above 1160 m (J. Graham *in litt.*), the Red-capped Robin reaches 1200 m and the flycatcher has not been recorded (if it occurs, this would be below 1150 m). Similarly the warm microclimate of Mabu could explain the scarcity of montane species such as Namuli Apalis and Dapple-throat, and the absence of high-montane species such as Olive-flanked Robin (very common on the large, colder massifs of Mulanje and Namuli above 1000 and 1550 m respectively).

## 5. BIRD BREEDING RECORDS

October is normally an important month for laying in forest birds in SE Africa (Dowsett & Dowsett-Lemaire 1984, Dowsett-Lemaire & Dowsett 2006), but that does not appear to be the case on Mabu, at least in 2008. Clearly breeding had started in some species, but some pairs were perhaps delayed because of the prolonged drought. Species foraging on the ground such as alethes and akalats normally breed as soon as the main rains start and driver ant foraging activity increases; the few mist-netted in mid-October (Appendix 2) were still inactive.

Cinnamon Dove: one bird was already sitting on completed nest, despite absence of eggs (27 Oct), thus egg-laying probably end Oct.

Green Barbet: one pair incubating (until at least 21 Oct), then feeding (by 28 Oct) = egg-laying in Oct.

Starred Robin: judging by the behaviour of pairs or males, breeding had just started in several pairs

(not yet feeding, incubation stage) = egg-laying in Oct. in several cases.  
 Black-headed Apalis: pair feeding fledgling(s) 26 Oct (= laying Sept).  
 Mozambique Batis: male feeding incubating female, 30 Oct. (500 m) = laying Oct..  
 Olive Sunbird: one nest-building in the canopy 21 Oct [L. Fishpool]  
 Southern Puffback: nest-building 30 Oct (= laying Nov).  
 Mist-netted Green Twinspots had completed moult (one was just finishing), which suggests breeding at the end of the rains (normal in a seed-eater). Outside forest (transition woodland), a Chestnut-bellied Kingfisher was incubating 29 Oct. (= laying Oct).

## 6. ANNOTATED BIRD LIST

Chorological status (Afromontane, Eastern, Zambezian, Palearctic migrant) is given after the species name, and the level of threat (BirdLife International 2008) appears in bold letters.

African Cuckoo Hawk *Aviceda cuculoides*. Two birds counter-singing in flight near tea house, 550 m, 11 Oct. Song imitated by Red-capped Robin at forest edge at 980 m.  
 Honey Buzzard *Pernis apivorus*. Palearctic migrant. One seen on 19 Oct at 950 m, just outside forest camp. Also noted by C. Spottiswoode (*in litt.*) in Dec 2005, so likely to winter.  
 Palm-nut Vulture *Gypohierax angolensis*. One drifting over the forest near the peak, 23 Oct. Normally associated with *Raphia* palms (not found in Mabu forest but may exist in riparian nearby).  
 Brown Snake Eagle *Circaetus cinereus*. Several observations of singles or pairs in or over transition woodland and small forest patches between 400–900 m.  
 Southern Banded Snake Eagle *Circaetus fasciolatus*. Eastern endemic, **Near Threatened**. Heard and seen on most days between 400–1500 m (at forest edges below the peak), but mostly below 1000 m. In forest and transition woodland. Often sings perched early morning (calling from 4h30 at day-break), and in display flight in the warm hours of the day.  
 Gymnogene *Polyboroides typus*. Widespread in the forest, at edges and in transition woodland, from the foothills to at least 1500 m.  
 African Goshawk *Accipiter tachiro*. Common and widespread in forest at all elevations.  
 Lizard Buzzard *Kaupifalco monogrammicus*. One heard on the way between the tea house and forest camp. Song imitated by some Red-capped Robins at forest edge.  
 Common Buzzard *Buteo buteo*. Palearctic migrant. Two over wooded hill above tea house, interacting and calling, 30 Oct. Also noted by C. Spottiswoode in Dec, and likely to winter.  
 Augur Buzzard *Buteo augur*. One seen by L. Fishpool on way between tea house and forest camp, 17 Oct.  
 Eagle *Aquila* sp. Two singles, almost certainly Lesser Spotted Eagle *A. pomarina* (Palearctic migrant), seen from peak on 23 Oct and moving south.  
 Ayres's Hawk Eagle *Hieraetus ayresii*. One seen on 3 occasions over forest and transition woodland, from 500–1000 m, including one circling over bush fire on 29 Oct just below tea house.  
 Crowned Eagle *Stephanoaetus coronatus*. One pair or individual noticed almost daily in the area of forest around main camp and satellite camps. Often sang from 9 am (i.e. only 4½ hours after dawn), which is quite early for this species; also singing midday and in the afternoon. Song frequently imitated by Red-capped Robin.  
 Peregrine Falcon *Falco peregrinus*. One seen around the peak on 23 Oct, and by others on other dates.  
 Hildebrandt's Francolin *Francolinus hildebrandti*. Occasionally heard at dusk or at night in secondary forest or thickets near the tea house, edge of main forest camp, and near the peak (heard from summit satellite camp), thus over an altitudinal range of at least 500–1650 m.  
 Red-necked Francolin *Francolinus afer*. In secondary growth around the tea house.  
 [Crested Guineafowl *Guttera pucherani*. Well known to local hunter from forest patches at low altitude and the lower levels of the main forest (up to about 1000 m). Hunted and decreasing, said to be very uncommon. No feathers seen in main forest, where altitude may be too high.]  
 Rameron Pigeon *Columba arquatrix*. Afromontane near-endemic. A few pairs in forest from 1350–1400 m to upper edges (1600–1650 m). Singing and displaying. Seen feeding in the crowns of *Polyscias*, *Olea capensis* (few trees fruiting at upper edge). As most *Olea* were flowering, this pigeon is likely to be more numerous in Olive years (e.g. 2009, 2011).

- Bronze-naped Pigeon *Columba delegorguei*. Widespread, in small numbers, in the canopy of forest from 980–1420 m. Vocal activity seemed to be decreasing from mid-Oct.
- Cinnamon Dove *Aplopetia larvata*. Afromontane near-endemic. Quite common in forest understorey above 1350–1400 m. Vocally active; one bird flushed from nest built at height of 2 m, still empty, 27 Oct.
- Blue-spotted Wood Dove *Turtur afer*. Few in forest patches or transition woodland, from 400–900 m.
- Tambourine Dove *Turtur tympanistris*. Very common in forest patches and main forest, from 400–1300 m.
- [Brown-necked Parrot *Poicephalus robustus*. Well known to hunter from lower altitudes, and said to move into the main forest seasonally. From fieldwork in Malawi, would be expected to come into the main forest when the *Parinari* are fruiting to extract the seeds.]
- Livingstone's Turaco *Tauraco livingstonii*. Very common in forest throughout, from at least 400 to 1650 m.
- Red-chested Cuckoo *Cuculus solitarius*. One heard at night near the tea house, 30 Oct. Should be common in area, given the number of robin species to parasitize, but calling was evidently delayed by the prevailing drought.
- Emerald Cuckoo *Chrysococcyx cupreus*. One heard in forest at 600 m above the tea house, 30 Oct. A rains migrant that was perhaps just starting to call and could be more common.
- Klaas's Cuckoo *Chrysococcyx klaas*. Widespread in forest patches or transition woodland low down (often in riparian situations), and along edges of main forest, from 400–1000 m.
- Green Coucal *Ceuthmochares aereus*. One heard briefly in secondary *Macaranga* forest and thickets near the tea house, 530 m, 11 Oct.
- Burchell's Coucal *Centropus superciliosus*. Common at forest edges and in secondary growth, from at least 400–1100 m.
- Barn Owl *Tyto alba*. One heard at night around tea house, 11 Oct.
- Spotted Eagle Owl *Bubo africanus*. Heard around wooded, rocky hill above tea house, 29-30 Oct.
- Wood Owl *Strix woodfordii*. Very common throughout forest (including secondary or mixed tea forest) at all elevations.
- African Palm Swift *Cypsiurus parvus*. A few over transition woodland, 800 m, and tea house, 29 Oct.
- Alpine Swift *Apus melba*. Intra-African migrant; several hunting around the peak, 23 Oct.
- Mottled Swift *Apus aequatorialis*. Several around the peak, 23 Oct. Also seen lower down with other swifts and martins, 29 Oct. Could be breeding locally in rock cracks.
- Eurasian Swift *Apus apus*. Palaearctic migrant. A dozen or so seen moving through with other swifts and martins on 29 Oct at 800 m. Not calling, but almost certainly this species, as the resident African Black Swift *A. barbatus* (with which it can be easily confused when not calling) was not noted in three weeks.
- African White-rumped Swift *Apus caffer*. A few in association with Lesser Striped Swallow, around and below the tea house.
- Narina's Trogon *Apaloderma narina*. A few in riparian forest low down, and many in the main forest block, up to 1400–1430 m. Vocally very active, despite the drought.
- Bar-tailed Trogon *Apaloderma vittatum*. Afromontane endemic. Fairly common in forest above 1400 m on summit path, and above 1350 m in forest around the forest satellite camp (one even around 1320 m). Thus overlaps with Narina's from 1320–1430 m.
- Pygmy Kingfisher *Ceyx pictus*. Few present in thickets low down, and at forest edges up to 1000 m.
- Chestnut-bellied Kingfisher *Halcyon leucocephala*. One flushed from nest in road bank, in transition woodland, c.400 m, 29 Oct.
- Little Bee-eater *Merops pusillus*. One pair in secondary grassland in old field near tea house.
- Madagascar Bee-eater *Merops superciliosus*. Intra-African migrant, with a flock on passage on 29 Oct near tea house. Calls imitated to perfection by Red-capped Robin at 980 m.
- Eurasian Bee-eater *Merops apiaster*. Palaearctic migrant. Some large groups on passage, noted irregularly from 11-28 Oct, any altitude.
- Broad-billed Roller *Eurystomus glaucurus*. One bird in riparian transition woodland near the tea house seemed to hold a territory, 11-12 Oct.
- Crowned Hornbill *Tockus alboterminatus*. Uncommon, with the odd one noted in transition woodland and at forest edges from 600–950 m.
- Silvery-cheeked Hornbill *Bycanistes brevis*. Common in the main forest, at all elevations; a few pairs lower down, to 500 m. Some singles or pairs or trios crossing vast expanses to go to feed in

- certain areas. Much movement noted near the main forest camp to feed in a fruiting *Sapium ellipticum*. Appeared not to be breeding in Oct (unlike in the Misuku Hills, Malawi), probably due to lack of fruiting figs at this season.
- White-eared Barbet *Stactolaema leucotis*. Eastern endemic. Uncommon. Heard a few times at forest edge near main forest camp (c.1000 m), seen once below in a fruiting *Xylopia aethiopica*, and lower down in burnt woodland near a stream (c.400 m).
- Green Barbet *Stactolaema olivacea*. Eastern endemic. Common in the main forest at all elevations, also a few pairs lower down in riparian forest patches (down to 750 m). A pair examined at close range around a nest appeared to belong to the race *belcheri* of Thyolo and Namuli (dark blackish head, dark olive breast contrasting with olive belly; pale brown patch behind eye not conspicuous). The nest hole was situated at a height of 6 m in a dead trunk of *Syzygium cordatum*, and the territory consisted of a few hectares of dry forest with many *Xylopia aethiopica*, *Syzygium cordatum* and mixed forest along a dry stream (900 m). Incubation behaviour watched from 16–21 Oct, while feeding was watched on 28 Oct. At least 3 young had hatched as up to 3 faecal sacs were carried out simultaneously by the adult (held neatly in the bill). Both adults brooded and fed the young, with regular change-overs every 15 minutes when feeding; each sex sings in this species, for example on every one of 8 change-overs seen on 28 Oct, the adult who had just left the nest gave a few notes of song. Most food brought was taken from a rotten branch of *Syzygium* just above the nest and apparently consisted of small beetle larvae; food was brought 17 times in two hours, often several times in quick succession by the same adult when collected immediately above the nest. Brooding of the eggs was not continuous but the attending adult never went far from the nest, usually sitting 1–2 m away, thus the nest was always under watch except when the bird was seriously disturbed by noisy passers-by (the nest was metres away from the main path). A Lesser Honeyguide (the most likely nest parasite) was seen perched close to the nest on 18 Oct, when the adult was inside. But the presence of several faecal sacs proves that the honeyguide failed to lay in this nest.
- Golden-rumped Tinkerbird *Pogoniulus bilineatus*. Very common, throughout forest and transition woodland, at all elevations. On 29 Oct playback of the song of Eastern Green Tinkerbird *P. simplex* was tried at 900 m altitude and provoked a strong vocal reaction by the local Golden-rumped. This may be the result of superficial resemblance between the staccato song of *P. simplex* and the rolled call of *P. bilineatus*, or it might mean that *P. simplex* exists somewhere in the area (but in that case would be rare).
- Scaly-throated Honeyguide *Indicator variegatus*. One seen and calling (the distinctive whistles, reminiscent of those of Scimitarbill *Phoeniculus cyanomelas*) in tall *Eucalyptus* plantations over secondary scrub, and one singing in a patch of forest below the tea house, 450–530 m. Several heard (whistles) in the main forest, from 1000–1400 m.
- Lesser Honeyguide *Indicator minor*. Two singing in riparian forest and at the edge of the main forest, 800 and 950 m. Seen near the Green Barbet nest.
- Eastern Least (Pallid) Honeyguide *Indicator meliphilus*. Two singing in forest patches below the tea house (450 m), one in an emergent *Newtonia* and the other in *Albizia adianthifolia* and *Newtonia*, only about 500 m from each other. Also one singing in the main forest, at c.1000 m.
- Golden-tailed Woodpecker *Campethera abingoni*. Uncommon but probably widespread; called very little and some perhaps overlooked. Noted in main forest at 1050 m and also just below the upper edge of forest near the peak, 1570 m.
- Cardinal Woodpecker *Dendropicos fuscescens*. Three records in transition woodland, *Syzygium cordatum* forest and riparian lower down, 400–900 m.
- African Broadbill *Smithornis capensis*. A few heard at dawn and dusk in mixed tea forest at 550 m, and a few in main forest around 1000 m. Not heard from the satellite camps (1300–1400 m).
- Black Saw-wing *Psalidoprocne pristoptera*. A few at low levels, and at forest edges up to at least 1100 m.
- Lesser Striped Swallow *Hirundo abyssinica*. A few pairs below the tea house.
- Eurasian (Barn) Swallow *Hirundo rustica*. Palaearctic migrant. Small groups of migrants, from 23 Oct. onwards; up to the peak area.
- Eurasian House Martin *Delichon urbicum*. Palaearctic migrant. Passage of dozens noted by T. Timberlake around peak on 28 Oct. Some moving through with swifts on 29 Oct (800 m).
- Long-tailed Wagtail *Motacilla clara*. A pair noted by M. Curran and M. Kopp on a rocky stream just below main forest camp, c.900 m.

- Striped Pipit *Anthus lineiventris*. Two birds singing in rocky woodland just below peak, 1650–1680 m.
- Grey Cuckoo-shrike *Coracina caesia*. Afromontane near-endemic. A few pairs in canopy of main forest from 1000–1400 m.
- Stripe-cheeked Greenbul *Andropadus milanjensis*. Afromontane endemic. Widespread in the main forest, in canopy, subcanopy and edge of clearings. Few below 1100 m (from 1030 m), becoming commoner above 1200–1300 m, very common 1400–1650 m.
- Little Greenbul *Andropadus virens*. Common understorey species, throughout, 400–1650 m.
- Yellow-bellied Bulbul *Chlorocichla flaviventris*. Recorded by C. Spottiswoode (*in litt.*) from forest below the tea house at 450 m.
- Grey-olive Bulbul *Phyllastrephus cerviniventris*. Eastern near-endemic. Widespread in riparian forest at low levels, from 450–950 m.
- Cabanis's Bulbul *Phyllastrephus cabanisi* (race *placidus*). Afromontane near-endemic. Understorey species widespread in the main forest from 980–1450 m; probably throughout. Favours dense low growth near streams or on slopes, less often on ridges.
- Yellow-streaked Bulbul *Phyllastrephus flavostriatus*. Common mid-storey species, gleaning on bark, throughout from 800–1650 m.
- Black-eyed Bulbul *Pycnonotus barbatus*. Widespread in transition woodland and along edges of forest, at all levels (including just below the peak).
- White-throated Nicator *Nicator gularis*. Eastern near-endemic. Mid-storey species favouring small forest clearings with tangles of lianas; common from 400–1400 m (much higher than in S Malawi).
- Kurrichane Thrush *Turdus libonyana*. Zambezian near-endemic. One heard in transition woodland between the tea house and forest camp.
- Spotted Ground Thrush *Zoothera guttata*. Sub-Afromontane endemic, **Endangered**. In October the silence of ground thrushes was striking as normally Orange Thrush *Z. gurneyi* is very common and noisy in mid-altitude forest, occurring throughout adjacent forests in Malawi and N Mozambique. Tapes of *Z. gurneyi* and *Z. guttata* from Natal and of *Z. guttata* from Thyolo were played a few times in the forest and elicited no response (normally Orange Thrush reacts vigorously to all songs of *Zoothera* spp., whereas *Z. guttata* does not). First rains fell on afternoon of 21 Oct, then all night on 26/27 Oct after which one *Zoothera* sp. was heard giving a few songs at dawn, at 1300 m (next to the satellite forest camp). It did not react to playback of *Z. gurneyi* nor *Z. guttata* (on Namuli the local *Z. guttata* never reacted to song playback of its own species from Thyolo). Another *Zoothera* song was heard at dusk just above main camp (1000 m) on 28 Oct. A local hunter interviewed identified Spotted Ground Thrush on the plate of Chittenden (2007) without any hesitation and also indicated that Orange Thrush was completely unknown to him (which would seem to imply its absence). *Zoothera guttata* can produce a short song but frequently also a "long song" which is not separable from that of *Z. gurneyi*, thus visual confirmation was necessary. The hunter was sufficiently familiar with thrush species that he also recognized the Alethe as being very common.
- Cholo Alethe *Alethe choloensis*. Afromontane endemic, **Endangered**. Encountered throughout the main forest, from 950–1650 m. Common above 1200 m, not evenly distributed below this. A substantial population must exist on Mabu, of the order of at least a thousand pairs (2 pairs/10 ha in optimal habitat). This population has a most distinctive contact call, a whistle rising in pitch, whereas all other populations of this species (Namuli and Malawi) produce a downward whistle. It was frequently heard at dawn near the main camp.
- Starred Robin *Pogonocichla stellata*. Afromontane endemic. Common at higher levels, from 1350 m to upper edges.
- Swynnerton's Robin *Swynnertonia swynnertonii*. Afromontane endemic, **Vulnerable**. Much like Starred Robin it occupies the higher levels of the main forest, from 1340–1400 m to the upper limits. But unlike Starred Robin it is not uniformly distributed as it favours dense undergrowth with high density of saplings, or rank growth near streams. Several pairs were encountered along the path from summit satellite camp to the upper edges near the peak. Some pairs were alarm-calling persistently, suggesting breeding had started.
- Gunning's Akalat *Sheppardia gunningi*. Eastern endemic, **Near Threatened**. Locally common in pure tea forest (under indigenous canopy), dense understorey and thickets in secondary forest, riparian forest (400–900 m) and in main forest block up to 1350 m, where it favours the gullies and some slopes just above a stream. In Malawi Gunning's Akalat and Starred Robin are

- allopatric when breeding, the latter replacing the former at higher altitudes; this also seems to be the case on Mabu. Territories can be quite small (0.5–1 ha), but suitable habitat is patchy, hence overall estimates are difficult to make. One bird tested with tape playback in the tea forest reacted twice to the song dialect from the Malawi Lakeshore (coming within 5–6 m of the recorder), but did not apparently react to the song dialect from coastal Kenya.
- Cape Robin *Cossypha caffra*. Afromontane near-endemic. Common in *Aeschynomene* and other shrubland around the peak; also along the upper edges of forest (from 1500 m); heard at 1400 m in forest clearing above satellite forest camp.
- Red-capped Robin *Cossypha natalensis*. Widespread in the understorey of forest from 400–1400 m. Highly imitative song, including lengthy imitations of Eurasian and Madagascar Bee-eater and other species.
- Eastern Bearded Scrub Robin *Erythropygia quadrivirgata*. Eastern near-endemic. Widespread in riparian forest and thickets at low levels (from 400–700 m).
- White-browed Scrub Robin *Erythropygia leucophrys*. One or two heard in transition woodland at 850–900 m.
- Red-faced Crombec *Sylvietta whytii*. A few encountered in *Syzygium* woodland up to 900 m, also more surprisingly in riparian forest low down (one seen feeding in a *Newtonia* at 450 m) and in thickets in secondary *Macaranga* forest or even under Eucalyptus.
- Yellow-throated Warbler *Phylloscopus ruficapilla*. Afromontane endemic. Present in canopy and subcanopy of main forest block from 1050 m; more common above 1200 m.
- Garden Warbler *Sylvia borin*. Palaearctic migrant. One feeding on flowers of a *Grevillea* in thickets below the tea house, 30 Oct.
- Wailing Cisticola *Cisticola lais*. Afromontane endemic. Several pairs in rocky grassland all around the peak, 1550–1650 m.
- Red-faced Cisticola *Cisticola erythrops*. A few pairs in rank moist secondary growth in cultivated gullies near the tea house and on way to forest from 400–700 m.
- Tawny-flanked Prinia *Prinia subflava*. A few in grassland (mostly of secondary origin) at low levels.
- Red-winged Warbler *Heliolais erythropterus*. One encountered in secondary grassland and shrubs at c. 400 m.
- Yellow-breasted Apalis *Apalis flavida*. Probably widespread in riparian forest and thickets at low elevations, but hardly calling in early Oct. More heard on 29–30 Oct (400–600 m).
- Namuli Apalis *Apalis (thoracica) lynesi*. Afromontane endemic, **Near Threatened**. Present in small numbers only above 1380–1400 m; only one heard singing in a 2-day visit near path to summit, at c.1550 m on 23 Oct. This bird was singing the male version of the duet only and appeared unmated; playback of a Namuli tape (and Nyika tape of Bar-throated Apalis) did not seem to interest him, and the bird was heard calling further away after playback. Tape playback along the upper edges of the forest (at 1600 m) on 24 Oct elicited no response. Similarly, very few birds were located on 26–27 Oct in the area of forest around 1380–1400 m above the forest satellite camp, also in a 2-day visit. One male was followed for more than an hour on both days and circulated over several hectares of forest with many gaps and clearings, feeding at edges but also in the shaded interior 1–3 m above the ground. This bird was definitely unmated and showed little or no interest in tape playback. Another male was heard just beyond this territory and was answered by a female trill once. Thus of three males only one seemed to have a female. This unbalanced sex ratio suggests that conditions are probably suboptimal for the species. Forms of Bar-throated Apalis are usually very common in montane forest, but locally in northern Malawi (as in the Misuku Hills) the species can be uncommon, especially at medium altitudes (Dowsett-Lemaire 1989).
- Black-headed Apalis *Apalis melanocephala*. Eastern endemic. Very common in the main forest, at all elevations; few present in riparian forest down to 850 m.
- Bleating Bush Warbler *Camaroptera brachyura*. Common understorey species in transition woodland, thickets, riparian forest, and in the main forest block to 1300 m, where it is partial to moist gullies.
- Spotted Flycatcher *Muscicapa striata*. Palaearctic migrant recorded by C. Spottiswoode on 11 Dec 2005 in woodland.
- Ashy Flycatcher *Muscicapa caerulescens*. Common in riparian forest low down, transition woodland and edges of main forest up to 1000 m, singing in canopy.

- Lead-coloured Flycatcher *Myioparus plumbeus*. Widespread in transition woodland, lowland forest and main forest block up to 1300 m, where partial to gullies with large clearings.
- Cape Batis *Batis capensis*. Afromontane near-endemic. Uncommon above 1400 m (summit area) or 1340 m (forest satellite camp); pairs rather scattered. Density is well below that observed in Malawi, normally of about 1 pair/ha.
- Mozambique Batis *Batis soror*. Widespread in transition woodland, edges of riparian forest, even Eucalyptus plantations with secondary growth near the tea house, from 400–950 m. Penetrates feebly into the main forest block along gullies with very big clearings; heard up to 1100 m.
- Blue-mantled Flycatcher *Trochocercus cyanomelas*. Eastern near-endemic. Common in mixed tea forest around the tea house, also in secondary forest with thickets, and the main forest block up to 1300 m or higher (two located up to 1400 m above forest satellite camp).
- African Paradise Flycatcher *Terpsiphone viridis*. Uncommon, with few pairs in the main forest from 1000–1400 m.
- Dapple-throat *Modulatrix orostruthus*. Afromontane endemic, **Vulnerable**. Uncommon species of the ground stratum, discovered only above 1380 m and with a patchy distribution. One heard and tape recorded near path to summit at c.1500 m seemed strongly territorial, while another sang briefly near our camp (1400 m), presumably a wanderer. Only two territorial owners found above the forest satellite camp, one just below 1400 m, the other around 1400 m. One of these birds was followed for more than 3 hours on 26-27 Oct and circulated over at least 5–6 ha; it seemed to be mated (second bird seen briefly). The species is normally partial to understorey with a high density of saplings under closed canopy. Why it should be so rare near the summit is not clear, but above the forest satellite camp the canopy is disturbed in many places with old signs of human habitation. Other sections of high-altitude forest need to be visited in order to evaluate total numbers.
- Rufous-bellied Tit *Parus rufiventris*. Zambezian endemic. One in *Syzygium cordatum* woodland, 900 m.
- Violet-backed Sunbird *Anthreptes longuemarei*. A female in *Syzygium cordatum* woodland, 900 m.
- Collared Sunbird *Anthreptes collaris*. Common in secondary thickets, riparian forest and mixed tea forest at low elevations, from 400–700 m. Its absence from riparian forest higher up is not understood.
- Olive Sunbird *Nectarinia olivacea*. Very common, the most numerous bird on Mabu, in forest and thickets, from 400–1650 m.
- Black Sunbird *Nectarinia amethystina*. A few in *Pterocarpus* transition woodland, feeding on flowers, 500–600 m.
- Yellow-bellied Sunbird *Nectarinia venusta*. A few in transition woodland and gullies with scrub, 800–950 m; one also in *Aeschynomene* shrubland below the peak at 1620 m.
- Yellow White-eye *Zosterops senegalensis*. Widespread in forest at all elevations; also in secondary thickets and transition woodland.
- Green-headed Oriole *Oriolus chlorocephalus*. Eastern endemic. Fairly common in canopy and subcanopy of main forest from 980–1300 m; once at 1400 m above forest satellite camp. One bird was singing in riparian *Newtonia–Albizia* forest below tea house on 11 Oct (450 m) and had moved lower down on the next day (c.400 m).
- Southern Puffback *Dryoscopus cubla*. Widespread in transition woodland and forest canopy from low down to at least 1400 m.
- Brown-headed Tchagra *Tchagra australis*. Present in secondary growth and thickets, also in transition woodland from 400–1000 m.
- Tropical Boubou *Laniarius aethiopicus*. Present in secondary growth, thickets, forest edges, from 400–1500 m, below the peak.
- Black-fronted Bush Shrike *Malaconotus multicolor*. Common canopy species in main forest from 980–1650 m.
- Square-tailed Drongo *Dicrurus ludwigii*. Common in any forest type from 400 m, even neglected Eucalyptus plantations with some forest trees, and the main forest block up to at least 1400 m.
- White-necked Raven *Corvus albicollis*. Regularly seen near the rocky peak, and occasionally in woodland lower down.
- African Red-winged Starling *Onychognathus morio*. Very few, in wooded gullies on southern side of peak; one seen mobbing a *Gymnogene* there on 29 Oct. Calls imitated by Red-capped Robin at forest edge at 980 m.

- Bertram's Weaver *Ploceus bertrandi*. Afromontane endemic. C. Spottiswoode and E. Herrmann located one pair at the forest/woodland ecotone at 920 m, 11 Dec 2005 (C. Spottiswoode *in litt.*).
- Spectacled Weaver *Ploceus ocularis*. A couple seen in secondary growth near stream by tea house on 11 Oct.
- Dark-backed Weaver *Ploceus bicolor*. Common in any forest type at all elevations, also neglected Eucalyptus or *Grevillea* plantations, where it feeds on nectar.
- Thick-billed Weaver *Amblyospiza albifrons*. A single bird in secondary growth near the tea house, about 500–600 m, on 14 Dec 2005 (C. Spottiswoode *in litt.*). A bird of swamps that may visit thickets in the off-season.
- Green Twinspot *Mandingoa nitidula*. Very common in forest and secondary growth from 400–1550 m; scarce in most parts of its range, this twinspot is exceptionally numerous at Mabu with hundreds seen in a day around the tea house, including many pairs and families coming to drink in a small stream. Outside or on edge of forest it seemed to feed mainly on a small-seeded *Panicum*. Inside forest it was found more at high levels or in clearings feeding on inflorescences and small seeds of creepers, etc.
- Blue-billed Firefinch *Lagonosticta rubricata*. A few in secondary growth near the tea house.
- Swee Waxbill *Estrilda melanotis*. Afromontane near-endemic. A pair flying past the peak, 23 Oct. Normally in scrub among rocks.
- Common Waxbill *Estrilda astrild*. Fairly common in secondary growth in moist gullies from 400–600 m.
- Bronze Mannikin *Spermestes cucullata*. Several small groups seen in secondary grassland at low levels, 400–600 m.
- Red-backed Mannikin *Spermestes bicolor*. Very common in neglected plantations and secondary growth at low levels; also at forest edges and in transition woodland higher up, to at least 1000 m.
- Yellow-eyed Canary *Serinus mozambicus*. A few in neglected plantations and secondary growth near the tea house.

## 7. NOTES ON SELECTED MAMMALS (RJD)

- Bush Baby *Otolemur crassicaudatus*. Several heard in tea forest and secondary bush near the tea house, not in the main forest.
- Grant's Bush Baby *Galagoides (zanzibaricus) granti*. Very common in all habitats at all altitudes, including tea forest with indigenous canopy (watched there from near ground to the canopy). Noisy at dusk and dawn.
- Yellow Baboon *Papio cynocephalus*. Some on the edge of forest and in transition woodland at all levels.
- Vervet Monkey *Cercopithecus pygerythrus*. A few in riparian forest and transition woodland below the main forest.
- Blue Monkey *Cercopithecus albogularis*. Groups encountered at all levels, from at least 400–1600 m. Common and fairly approachable.
- Leopard *Panthera pardus*. We saw no signs, and it must now be rare, but the hunter (Ofelio Carvalleon) saw one by day as recently as 2005, and another was caught in a gin-trap and killed in 2001. This last one was eaten, but the skin and other remains thrown away. It is not known to attack livestock locally.
- [Lion *Panthera leo*. Not known in the area in recent memory.]
- [African Elephant *Loxodonta africana*. Not known in the area in recent memory.]
- Cape Rock Hyrax *Procavia capensis*. Several heard by day and night from above the tea house as well as near the peak. Trapped by hunters.
- Yellow-spotted Hyrax *Heterohyrax brucei*. Known to the hunter, and occasionally trapped.
- Bushpig *Potamochoerus porcus*. Its characteristic smell noticed in a few places (including a marshy stream at 1400 m), and said to be common by the local hunter. Occasionally caught in gin-traps, and eaten.
- [Red Forest Duiker *Cephalophus natalensis*. From its noisy flight and alarm call, a duiker flushed in forest at about 1000 m is believed to be this species (known from forests in Malawi). However

- it was unknown to the local hunter. Its presence on Mabu needs confirmation.]
- Blue Duiker *Cephalophus monticola*. A few animals flushed, and dung seen. Not as common as in some Malawi forests, and caught occasionally in gin-traps.
- Klipspringer *Oreotragus oreotragus*. One caught in a gin-trap near the peak in Oct. 2008, and numbers must be decreasing through hunting.
- African Buffalo *Syncerus caffer*. Not resident in the area, but the local hunter saw a large group pass through the tea estate from the north in 2002.
- Bushbuck *Tragelaphus scriptus*. Must be rare as we never heard it, but known to the hunters from forest edges at all levels.
- Sun Squirrel *Heliosciurus mutabilis*. Very common throughout the forest and secondary habitats near the tea house. Two colour morphs occur, one pale chestnut and the other dark grey-brown with a black tail; both have a ringed tail.
- [Red Squirrel *Paraxerus palliatus*. We did not find this species, which might be expected to occur.]
- Mus triton*. This mouse was common in forest at all levels, and surprisingly often seen during the day, even climbing on trees (below 2 m).
- Red Rock Hare *Pronolagus rupestris*. Known to the hunters from rocky areas; large piles of fawn-coloured dung seen on rocks could belong to this species or the small Yellow-spotted Hyrax.
- Four-toed Elephant-shrew *Petrodromus tetradactylus*. Active by night (heard moving and whistling near tents at main forest camp). Known to the local hunter, who recognizes two species of elephant-shrew.
- Checkered Elephant-shrew *Rhynchocyon cirnei*. Active by day, and occasionally flushed in the main forest.

## 8. REFERENCES

- Benson, C.W. (1950). A collection from Chiperoni Mountain, Portuguese East Africa. *Bull. Brit. Orn. Club* **70**: 51.
- BirdLife International (2008). *Threatened Birds of the World 2008*. CD-ROM. BirdLife International, Cambridge.
- Chittenden, H. (2007). *Roberts Bird Guide*. John Voelcker Bird Book Fund, Cape Town.
- Dowsett, R.J. & Dowsett-Lemaire, F. (1984). Breeding and moult cycles of some montane forest birds in south-central Africa. *Rev. Ecol. (Terre et Vie)* **39**: 89–111.
- Dowsett-Lemaire, F. (1989). Ecological and biogeographical aspects of forest bird communities in Malawi. *Scopus* **13**: 1–80.
- Dowsett-Lemaire, F. (2008). Survey of birds on Namuli Mountain (Mozambique), November 2007, with notes on vegetation and mammals. Report for Darwin Initiative Award 15/036. <http://www.kew.org/science/directory/projects/annex/namuli-birds-Dowsett.pdf>
- Dowsett-Lemaire, F. & Dowsett, R.J. (2006). *The Birds of Malawi*. Tauraco Press & Aves, Liège, Belgium.
- Hockey, P.A.R., Dean, W.R.J. & Ryan, P.G. [eds.] (2005). *Roberts - Birds of Southern Africa* (7th ed.) John Voelcker Bird Book Fund, Cape Town.
- Oatley, T.B. & Tinley, K.L. 1989. The forest avifauna of Gorongosa Mountain, Mozambique. *Ostrich Suppl.* 14: 57-61.
- Parker, V. (2005). *The atlas of the birds of central Mozambique*. Endangered Wildlife Trust, Johannesburg & Avian Demography Unit, Cape Town.
- Ryan, P.G., Bento, C., Cohen, C., Graham, J., Parker, V. & Spottiswoode, C. (1999). The avifauna and conservation status of the Namuli Massif, northern Mozambique. *Bird Conserv. Int.* **9**: 315–331.
- Spottiswoode, C.N., Patel, I.H., Herrmann, E., Timberlake, J. & Bayliss, J. (2008). Threatened bird species on two little-known mountains (Chiperone and Mabu) in northern Mozambique. *Ostrich* **79**: 1–7.
- White, F., Dowsett-Lemaire, F. & Chapman, J.D. (2001). *Evergreen Forest Flora of Malawi*. Royal Botanic Gardens, Kew, London.

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### Appendix 1. Gazetteer of main localities on Mabu

Camp at tea house .....	540 m .....	16°18'22"S, 36°25'28"E
Main forest camp .....	980 m .....	16°17'10"S, 36°24'01"E
Summit satellite camp .....	1400 m .....	16°17'31"S, 36°23'34"E
Forest satellite camp .....	1300 m .....	16°17'05"S, 36°23'09"E
Peak of Mt Mabu .....	1710 m .....	16°17'56"S, 36°23'44"E

### Appendix 2. Birds ringed near main forest camp 16 & 17 Oct 2008 (RJD).

Some mist-netting was carried out over two days in order to assess state of moult and breeding condition. All birds were released, marked with rings from the East African scheme (Kenya National Museum). Details of rings are given below.

Ring no.	Species	Age	Sex	Date	Wing (mm)	Wt (g)
A.64132	<i>Andropadus virens</i>	ad		16/10/2008	82	26.1
A.64133	<i>Andropadus virens</i>	ad	M	16/10/2008	80	22.1
A.64134	<i>Andropadus virens</i>	ad		16/10/2008	82.5	27.7
A.64135	<i>Andropadus virens</i>	ad	M	16/10/2008	87	26.5
A.64136	<i>Andropadus virens</i>	ad	M	16/10/2008	82	28.1
A.64137	<i>Andropadus virens</i>	ad	M	16/10/2008	86.5	31.5
A.64138	<i>Andropadus virens</i>	ad	M	16/10/2008	90	27.5
A.64139	<i>Cossypha natalensis</i>	ad		16/10/2008	88	31.3
A.64140	<i>Alethe choloensis</i>	ad	M?	17/10/2008	99	43.1
A.64141	<i>Andropadus virens</i>	ad		17/10/2008	88	25.8
A.64142	<i>Alethe choloensis</i>	1Y	M?	17/10/2008	104	40.8
A.64143	<i>Andropadus virens</i>	ad		17/10/2008	84	23.1
A.64144	<i>Andropadus virens</i>	ad		17/10/2008	84	23.8
T.9484	<i>Mandingoa nitidula</i>	ad	F	16/10/2008	53	9.9
T.9485	<i>Mandingoa nitidula</i>	ad	M	16/10/2008	52	8.4
T.9486	<i>Mandingoa nitidula</i>	ad	F	16/10/2008	53	8.8
T.9487	<i>Mandingoa nitidula</i>	ad	F	16/10/2008	51	9.5
T.9488	<i>Mandingoa nitidula</i>	ad	M	16/10/2008	53	9.1
T.9489	<i>Mandingoa nitidula</i>	ad	M	17/10/2008	53	9
T.9490	<i>Mandingoa nitidula</i>	ad	F	17/10/2008	50.5	9.3
T.9491	<i>Mandingoa nitidula</i>	ad	F	17/10/2008	52	10.4
X.82333	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	58	9
X.82334	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	59	10.7
X.82335	<i>Ceyx pictus</i>	ad		16/10/2008	56	13.9
X.82336	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	58.5	11
X.82337	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	64	11.1
X.82338	<i>Sheppardia gunningi</i>	ad	M	16/10/2008	74	19.1
X.82339	<i>Sheppardia gunningi</i>	ad	F	16/10/2008	69	16.8

X.82340	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	65.5	11.2
X.82341	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	66	10.6
X.82342	<i>Ceyx pictus</i>	ad		16/10/2008	56.5	13.5
X.82343	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	57.5	9.7
X.82344	<i>Nectarinia olivacea</i>	ad	F	16/10/2008	59	12.8
X.82345	<i>Nectarinia olivacea</i>	ad	M	16/10/2008	66.5	11.9
X.82346	<i>Sheppardia gunningi</i>	ad	M	16/10/2008	76	18.3
X.82347	<i>Sheppardia gunningi</i>	ad	F	17/10/2008	68	16.5
X.82348	<i>Nectarinia olivacea</i>	ad	M	17/10/2008	66	11.7
X.82349	<i>Nectarinia olivacea</i>	ad	F	17/10/2008	56.5	9.6

Species	n	wing (mm)	mean	wt (g)	mean
Pygmy Kingfisher, <i>Ceyx pictus</i>	2	56–56.5	56.2	13.5–13.9	13.7
Little Greenbul, <i>Andropadus virens</i>	10	80–90	83.6	22.1–31.5	26.9
Gunning's Akalat, <i>Sheppardia gunningi</i>	4	68–76	71.7	16.5–19.1	17.6
Red-capped Robin, <i>Cossypha natalensis</i>	1	88		31.3	
Cholo Alethe, <i>Alethe choloensis</i>	2	99–104	101.5	40.8–43.1	41.9
Olive Sunbird, <i>Nectarinia olivacea</i>	11	56.5–66.5	61.1	9.0–12.8	10.8
Green Twinspot, <i>Mandingoa nitidula</i>	8	50.5–53	51.2	8.4–10.4	9.3

### Appendix 3. Tape recordings obtained at Mabu.

#### 1. F. Dowsett-Lemaire

##### Birds

Southern Banded Snake Eagle: songs in display flight, forest near tea house.

African Goshawk: songs, early morning, near tea house.

Livingstone's Turaco: songs.

Scaly-throated Honeyguide: series of detached whistles, to which bird reacted. Thickets in Eucalyptus plantation, near tea house.

(Green Barbet, Golden-rumped Tinkerbird, Square-tailed Drongo in background).

Little Greenbul: calls.

Grey-olive Bulbul: song, forest below tea house.

Cholo Alethe: upward whistle (main contact call, often heard at dawn), forest near main camp. Then song variants, recorded at 1400 m, of 2 or 3 slurred and whistled notes "frruw-huhu", or "frruw-hee".

Swynnerton's Robin: songs (of 2 or 3 detached whistles), forest at 1400 m. Dry rattle (alarm call).

Gunning's Akalat: songs, tea forest at 450 m, and forest at 1000 m.

Red-faced Crombec: songs (long trill), thickets under Eucalyptus, near the tea house.

Yellow-throated Warbler: songs, forest at 1250 m.

Namuli Apalis: songs of an unmated male, 1400 m, above forest satellite camp.

Black-headed Apalis: songs, forest at 1250 m.

Blue-mantled Flycatcher: songs, in mixed tea forest at 450 m.

Dapple-throat: songs and reactions to playback (songs plus modulated whistle added), forest at c.1500 m.

Green-headed Oriole: two song types, forest at 1100 m.

##### Mammals

Grant's Bush Baby *Galagoides (zanzibaricus) granti*: recorded twice in forest below tea house, triplets of notes. Species' identity was confirmed by Simon Bearder (*in litt.*).

#### 2. Additional recordings by L. Fishpool.

Stripe-cheeked Greenbul, c.1400 m.

Yellow-streaked Greenbul, c.1300 m.

Cabanis's Greenbul: c.1000 m.

Black-fronted Bush Shrike: c.1300 m.

**3. Additional recordings by E. Herrmann (2005).**

Silvery-cheeked Hornbill, White-eared Barbet, Yellow-fronted and Golden-rumped Tinkerbirds, Yellow-bellied and Yellow-streaked Greenbuls, alarm calls of Gunning's Akalat (and songs), Red-capped Robin, Eastern Bearded Scrub Robin, White-browed Scrub Robin, Olive Sunbird, Southern Puffback, Tropical Boubou, Dark-backed Weaver.