A new population of the Udzungwa Forest Partridge

by Jon Fjeldså & Jacob Kiure

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The discovery of the Udzungwa Forest Partridge *Xenoperdix udzungwensis* in 1991 in the Udzungwa highland in Tanzania (Dinesen *et al.* 1994) has been characterised as one of the major surprises for the ornithological world in recent years (McGowan 1994). The species was suggested to represent a relict population from the early Miocene, when the Tethys Sea was closed and primitive forest partridges had a brief opportunity to distribute themselves all the way from the Oriental Region to tropical Africa. The postulated relationship between *Xenoperdix* and Asiatic forest partridges (*Arborophila*, *Rollulus* and others) has now been confirmed using molecular data (T.M. Crowe *in litt.*).

Within the Udzungwa highland, the species is still known only from the Nyumbanitu and Ndundulu Mts. It was therefore a great surprise when JK saw the species (and collected one identifiable feather) in March 2000 in the Maf-wemiro forest, a north-western outlier of the Rubeho highland. This is 150 km north of the type locality in the Udzungwa highland and isolated from it by a large inter-montane basin of arid lowland along the Great Ruaha River.

In December 2000 and January 2001 JK succeeded in catching three adult birds in Maf-wemiro forests. After comparing these with three Udzungwa specimens, kept in Copen-hagen, and with data concerning the specimen that is kept in University of Dar es Salaam (Dinesen *et al.* 1994), we are able to state that morphological differences are sufficiently consistent that we will recognize the Mafwemiro population as a distinctive and probably isolated form, which we name

TABLE 1
Measurements (mm) of collected specimens of *Xenoperdix udzungwensis*. The wing-length was flattened on a ruler and stretched; the bill was measured to the skull.

	Wing	Tarsus	Tail	Bill
Mafwemiro ZMUC Cat.no. 93.215	130.8	35.2	57.5	—
Cat. 93.216	137.0	36.4	61.8	18.7
Cat. 93.217	132.0	35.6	57.7	19.1
Udzungwa Cat. 91.301	149.0	39.0	73.0	23.7
Cat. 91.302	148.5	38.0	73.0	23.7
Cat. (spirit; tail partly lost)	140.5	36.8	(52.2)	19.7
UDSM specimen	137.5	35.5	68.0	23.7

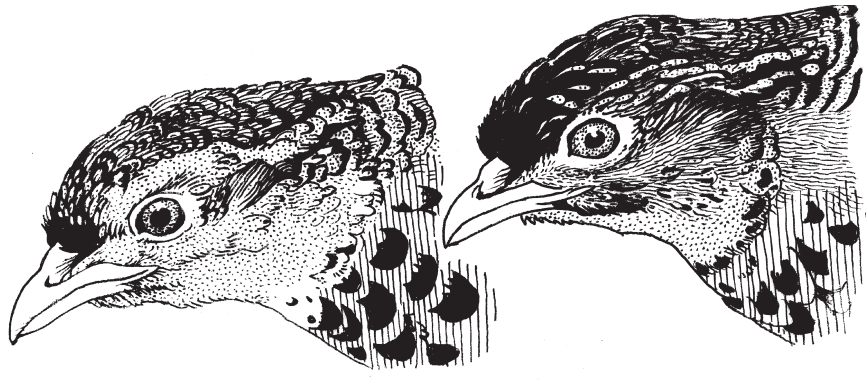

Figure 1. Portraits comparing *Xenoperdix* specimens from the Udzungwa Mts (based on ZMUC 91.302) and Mafwemiro Forest (ZMUC 93.215).

Xenoperdix udzungwensis obscurata, subsp. nov.

Holotype

The Zoological Museum University of Copenhagen (ZMUC) cat. no. 93.215. Sex not determined. Collected 29 December 2000 in Mafwemiro Forest (6º50'S 36º34' E), which covers the top plateau of an outlying ridge in the northern Rubeho Mountains, west of the main ridge. This forest is situated in the Mpwapwa District, Dodoma Region.

Diagnosis

All birds are distinctly smaller than those of the nominate subspecies (Table 1) with relatively shorter tails (0.44-0.45 of wing-length, against 0.49 in the nominate subspecies). None of the individuals have the "necklace" of mostly white feathers with variable black spots seen in the nominate subspecies (Fig. 1). Instead there is an arc of black spots placed along the olive-grey borderline between throat and breast. The face is more obscured with dusky than in the nominate subspecies, but this may be somewhat variable among individuals. Under tail-coverts have only faint traces of the ochraceous wash on the white distal parts seen in the nominate subspecies. Secondaries have, overall, less distinctive barring, and the wing-coverts have distinctive grey to whitish distal margins, giving a scaly effect quite unlike the black-and-ochraceous barring in the nominate form. Rectrices are less broad (11-14 mm vs. 15-20 mm), and the bars of the central feat-hers are less distinctive black.

Description of holotype

Upperparts: forehead black, grading to dark olive-brown crown with fine black vermiculations and buff shaft streaks on some feathers. Feathers of nape and mantle barred, black tip being followed by alternating broad orange-rufous and olivaceous bars separated by thin black lines. Lower back and rump similar but with the olivaceous zones wider, with some black vermiculations, and with olivaceous tip outside the most distal terminal bar. Humerals with inner vanes barred mahogany-red and black, often with a large black patch, and outer vanes fading to pale grey with fine rufous and dusky vermiculations near the mahogany-red outer edge, and shafts whitish. Rectrices deep chestnut (Auburn), with broad black sub-terminal bar and narrow cinnamon-white tip, the central feathers lighter brown with six indistinct blackish bars and some fine dusky vermiculations.

Wings: rounded, remiges dark brown, outer vanes with faint ochreous-orange marginal notches and vermiculations, which expand to form irregular pale bars on secondaries; tertials more greyish-brown, inner ones patterned like scapulars. Also greater wing-coverts resemble scapulars, but the middle coverts are fuscous-black with pale grey distal margin, and the smaller coverts fuscous with buffy white distal margin.

Face and underparts: sides of head diffusely marked orange-rufous (Amber Brown) and dusky with some small black spots and rather broad orange-rufous shaft streaks on the post-ocular part of the supercilium. Chin and throat uniform orange-rufous, the narrow olive-brown transition towards grey breast adorned with a black spot centrally on each feather. Breast and sides neutral grey with partly concealed large black spot centrally on each feather, most feathers on lower breast and sides also with white sub-marginal zone. Flanks rather diffusely mottled olivaceous grey and ochraceous with occasional black spots; belly buffy-white, downy; under tail coverts mainly greyish-olive with occasional black speckles and whitish terminal part.

Bare parts: bill scarlet, legs yellow, skin of the ocular area ochraceous-orange with rudimentary feathering.

Measurements (mm): flattened wing 130.8, tarsus 35.2, tail 57.5, exposed culmen 17.

Syntypes

ZMUC kat. no. 93.216 (sex not determined) and 93.217 (ad. female, with vascularised brood-patch), both with partial skeletons; collected 22 December 2000 and 12 January 2001, respectively. Both birds were collected in Mafwemiro Forest.

Variation

The three individuals are similar in all plumage characters, except that No. 93.216 has a more clear-cut facial pattern with prominent orange-rufous supercilium (from in front of eyes to side of nape), lore and anterior cheeks, the dark mottling being restricted to posterior cheeks, ear-coverts, malar and rictal stripes.

Measurements of all three individuals are given in Table 1, together with those of the nominate subspecies.

Etymology

The subspecific name refers to the diffusely mottled face and rather inconspicuous "necklace" compared with the nominate subspecies (see Fig. 1).

Habitat and population

Mafwemiro forest covers 32 km^2 at 1,600-2,200 m a.s.l. It is mostly mature forest with a canopy height of 25-30 m but some logging of *Podocarpus* has taken place on the top ridge and also some *Syzygium* has been taken out. Dominant tree species include *Albizia gummifera*, *Bridelia brideliifolia*, *Myrianthus holstii*, *Olea europaea*, *Phoenix reclinata*, *Polyscias fulva*, *Schrebera alata* and unidentified Rutaceae and Sapotaceae species in the low parts and *Aphloia theiformis*, *Podocarpus* spp., *Ocotea* spp., *Rinorea* sp. and *Syzygium* sp. on the ridges (N. Doggart & A. Perkin, *in litt.*). So far only the eastern parts, reachable from the Mbuga Mission, have been explored, during 10 days in March 2000, 14 days in May 2000, 14 days in December 2000/ January 2001 and six days in August 2001 (JK, and during the last visit also members of the Tanzania Forest Conservation Group).

Forest partridges were seen only on Chugu Hill in the north of the forest reserve. On 27 March 2000 two groups, four birds in each (probably pair with young), were seen. On 14 May 2000 one group of seven were seen, on 15 May three birds, on 18 December four birds were seen feeding near a stream, on 24 December two birds. On 2 January 2001 two adults were seen with four pulli. Judging from the few observations, the population density may be rather low. No birds were seen in two study sites in the southern (main) part of the forest.

The Udzungwa population, which is distributed at 1,350-1,900 m.a.s.l., has been estimated to number 3,700 birds (Dinesen *et al.* 2001).

Discussion

The new record might be taken as evidence that *Xenoperdix* is much more widespread than thought. The species normally runs away quietly when disturbed, and can therefore be difficult to detect, especially as it is alert in places with frequent human disturbance. Snares are being used in all forests where the forest partridge is found but the intensity of hunting is low (compared with other forests in the district) and mainly concentrated near the forest margins. The species may have been extirpated in some forests and small local populations may also have been overlooked. However, ornithological exploration has been quite intensive in the montane forests of central Tanzania in recent years (Dinesen *et al.* 2001, Fjeldså *et al.* unpublished). Nearly all forests (except small patches) have been visited in the Udzungwas and in the highlands north of the Great Ruaha Basin (Image, Iyungi in Uvidunda Mts, Mangalisa, Msanga and the large Uquiwa forest in the Rubehos, and two forests in Wota Mts W of

Mpwapwa). Thus, the forest partridge does not seem to be widespread and we are more inclined to believe that its distribution is disjunct.

A disjunct distribution is also suggested by the apparent morphological non-overlap between the two populations. The ornamental pattern on the face and throat varies greatly amongst the Oriental hill and wood-partridges, suggesting that a diversity of neutral alleles cause high plasticity in evolution of these ornaments.

Local distribution could be related to special but yet unknown habitat requirements. The species is known only from forests with *Podocarpus* trees but within each forest it is seen in places with a variety of different trees. The only universal habitat feature of places where it has been seen is a rather open understorey with scattered sedges (*Cyperus*) and ferns. Mature *Podocarpus* forest is found in Image forest (which is heavily logged but has a small undisturbed area in the north) and the southern part of Mangalisa forest, but in both these forests there is dense undergrowth of tall herbs, which may not be suitable for the partridge. Many highland forests are severely disturbed, by humans and elephants, and some may be secondary forests. The highlands are sometimes swept by large wildfires (most of them initiated by humans), which sometimes disturb considerable areas of evergreen forest.

The location of known *Xenoperdix* populations in mountains flanking the Great Ruaha Basin to the south and north could be related to long-term climatic predictability. Throughout the Pleistocene, these highlands may have been under a constant influence of warm humid winds from the Indian Ocean (Fjeldså & Lovett 1997, Burgess *et al.* 1998) and conditions may be particularly favourable in humid highlands bordering towards the intermontane basin, which acts as a local high pressure centre, with warm air rising up the mountain slopes. Several narrowly endemic taxa are found in this area, some of them restricted to one side of the Great Ruaha basin, others inhabiting highlands on both sides (Fjeldså *et al.* unpublished).

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Specimen record of Black-whiskered Vireo *Vireo altiloquus* in Peru is erroneous

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The Black-whiskered Vireo *Vireo altiloquus* breeds in coastal areas of southern Florida, USA, south through the Caribbean to islands off the coast of Venezuela, and winters in Amazonian Brazil; the true geographic extent of its wintering area, however, is poorly known (see Remsen 2001).

Some literature includes "Peru" or "northeastern Peru" as part of the non-breeding distribution of *Vireo altiloquus* (e.g. Ridgely & Tudor 1989, Parker *et al.* 1996). Recent authors appear to have followed Zimmer (1941), who accepted a Peru record for *Vireo altiloquus barbatulus* on the base of an entry in Gadow (1883) for a specimen of *Vireo calidris b V. barbatula* taken by Hauxwell at Chamicuros; Chamicuros is a site in the Peruvian portion of the Amazon basin, now in the department of Loreto (Stephens & Traylor 1983). The Hauxwell specimen was received at the then British Museum (Natural History) (now The Natural History Museum, Tring) from the Gould Collection (Gadow's specimen h; page 294). Zimmer did not examine the Chamicuros specimen himself; he accepted Gadow's reported identification ("Both *chivi* and *olivaceus* [including *flavoviridis*] were known to Gadow ... and it is not likely that a specimen of either would have been identified as *barbatulus*"). Zimmer merely updated the nomenclature from *Vireo calidris* (as used by Gadow and other authors of that period) to *Vireo altiloquus* (modern usage), and speculated as to which subspecies of *altiloquus* the Chamicuros specimen might represent.

There are no subsequent specimen records of *Vireo altiloquus* for Peru. The Chamicuros specimen stands out as particularly odd in that there also are no records of this species for Ecuador (Ridgely & Greenfield 2001) nor for Amazonian Colombia (Hilty & Brown 1986).

One of us (PS) re-located what we believe to be the Chamicuros specimen that Gadow reported as the Chamicuros record of *Vireo altiloquus*. This specimen, BMNH