

# Species limits in some Indonesian thrushes

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Taxonomic re-assessment of a number of Indonesian endemic or near-endemic thrush taxa elevates five subspecies to species level and demotes two species to subspecies. The subspecies *joiceyi* (Seram) of Moluccan Thrush *Z. dumasi* (Buru) diverges from the latter in at least three major and five medium plumage features. The subspecies *leucolaema* (Enggano, off Sumatra) of the widely distributed but morphologically uniform Chestnut-capped Thrush *Zoothera interpres* is very distinct in both adult and juvenile plumage and in bill size, and fairly distinct in leg and wing size, with voice apparently also significantly different. The subspecies *mendeni* (Peleng, off Sulawesi) and a closely related but undescribed taxon on Taliabu of Red-backed Thrush *Z. erythronota* both differ strikingly from the latter in their all-black underparts and brighter upperparts. These three distinctive forms may better be regarded as species. On the other hand, Horsfield's Thrush *Zoothera horsfieldi* is virtually identical to and hence difficult to treat as anything but a subspecies of Scaly Thrush *Zoothera dauma*, whose other forms, some now elevated to species level, require assessment. The three races *castaneus* (Sumatra), *glaucinus* (Java) and *borneensis* (Borneo) of Sunda Whistling Thrush *Myophonus glaucinus* show strong plumage, clear mensural and possible vocal and ecological differences, so are better regarded as three species. White-crowned Shama *Copsychus stricklandii* (northern Borneo) and race *suaavis* of White-rumped Shama *C. malabaricus* (rest of Borneo) separate on a single character, intergrade in a broad contact zone, and are better treated as conspecific.

## INTRODUCTION

Owing to a long period of general taxonomic neglect, species limits in Asian birds may be more relaxed than in other major regions of the world, resulting in a misalignment of taxonomic standards that undervalues the region's species diversity (Collar 2003). Some groups of Asian birds clearly and urgently merit taxonomic re-assessment, and in this paper I consider several instances amongst 'Indonesian thrushes' (*sensu lato*—thus including one species of chat, and extending into the Malaysian and Brunei parts of Borneo).

I based this investigation on museum specimens, and visited five museums where the taxa in question are represented by appropriate material (AMNH = American Museum of Natural History, New York, BMNH = Natural History Museum, Tring, U.K., RMNH = Naturalis, Leiden, SMTD = Staatliches Museum für Tierkunde, Dresden, USNM = United States National Museum [Smithsonian Institution], Washington D.C.). Measurements were taken using callipers, dividers and rulers kindly provided by the institutions visited. A total of 326 specimens representing 15 taxa were measured for four variables (bill from skull, tarsus, left wing curved, tail): *Zoothera dumasi dumasi* (3 in AMNH), *Z. d. joiceyi* (1 in AMNH), *Z. interpres interpres* (9 in AMNH, 18 in BMNH, 4 in USNM), *Z. i. leucolaema* (6 in RMNH, 11 in USNM), *Z. erythronota erythronota* (17 in AMNH, 6 in RMNH, 1 in SMTD), *Z. e. mendeni* (1 in SMTD), *Z. dauma dauma* (14 in BMNH), *Z. d. horsfieldi* (16 in AMNH, 9 in BMNH, 5 in RMNH), *Z. d. aurea* (16 in AMNH), *Myophonus glaucinus glaucinus* (20 in AMNH, 17 in BMNH, 4 in USNM), *M. g. castaneus* (9 in AMNH, 4 in BMNH, 17 in RMNH), *M. g. borneensis* (8 in AMNH, 14 in BMNH, 4 in RMNH, 2 in USNM), *Copsychus malabaricus suaavis* (14 in AMNH, 17 in BMNH, 19 in USNM), *C. m. stricklandii* (12 in AMNH, 19 in BMNH, 8 in USNM), and *C. m. barbouri* (1 in USNM). The number given for each institution is not necessarily the number of specimens held there but rather the number I measured (where subsets of the total were selected, this was done using a random number table except as where stated or, for

*Z. d. aurea*, where eight males and eight females were chosen primarily on availability); and not all specimens could be measured for all four parameters. These and other data on specimens are lodged in the BirdLife International library, Cambridge, U.K. In the plumage matrix tables, characters are generalised to allow for intra-taxon variation, although in all cases this was slight. In the morphometric tables, means are presented  $\pm$  one standard error. Comparisons between pairs of taxa were made using unpaired two-tailed t-tests corrected for unequal variances. Comparisons between more than two taxa were made using one-factor ANOVAs. I took all photographs with a digital camera without flash, in indirect natural light.

## MOLUCCAN THRUSH *Zoothera dumasi*

The two taxa that comprise Moluccan Thrush, *Zoothera d. dumasi* and *Zoothera d. joiceyi*, are clearly closely related, and throughout the second half of the twentieth century they were treated as conspecific (Ripley 1952, 1964, White and Bruce 1986, Sibley and Monroe 1990, Andrew 1992, Inskipp *et al.* 1996, King 1997, Clement 2000). Such an arrangement is certainly plausible, although it was not considered appropriate by the describers of *joiceyi* (Rothschild and Hartert 1921), who (despite their early conversion to the trinomial system) regarded it as 'a near ally' but not a subspecies of *dumasi*. Recently, P. C. Rasmussen, in the entry for Moluccan Thrush in BirdLife International (2001), revived the issue by commenting that the differences in plumage between the two taxa might better be reflected if they were to be treated as separate species, an opinion that was compressed into the blunter parenthetical assertion in BirdLife International (2000) that 'the two races should be treated as separate species'. Prompted by this, I examined and photographed the types of both taxa (Plates 1–3), and tabulated their characters (Tables 1–2).

As far as I am aware, there is only one museum specimen of *joiceyi* and (apart from two collected by Toxopeus: Siebers 1930) only six of *dumasi*, all held in



**Plate 1.** Dorsal view of the types of *Zoothera dumasi* (upper) and *Z. joiceyi* (lower). The apparent narrow whitish rump in *dumasi* is formed by displaced underpart feathers. The progressive loss of dull rufous from mantle to tail in *joiceyi* is slightly more obvious in the skin than in any of several images taken in various lights.



**Plate 2.** Lateral view of the types of *Zoothera dumasi* (upper) and *Z. joiceyi* (lower).



**Plate 3.** Ventral view of the types of *Zoothera dumasi* (upper) and *Z. joiceyi* (lower).



**Plate 4.** Dorsal view of *Zoothera interpres* (USNM 182575, upper) and *Z. leucolaema* (USNM 180743, lower).



**Plate 5.** Lateral view of same specimens as in Plate 4 (note the relative sizes of the bill of the two taxa).



**Plate 6.** Ventral view of same specimens as in Plate 4.



**Plate 7.** Dorsal view of *Zoothera mendeni* (SMTD C44567, type; upper) and *Z. erythronota* (SMTD C13869; lower).



**Plate 8.** Lateral view of the same specimens as in Plate 7. Note that the white of the ear-coverts is variable in *erythronota* and only seems much bolder in *mendeni* on Plate 8 owing to its weakness in the only specimen of *erythronota* available for photographic comparison.



**Plate 9.** Ventral view of the same specimens as in Plate 7.



**Plate 10.** Dorsal view of four specimens of *Zoothera dauma*, bottom to top: *Z. d. horsfieldi* from Java (BMNH 1927.4.18.513), *Z. d. dauma* ('affinis' on label) (from peninsular Thailand (BMNH 1936.4.12.1540), *Z. d. dauma* from Vietnam (BMNH 1919.12.20.349), *Z. d. dauma* from Laos (BMNH 1955.1.4295).



**Plate 11.** Lateral view of same specimens as in Plate 10.



**Plate 12.** Ventral view of same specimens as in Plate 10.

AMNH. Three of the *dumasi* specimens are adult (AMNH 576271–3: two males, one the type, and a female); one (AMNH 576276: a female) has the semblance of adulthood but is immature as it retains one or two buff tips to the primary coverts and is not quite the size of the adults; and two are juveniles (AMNH 576274–5: one a recently fledged male, the other an unsexed nestling with half-grown wings and no tail). The material was collected by Dumas for A. Everett (the type), E. Stresemann (576272–3) and the Pratt brothers (576274–6), and it seems unlikely that the birds were mis-sexed (which would raise the possibility that all six are one sex and *joiceyi* the other of a single species, although sexual dichromatism is not apparent in other Indonesian *Zoothera*). All six specimens of *dumasi* are uniform dull rufous-brown above, although the juveniles have pale shaft-streaks; all show a double row of spots on the wing-coverts, although these are buff-tinged in the juveniles; all show stippled white lores and black-based greyish-rufous ear-coverts with pale shaft-streaks. Two have the collector's soft-part colour record: 576272 has bill black, iris dark brown, legs pale greyish-flesh; 576276 has bill black, iris brown, legs yellowish. At this stage of their preservation all six have light yellowish-flesh legs and feet. The three adults and one immature agree strongly in plumage pattern as mapped out in Table 1 (the juveniles typically have mottled blackish-and-buffy breasts, whitish mid-throats and bellies and rust-tinged greyish-buff flanks).

The type and only specimen of *joiceyi* unfortunately lacks data on locality ('Mts of Ceram'), date of collection or, indeed, its sex. However, it does not appear to

be an immature bird moulting into a plumage that could resemble an adult *dumasi*. It shows no trace of immaturity such as a buff edge to a white covert-tip or pale shaft-streaks on the crown and nape; moreover, the primaries are fresh, showing no sign of moult or wear, although the tail-tips are somewhat frayed. The presence of two rows of spotted wing-coverts in the two juvenile *dumasi* excludes the possibility that the second row of wing-spots might only be acquired when moulting into adult plumage; *joiceyi* may be assumed to show only a single row of wing-spots in all plumages. The legs of the type of *joiceyi* are now dark reddish-brown.

There are no striking morphometric differences between the taxa (Table 2), but the somewhat longer tarsus and foot in *joiceyi* than in *dumasi* may be a real difference rather than a sample-size artefact. The wing formulae are almost identical, although in *joiceyi* P5–7 are all much the same length whereas in *dumasi* P5 is a few millimetres shorter than P6–7. Nevertheless, the type of *joiceyi* differs conspicuously from *dumasi* in (1) the progressive loss of dull rufous from mantle to tail, (2) the possession of only a single row of wing-spots, and (3) having the black of the breast extending, with narrow white crescents or scales, onto the belly and all along the flanks. It also lacks (4) the apparent eye-ring, (5) pale stippled lores, (6) ochraceous vent and (7) dull rufous-brown breast-sides of *dumasi*, and shows (8) all-black ear-coverts (Table 1, Plates 1–3). There is also the fact that it possesses (9) a very subtle barred effect on the lower upperparts and tail, and (10) dark reddish-brown tarsi as compared to pale yellowish-brown in *dumasi* (this distinction was also noted by

**Table 1.** Comparative plumage matrix for *Zoothera dumasi* and *Z. joiceyi*. This is based on the type specimens of *dumasi* (AMNH 576271, male) and *joiceyi* (AMNH 576277, unsexed) in AMNH, plus a further male and female *dumasi* (AMNH 576272 and 576273 respectively). An asterisk (\*) against a topographical feature indicates an area where no difference was found. Notes: <sup>1</sup>None was visible in the field at close range (Bowler and Taylor 1989). <sup>2</sup>Close examination shows this area to be extremely finely barred olive and grey-brown (a point first noted by LeCroy 2003), continuing onto the tail; no such effect exists in *dumasi*. <sup>3</sup>An ochre stain here is the result of fat leaking from the ventral incision (M. LeCroy verbally 2004). <sup>4</sup>These feathers are black basally, and when displaced the vent looks black and white. LeCroy (2003) pointed this out in explaining a discrepancy between accounts in White and Bruce (1986) and Bowler and Taylor (1989), which had led the latter to surmise the existence of a second *Zoothera* taxon on Seram.

Character	<i>Zoothera dumasi</i>	<i>Zoothera joiceyi</i>
Lores	whitish or stippled white on black	black
Eye-ring	whitish	black <sup>1</sup>
Crown*	dull rufous-brown	dull rufous-brown, grading to
Mantle and upper back	dull rufous-brown	dull olive-brown, grading to
Lower back to rump	dull rufous-brown	sooty-greyish olive-brown <sup>2</sup>
Tail	dull rufous-brown	sooty-greyish olive-brown
Wing feathers (outerwebs)	dull rufous-brown, tinged olive	blackish grey-brown
Median wing-coverts*	blackish-brown tipped white	blackish-brown tipped white
Greater wing-coverts	blackish-brown tipped white	blackish-brown
Face*	black	black
Chin and throat*	black	black
Ear-coverts	greyish-rufous, pale shafts, black bases	black
Breast	black with dull rufous-brown sides	black
Upper belly	white with a few black blotches (tips)	black with white fringes
Lower belly*	white with a few black marks	white with a few black marks <sup>3</sup>
Flanks	dull olive-rufous, grey basally	greyish-black with white fringes
Vent/undertail-coverts	whitish-ochre	whitish <sup>4</sup>

**Table 2.** Morphometrics of *Zoothera dumasi* (AMNH 576271–3) and *Z. joiceyi* (AMNH 576277).

Taxon	Bill	Tarsus	Middle toe	Middle claw	Hind toe	Hind claw	Wing	Tail
<i>Z. dumasi</i> (n=3)	21±0.58	32.7±0.33	12.3±0.26	6.7±0.15	11.2±0.35	7.7±0.07	89.0±0.58	69.3±2.7
<i>Z. joiceyi</i> (n=1)	21	37	13.3	7.8	12.6	8.9	89	73

Rothschild and Hartert 1921) although, in the field, the legs of *joiceyi* appeared 'pale greyish' (Bowler and Taylor 1989). These three strong, five medium and two debatably minor differences (plus the possibly larger leg and foot) are, in my view, sufficient to warrant treatment of the two taxa as separate species: Buru Thrush *Z. dumasi* and Seram Thrush *Z. joiceyi*.

Both Buru and Seram are Endemic Bird Areas (Stattersfield *et al.* 1998), and Moluccan Thrush was one of two species common and endemic to both islands. As noted in BirdLife International (2001), which treated the Moluccan Thrush as Near Threatened, separation of the two taxa 'might qualify one or both for threatened status'. Evidently, however, both these thrushes are very retiring, and the possibility that they are more abundant than the records suggest is real. On the other hand, it is equally possible that they are restricted to pockets of habitat—for example, level areas with deep leaf-litter—which may be very restricted on both islands; and indeed in a survey of Seram in 1996 (for which see Isherwood *et al.* 1997, 1998) *joiceyi* was glimpsed only a few times, always in the limited areas of level forest (J. M. M. Ekstrom verbally 2004). Moreover, they may be subject to the heavy trade that afflicts *Zoothera* thrushes elsewhere in Indonesia because of their abilities as songsters (see under Chestnut-backed Thrush *Z. dohertyi* in BirdLife International 2001).

### CHESTNUT-CAPPED THRUSH *Zoothera interpres*

The Chestnut-capped Thrush is uniform in appearance throughout its mainly Sundaic range from southern Thailand through Peninsular Malaysia, Sumatra (very few records, and left blank on the range map in Clement 2000), certain Lesser Sunda islands as far as Flores, Borneo and the Sulu archipelago in the Philippines. On the West Sumatran island of Enggano there is a population bearing the name *leucolaema* which, although highly distinctive, has for many years been treated as a race of *interpres*. This lumping appears to have started with Chasen (1935) and, despite protest from Junge (1938), continued with Ripley (1944, 1952, 1964) and hence various subsequent authoritative treatments (van Marle and Voous 1988, Sibley and Monroe 1990, Andrew 1992, Inskipp *et al.* 1996, King 1997, Clement 2000, Clements 2000).

Chasen (1935) did nothing to justify his lumping of the taxa (an asterisk against his entry for *leucolaema*

indicates that he had not personally examined any specimens). However, Junge (1938) did his best to unclump them, declaring that Chasen's move 'goes too far in my opinion'. Junge pointed to the differences in coloration of head and neck, upperparts, wing-coverts, ear-coverts, lores and flanks; and my own comparison of the fairly extensive material of both taxa in RMNH and USNM confirms and extends Junge's analysis (Table 3). It appears that *leucolaema* is derived from a Chestnut-capped Thrush ancestor, since the two show a very close resemblance in overall plumage pattern, but it will be noted that there is no exact match between any one of the colour designations in the plumage matrix in Table 3.

Junge (1938) also pointed out two other fairly significant features: wing formulae and juvenile plumages. In *leucolaema* the first primary (P10) is much longer than the primary coverts, whereas in *interpres* it is much shorter; and in *leucolaema* the third (P8) and sixth (P5) primaries are roughly equal in length, whereas in *interpres* the third is clearly longer (whether this difference reflects the more nomadic behaviour of the wider-ranging *interpres* is not clear). Juvenile *leucolaema* has the head and upperparts nearly black, including lores and ear-coverts, while juvenile *interpres* has the head to mantle reddish-brown with whitish lores and a whitish patch on the ear-coverts; in *leucolaema* the breast is blackish, in *interpres* whitish-brown; and the patterns of spotting in the wing-coverts of the two taxa tend to match those of the respective adults, although in *leucolaema* the spotting is brownish and in *interpres* white.

Ripley (1944) cited Junge (1938) in his reference list, but made no reference to Junge's strong arguments in his own treatment of *leucolaema*, which instead followed that of Chasen (1935), even though Ripley was apparently the first to notice a further, very striking distinction—that the bill of *leucolaema* 'is considerably larger'. This point is borne out in Table 4, from which it further emerges that *leucolaema* has a significantly longer tarsus and significantly shorter wing than *interpres*. Photographic comparisons (Plates 4–6) also demonstrate the marked enlargement of the bill in *leucolaema*, as well as some of the other foregoing points.

Ripley's implicit view that *leucolaema* represents a neotenus condition ('In colour *leucolaema* is dull and unfinished looking as if in slightly immature plumage') is consistent with his making it a subspecies of its presumed parent. One could argue, too, that the larger bill merely testifies to a local shift in ecological niche, possibly a simple expansion in the less diverse environ-



**Plate 13.** Sunda Whistling Thrush males (lateral view): top *M. castaneus* (AMNH 590376), middle *M. glaucinus* (AMNH 590359) and bottom *M. borneensis* (AMNH 590350).



**Plate 14.** Sunda Whistling Thrush females (lateral view): top *M. castaneus* (AMNH 590379), middle *M. glaucinus* (AMNH 590369), bottom *M. borneensis* (AMNH 590349).



**Plate 15.** Sunda Whistling Thrush immatures (lateral view): top *M. castaneus* (AMNH 590374), middle *M. glaucinus* (AMNH 590371), bottom *M. glaucinus* (AMNH 590351).



**Plate 16.** Sunda Whistling Thrush immatures (ventral view): same taxa, specimens and sequence as in Plate 15.



**Plate 17.** Dorsal view of *Copsychus malabaricus stricklandii* (USNM 472775; upper) and *C. m. suavis* (USNM 181567; lower).



**Plate 18.** Ventral view of same specimens as in Plate 17.

**Table 3.** Comparative plumage matrix for *Zoothera interpres* and *Z. leucolaema*.

Character	<i>Zoothera interpres</i>	<i>Zoothera leucolaema</i>
Lores	whitish	black
Crown, mantle and neck-side	chestnut	rusty-ochre
Back	blackish-scaled slaty-grey	olive-ochre
Rump	blackish-scaled slaty-grey	rust-tinged olive-ochre
Tail	blackish with vague grey-black bars	dark brown
Flight feathers (innerwebs)	blackish	mid-brown
Flight feathers (outerwebs)	blackish	pale ochraceous-brown
Median wing-coverts	white	slaty-brown tipped white
Greater wing-coverts	blackish, broadly tipped white	slaty-brown, narrowly tipped white
Face and ear-coverts	black with 1-2 white flecks on latter	sooty-black
Chin and throat	black	whitish in fairly narrow rough-edged strip
Breast	black with a few white flecks	sooty-black
Upper belly	white with bold black spots	white with a few (laterally placed, small) black spots
Lower belly	white	buff-tinged white
Flanks	white with bold black spots	pale rusty-buff with few small black spots
Vent/undertail-coverts	white	pale rusty-buff

**Table 4.** Morphometrics of *Zoothera interpres* and *Z. leucolaema*.

Taxon	Bill	Tarsus	Wing	Tail
<i>Z. interpres</i>	18.6±0.23 (n=31)	28.3±0.25 (n=30)	103.6±0.51 (n=31)	63.4±0.88 (n=31)
<i>Z. leucolaema</i>	21.2±0.13 (n=17)	31.6±0.23 (n=17)	98.3±0.84 (n=17)	64.8±0.76 (n=17)
<i>t</i>	-9.62	-9.61	5.34	-1.18
<i>P</i>	<0.0001	<0.0001	<0.0001	NS

ment of Enggano, where no species of pitta *Pitta*, which are presumably natural competitors of *Zoothera* thrushes, occur (Holmes 1994). Nevertheless, when the entirety of the morphological differences are taken into consideration—(a) subtle but complete differences in adult plumage coloration throughout the body (Table 3); (b) considerable difference in juvenile plumage coloration; (c) structural difference in wing formula; and (d) structural differences in bill, leg and wing length—and when to this is added the point that, according to B. F. King (in Collar 2003), (e) *leucolaema* has a different song from *interpres* (more like a begging call than true song; B. F. King verbally 2004), Ripley's position seems inappropriately restrictive. All these factors combine to make a reasonable case for regarding *leucolaema* as a distinct species.

Whether the 'Enggano Thrush'—if this name is acceptable—would qualify as a threatened species is not, however, clear. At 450 km<sup>2</sup> Enggano is relatively small, and cannot hold substantial populations of any forest bird larger than a sunbird; on the other hand, W. L. Abbott reported on the label of one of his specimens 'common and not at all shy' (USNM 180749). Owing to the presence of the Enggano Scops Owl *Otus enganensis* and Enggano White-eye *Zosterops salvadorii*,

Enggano is already an Endemic Bird Area whose forest cover was reported to be fairly intact in the mid-1990s (Stattersfield *et al.* 1998); however, proposals for agricultural development caused the relatively scarce Scops Owl to be listed as Near Threatened by BirdLife International (2001). A new assessment of the situation on the ground in Enggano is really needed in order to allocate a meaningful status category to the thrush; and I think this also applies to *Z. interpres*, which is by no means a common bird within its large range (S. van Balen verbally 2004) and which has probably undergone a serious decline in the Lesser Sundas owing to trapping pressure.

### RED-BACKED THRUSH *Zoothera erythronota*

On 24 August 1938, J. J. Menden discovered a distinctive thrush at 300 m on Peleng in the Banggai Islands east of Sulawesi (data in Eck 1976). I quote the entire original description from Neumann (1939):

Front [= forehead], middle of head, upper neck, interscapulum, back, rump, and upper tail-

coverts cinnamon. Sides of head, wing, all wing-coverts, tail, and whole underside black, the black and the cinnamon colours are very sharply defined. A longitudinal white patch above the eye and a larger white patch behind the eye on the hinder part of the cheek. The upper third of the inner webs of the primaries, with the exception of the first and second, white. The white bar is only visible on the underside of the wing. Iris brown, bill slaty-blue, feet flesh-coloured. Wing 114, tail 72 mm.

Neumann accepted that *Zoothera mendeni* was a geographical representative of *Z. erythronota*, *Z. dohertyi* and *Z. dumasi*, but noted that it 'differs at once from all thrushes by the extremely sharp delimitation of the three colours'.

This was not good enough for Zimmer and Mayr (1943), however. Their entire comment on the new taxon ran: 'This is a melanistic race of *erythronota* (Celebes), in which the white marks on wings and under parts have disappeared.' Within a decade Ripley (1952, 1964) had synthesised *Z. erythronota*, *Z. mendeni* and even Chestnut-backed Thrush *Z. dohertyi* from the Lesser Sundas as forms within a single species (*erythronota*). Although Eck (1976) resisted the lumping of *dohertyi*, he somewhat reluctantly accepted the maintenance of *mendeni* in *erythronota*, and in both these judgements he was followed by White and Bruce (1986) and all subsequent authorities (Sibley and Monroe 1990, Andrew 1992, Inskipp *et al.* 1996,

Coates and Bishop 1997, Clement 2000, Clements 2000), with one exception. In 1994, B. F. King expressed the view in Inskipp *et al.* (1996) that *mendeni* merited specific recognition, and he subsequently reaffirmed this, albeit without providing a justification, in his own list of Eurasian species (King 1997)—a split missed, incidentally, by Collar (2003).

It is incontestable that *mendeni* is a melanistic representative of *erythronota*, and there is no mensural disjunction between the two taxa (see Table 6); although the bill of the type of *mendeni* is snapped and cannot be measured, it is not strikingly different from *erythronota* (Plate 8). There is, too, a tendency towards melanism in *erythronota* which is indicated by the darker back of a few Sulawesi specimens and of apparently all birds (new race *kabaena*) on Kabaena (Robinson-Dean *et al.* 2002). In spite of this, the differences between *erythronota* and *mendeni* are so pronounced that they seem to me to exceed the differences between the other, currently accepted species within the Sundaic red-backed thrush complex, and they are certainly far greater than the variation otherwise found within *erythronota* (*erythronota* plus *kabaena*).

Moreover, it is not just a matter of melanism. Eck (1976) correctly observed that the colour of the forehead to rump is brighter in *mendeni* than it is in *erythronota*; in Table 5 I tabulate this colour as 'rufous-cinnamon' rather than Neumann's mere 'cinnamon' (see Plate 7). The underwing patterns are essentially the same (one would not expect this to vary in a

**Table 5.** Comparative plumage matrix for *Zoothera erythronota* and *Z. mendeni*. The latter is described on the basis of the type specimen (SMTD C44567, a male). An asterisk (\*) against a topographical feature indicates an area where no difference was found. <sup>1</sup>Neumann indicated that all wing-coverts are black, which is not quite accurate. <sup>2</sup>I could not see Neumann's 'longitudinal white patch above the eye' (white cotton wool in the eye-slits in Plate 8 should not be mistaken for this). <sup>3</sup>The type of *Z. mendeni* has 1–2 mainly concealed white feathers here. <sup>4</sup>The rufous tinge may be an age-related feature.

Character	<i>Zoothera erythronota</i>	<i>Zoothera mendeni</i>
Lores	white	black
Crown, mantle and neck-side	dull cinnamon	rufous-cinnamon
Back	cinnamon	rufous-cinnamon
Rump*	rufous-cinnamon	rufous-cinnamon
Tail	slaty-black with white outer tips	slaty-black
Primaries	slaty-black with white outer edges to longest, white bases to outer vanes of inner	slaty-black
Secondaries	slaty-black with white bases	slaty-black
Median wing-coverts	black with broad white tips	black
Greater wing-coverts	slaty-black with broad white tips	slaty-black, some vestigial white tips <sup>1</sup>
Face*	black	black <sup>2</sup>
Ear-coverts*	white	white
Chin and throat	greyish-black with white flecks	black
Breast	greyish-black with broad white band below	black
Upper belly	white with broad black tips	black <sup>3</sup>
Lower belly	white with narrow black tips and vague rufous tinge <sup>4</sup>	black
Flanks	white with black tips and slight rufous tinge <sup>4</sup>	black
Vent/undertail-coverts	white or off-white	black

**Table 6.** Morphometrics of *Zoothera erythronota* and *Z. mendeni*.

Taxon	Bill	Tarsus	Wing	Tail
<i>Z. erythronota</i>	20.8±0.24 (n=23)	32.2±0.22 (n=22)	112.4±0.64 (n=23)	74.5±0.86 (n=22)
<i>Z. mendeni</i>	—	31 (n=1)	112 (n=1)	76 (n=1)

*Zoothera*), but the distribution of white on the upperwing in *erythronota* gives it a clear wing-stripe that *mendeni* lacks. Moreover, while the lack of white (one might better say, the extensive black) in *mendeni* on the underparts, other than a few flecks from white basal feathers (see Plate 9), is ostensibly a matter of melanism, the fact that this lack extends to the median coverts, flight feathers and outer tail suggests something more. These white features must, in *erythronota* and indeed in many species of thrush and chat, function as a set of visual signalling characters, and their loss in *mendeni* implies a behavioural adaptation of some import. Table 5 indicates that only three out of 16 topographical areas in the two taxa share the same coloration, and the totality of these differences seem to me to confirm King's (1997) judgement of *mendeni* as a full species.

It is worth noting that the Banggai and Sula Islands were treated as a separate Endemic Bird Area from Sulawesi by Stattersfield *et al.* (1998). Indeed, the considerable biogeographical distinctiveness of this little-explored EBA is borne out by the fact that no fewer than eight species are unique to it; the split of *Zoothera mendeni* adds further evidence of this distinctiveness. The Red-backed Thrush was listed as Near Threatened in BirdLife International (2001). Separation of *mendeni* as a full species can have no significant influence on the threat category of nominate *erythronota* and its subspecies *kabaena*, but *mendeni* itself, along with its mysterious ally on Taliabu (illustrated in Clement 2000), must now be a strong candidate for listing as a threatened species owing to its restricted range and apparent rarity.

The differentiation and hence potential taxonomic status of the Taliabu population is unclear. Davidson and Stones (1993), who discovered the bird there in 1991, described it as 'black below and on the head, with a large oval white spot on the ear coverts, and deep, rich chestnut above, from the lower nape onto the rump'. This indicates a difference from *mendeni* in that the chestnut—whether this is different from my 'rufous-cinnamon' for *mendeni* is unclear—does not extend over the crown; yet an illustration in Davidson and Stones (1993), by a member of their expedition, clearly shows the crown as concolorous with the back. Later, Davidson *et al.* (1995) reaffirmed that Taliabu birds 'showed plumage characters closest to, though not exactly matching, *Z. e. mendeni*', and the phrase 'closest to *mendeni*' was repeated by Stones *et al.* (1997); but nowhere was it indicated what precisely were the observed plumage differences between the two. Clement (2000) gives a description of the Taliabu bird which begins by stating its proximity to *mendeni* and then introduces details with 'but', as if all that is to follow represents a difference; however, the only obvious distinction is 'chestnut undertail-coverts',

which is not a feature indicated by Davidson and Stones (1993) although perhaps this was communicated privately by one of the observers. Whatever the situation, the Taliabu birds are clearly sufficiently close to *mendeni* to warrant inclusion with it, and for this reason I propose the English name 'Red-and-black Thrush' for the species as an alternative to 'Peleng Thrush' (King 1997). There is, incidentally, a slip in BirdLife International (2000, 2001) in which *mendeni* is attributed to the Banggai Islands (which include Peleng) and the form on Taliabu to 'Peleng and Taliabu'.

### HORSFIELD'S THRUSH *Zoothera horsfieldi*

The recent tendency to split Horsfield's Thrush (resident on Sumatra, Java, Bali, Lombok and Sumbawa) from Scaly Thrush *Z. dauma* is apparently the result of a mistake first spotted by Inskipp *et al.* (1996). In treating it as a separate species in their influential world list, Sibley and Monroe (1990) stated that they were following White and Bruce (1986), whose taxonomic judgements are widely deemed to be well considered; but in fact White and Bruce treated *horsfieldi* as a race of *dauma*—as, for the record, did van Marle and Voous (1988). Nevertheless, several authorities then followed Sibley and Monroe, including King (1997), Clement (2000) and Clements (2000)—Clement (2000) remarking that *horsfieldi* was 'now considered sufficiently isolated to warrant distinct recognition'. Elsewhere, however, this move was ignored (Andrew 1992, MacKinnon and Phillipps 1993, Coates and Bishop 1997) or explicitly rejected (Inskipp *et al.* 1996, Schodde and Mason 1999, Dickinson 2003).

Nonetheless, elucidation of the status of taxa generally treated as subspecies of the Scaly Thrush is an emergent issue. Sangster *et al.* (1998) briefly outlined a new arrangement in which the Asian subspecies shake out as seven species, namely White's Thrush *Z. aurea* and Scaly Thrush *Z. dauma* plus 'Amami Thrush *Z. major*, Nilghiri Thrush *Z. neilgherriensis*, Sri Lanka Thrush *Z. imbricata*, Horsfield's Thrush *Z. horsfieldi* and Fawn-breasted Thrush *Z. machiki*'. Rasmussen and Anderton (in press) adopt and explain these changes as they affect the Indian subcontinent, and BirdLife International has treated *Z. major* (and also *Z. machiki*) as a full species since 1988 (Collar and Andrew 1988, BirdLife International 2001). Some of the splits seem wholly plausible—White and Bruce (1986) were surely correct to elevate *machiki*, and *imbricata* is scarcely less distinctive a bird—but the others appear to depend on often relatively minor morphological characters coupled with vocal differ-

ences for which the evidence is notably incomplete or incompletely evaluated. For example, the song of *neilgherriensis* appears to be unknown (Clement 2000), while P. A. J. Morris (verbally 2004) reports that *major*, whose elevation to species status rests mainly on its very different song from *aurea* (Ishihara 1986, Brazil 1991), turns out to sing very similarly to *dauma*; moreover, so much do the apparently resident birds on Taiwan resemble *horsfieldi* that Hachisuka and Udagawa (1951) gave them that name until Mees (1977) concluded that they are nearer nominate *dauma*.

It is beyond the scope of this paper to undertake a detailed review of the confused and confusing taxonomy of *Z. dauma sensu lato*, yet it is extremely difficult to evaluate any of its taxa or populations without considering the entire complex (even as it extends into Australia). However, the basis of my disquiet with the splitting of the less easily diagnosed taxa in this complex can at least be illustrated by reference to the problems of diagnosis posed by *horsfieldi* and its geographically closest relatives. Clement (2000)—who resisted giving species status to *aurea*, *neilgherriensis* and *imbricata*—described *horsfieldi* as very like *dauma* (*sensu lato*, although by implication of context *Z. d. dauma*) but (my enumeration)

1. 'slightly smaller';
2. 'forehead, crown and upperparts much deeper or olive-russet... and less mottled... with only a few pale yellowish-buff subterminal shaft-streaks... on the mantle, back and scapulars' (I conflate this from Clement's Identification and Description sections);
3. 'face generally darker and more infused with olive on lores and upper ear-coverts';
4. 'submoustachial, cheeks and lower ear-coverts whitish but finely mottled or barred olive or olive-brown on submoustachial and with prominent broad dark brown malar';
5. 'sides of nape... and sides of neck... heavily tipped blackish-brown and sides of breast infused olive or olive-brown';
6. 'dark barring on rump on average lighter';
7. 'tail with 14 feathers, outer two paler brown with small white tips on innerwebs'; and
8. 'song [a] long, thin but loud whistle... similar to that given by race *aurea* of White's Thrush'.

Despite their number, these distinctions seem to me to fall some way short of a convincing case for the maintenance of *horsfieldi* as a full species: two of them (3 and 6) are qualified as general rules and thus are not necessarily diagnostic, two others (4 and 5) lack a

comparative adjective and are thus difficult to interpret, and one of them (8) allies the form vocally with a virtually identical relative.

However, it is no simple matter to find material with which to compare *horsfieldi* and test the above criteria. Logically the populations described as breeding in mainland South-East Asia (Clement 2000), being geographically closest to the westernmost populations of *horsfieldi*, are the most relevant. But what are these populations? Clement (2000), considering them 'inseparable from nominate birds', disallowed the name *affinis*, which Deignan (1938) had first synonymised with *dauma* and then resurrected without explanation (Deignan 1963) for Peninsular Thailand, only for Ripley (1964) to treat it as a synonym of *hancii* from Taiwan; but *hancii* was itself shown to be a synonym of *aurea* by Hachisuka and Udagawa (1951) and by Mees (1977), and indeed Clement (2000), referring to Taiwan birds only, also synonymised anything there called *affinis* or *hancii* with *aurea*. Dickinson (2003), who accepted species status for *aurea* and *major* (and who has been engaged in reviewing these taxa in recent years: E. C. Dickinson *in litt.* 2004), indicated that South-East Asian populations are composed of both *aurea* and *dauma*, but are winter visitors only, with nearest breeding *dauma* in northern and western Thailand. Clement (2000) of course noted too that *aurea* penetrates South-East Asia in winter; but the fundamental problem remains whether *dauma* is resident there or a winter visitor only.

This is not all. According to Rasmussen and Anderton (in press), wing length in the more strongly migratory *aurea* is 154–168, hence showing no overlap with *dauma* (136–147). In BMNH 14 specimens labelled as *dauma* from Myanmar eastwards show a range in wing-size of 135–149 and are thus presumed to contain no *aurea*, but these are rather more saturated than, and without the usually rather obvious small bills of, birds from South Asia (the bill-length difference is only one of 2 mm: see Table 7). It is therefore simply unclear to me whether they are true *dauma*, and their comparison as such with *horsfieldi* may not be valid. However, at this stage there seems to be no alternative or more relevant material to use.

It is difficult to comment on Clement points 4 and 5 given the absence of a comparative adjective, but I agree *horsfieldi* generally shows a slightly whiter lower face and more clearly marked malar, which allies it more with *aurea*—as of course does Clement's final point 8, which suggests that *horsfieldi* might have derived from stranded wintering *aurea* rather than from *dauma*. I did not attempt to count rectrices (point 7), accepting Deignan's (1938) and Mees's (1977)

**Table 7.** Morphometrics of *Zoothera d. dauma*, *Z. d. aurea* and *Z. d. horsfieldi*.

Taxon	Bill	Tarsus	Wing	Tail
<i>Z. d. dauma</i>	27.2±0.30 (n=13)	34.2±0.24 (n=14)	143.2±1.1 (n=13)	115.6±1.2 (n=14)
<i>Z. d. aurea</i>	29.2±0.37 (n=16)	35.7±0.32 (n=16)	158.9±1.0 (n=16)	121.4±1.7 (n=16)
<i>Z. d. horsfieldi</i>	29.1±0.40 (n=25)	36.5±0.37 (n=29)	136.8±0.87 (n=29)	110.3±1.7 (n=28)
<i>F</i>	7.81	8.88	129.45	11.16
<i>P</i>	0.0015	0.0005	<0.0001	<0.0001

view that the distinction between birds with 12 rectrices as against 14 (the probability of the latter increases as a west–east cline) is not a taxonomic character. With regard to point 1, evidence of a smaller size seems elusive: where Rasmussen and Anderton (in press) give ranges of 136–147 for the wing and 95–105 for the tail of South Asian *dauma*, my measurements of *horsfieldi* yield 125–149 and 95–133, and of South-East Asian ‘*dauma*’ 135–149 and 108–123, for these features respectively. It is true that the wings and tail of *horsfieldi* are on average smaller, but the legs and bill are larger (Table 7), so it is difficult to gauge whether any size difference would show up in the field. With regard to points 2, 3 and 6, none of these characters appears particularly consistent when the BMNH *horsfieldi* and South-East Asian ‘*dauma*’ are set side by side, although more olive upper ear-coverts may be genuine. Comparison of measurements of the 14 South-East Asian ‘*dauma*’ in BMNH and 16 specimens of *aurea* in AMNH with 30 specimens of *horsfieldi* in AMNH, BMNH and RMNH reveals minor but statistically significant mensural differences—doubtless enough to support the separation of *horsfieldi* at subspecies level (Table 7, Plates 10–12), but scarcely I think anything more.

There is clearly a major taxonomic challenge in this interesting complex (which of course extends east to New Guinea and south to Tasmania), but at present I do not feel that enough evidence has been produced to support the treatment outlined in Sangster *et al.* (1998). It may well be that *dauma* and *aurea* do indeed separate out consistently on characters strong and numerous enough for both to be considered species, perhaps even with *major* as a race of the former and *horsfieldi* as a (very short-winged and short-tailed) race of the latter; but in my admittedly cautious view much more material is needed on the vocalisations of the taxa involved (could it conceivably be that Scaly Thrushes have two songs, and that this has been missed either through undersampling or because they vary the proportions of each geographically?), along with an exhaustive mensural review of specimens, before a case can properly be made for any one arrangement over another. In the meantime, I prefer to maintain *horsfieldi* and, by extension, *aurea*, *major* and (the admittedly more distinctive) *neilgherriensis* as subspecies of *Zoothera dauma*.

### SUNDA WHISTLING THRUSH *Myophonus glaucinus*

The Sunda Whistling Thrush has for at least 40 years been regarded as a single species comprising three subspecies, nominate *M. g. glaucinus* of Java, *M. g. castaneus* of Sumatra, and *M. g. borneensis* of Borneo. These taxa were all originally described as species in the nineteenth century, and survived as such even in Chasen (1935), who lumped many taxa, including as we have seen *Z. interpres leucolaema* (taking, as he reported for himself, ‘a very broad view of a “species”’), but were united in one polytypic species by Delacour (1942) followed by Ripley (1952, 1964) and hence by Smythies (1957, 1960, 1981, Smythies and Davison 1999) and other authorities (van Marle and

Voous 1988, Sibley and Monroe 1990, Andrew 1992, Inskipp *et al.* 1996). Given the very considerable morphological differences between the taxa—*M. glaucinus* as currently constituted embraces much the most (*castaneus*) and much the least (*borneensis*) colourful of the forms of *Myophonus*—this is one of the more surprising lumpings of the biological synthesis of the first half of the twentieth century. Delacour (1942) justified it with the comments that (a) ‘their proportions are the same, and also their retiring habits’, (b) ‘fresh adult males of *glaucinus* and *borneensis* are very similar’, and (c) ‘all three forms have large white bases to the feathers on the breast, abdomen and back’. I admit the truth but question the relevance of (c) (and can add that the wing formulae are very similar), consider (a) to disguise some important if subtle variations, and flatly disagree with (b): the birds are no more than *somewhat* similar, and in any case the differences among females and among immatures need also to be taken into account.

Maintenance of *castaneus* within *glaucinus* was evidently accepted only reluctantly by van Marle and Voous (1988). They judged its position ‘enigmatic’ and ventured that ‘it may be a distinct species’. MacKinnon and Phillipps (1993) were equally reluctant, and speculated that *glaucinus* might better be broken into three (a point noted by Inskipp *et al.* 1996). Soon afterwards King (1997) went ahead and split *castaneus*, again without indicating his reasons—and again being missed by Collar (2003)—but still leaving *glaucinus* and *borneensis* as conspecific. In my view this is not enough: on morphological evidence alone, derived from both sexes and also juveniles, these taxa are better regarded as three species (see Plates 13–16). In Tables 8–10 the plumage matrix is broken down into 13 parts for three plumage conditions (male, female and juvenile), yielding 39 topographical areas for comparison between the three taxa, yet in not a single instance is a colour description common between all three, and in only three instances is a colour description common between even two. The difference in length of the plush lores is notable (well developed in *castanea*, fairly so in *glaucinus*, short in *borneensis*), while the white ventral streaking on juvenile *borneensis* is unique in the genus *Myophonus* (Delacour 1942), as are the white under primary coverts and adjacent wing-edges. Indeed, it appears that this juvenile plumage may be retained for an abnormally long period, given the high proportion of adult:juvenile specimens in AMNH and BMNH (12:10 in *borneensis* as against 35:2 in *glaucinus* and 11:2 in *castaneus*); even the type of *borneensis* is a juvenile (AMNH 590347; see *Ibis* 1885: 124). In *castaneus* immatures are characterised by very slightly barred upper- and underparts; in *glaucinus* the immature is simply dull sooty with traces of glossy blue creating a slightly mottled effect on back and breast to belly, the latter showing an occasional white shaft-streak in affinity with *borneensis*.

In morphometric terms the three taxa are clearly close, but not as close as asserted by Delacour (1942). He detected the shorter tail and tarsus of *glaucinus* but did not comment on these; in my dataset (Table 11) there are significant differences between the three taxa in both characters, and also in bill and wing length. On the other hand and rather surprisingly, Delacour found

**Table 8.** Comparative plumage matrix for Sunda Whistling Thrush taxa: males. An asterisk (\*) against a topographical feature indicates an area where no difference was found between two of the three taxa. In *M. borneensis*, there is a very slight violet gloss on the frontal upper- and underparts, especially on the head.

Character	Male <i>M. castaneus</i>	Male <i>M. glaucinus</i>	Male <i>M. borneensis</i>
Lores	black; long, plush, raised onto forehead	black; fairly long and plush, but not raised onto forehead	blackish-brown; short
Crown	dull blue, with glossy bright blue V above forehead	glossy dark blue, strongest on forehead	blackish-brown
Upper mantle*	glossy dark blue	glossy dark blue	blackish-brown
Rest of upperparts	rufous-chestnut	glossy dark blue	blackish-brown
Shoulder	glossy bright blue (large)	glossy dark blue (large)	glossy violet (small)
Wings	brownish-black (rufous-chestnut outer webs)	brownish-black (glossy dark blue outer webs)	blackish-brown (slightly paler on outer webs)
Tail	rufous-chestnut	brownish-black	blackish-brown
Face	blackish or blackish-blue	glossy dark blue	blackish-brown
Throat	blackish or blackish-blue	brownish-black tinged bluish	blackish-brown
Breast*	glossy dark blue	glossy dark blue	blackish-brown
Belly	glossy dark blue tinged brown	glossy dark blue	blackish-brown
Flanks	chestnut	glossy dark blue	blackish-brown
Vent	chestnut	brownish-black	blackish-brown

**Table 9.** Comparative plumage matrix for Sunda Whistling Thrush taxa: females. Some specimens of *M. borneensis* show a slight violet gloss over the front of the body.

Character	Female <i>M. castaneus</i>	Female <i>M. glaucinus</i>	Female <i>M. borneensis</i>
Lores	dull rufous-brown; long, plush, raised onto forehead	black; fairly long and plush, but not raised onto forehead	dull brown; short
Crown	dull bluish-brown, with glossy blue V above forehead	brown-black, blue forehead	dull brown
Upper mantle	dull blue-tinged chestnut	glossy dark blue	dull brown
Rest of upperparts	chestnut	brown-black, with some glossy dark blue feathers	dull brown
Shoulder	glossy blue (fairly large)	glossy dark blue (large)	glossy violet (small)
Wings	dark brown (chestnut outer webs)	brownish-black (vaguely glossy dark blue outer webs)	dull brown (slightly paler on outer webs)
Tail	chestnut	brownish-black	dull brown
Face	dull rufous-brown	brownish-black	dull brown
Throat	dull rufous-brown	brownish-black	dull brown
Breast	chestnut-tinged rufous-brown	brownish-black with glossy dark blue feathers	dull brown
Belly	chestnut-tinged greyish-brown	brownish-black with glossy dark blue	dull brown
Flanks	chestnut	glossy dark blue	dull brown
Vent	chestnut	brownish-black	dull brown

identical ranges for *borneensis* and *castaneus* for all four characters (but not for bill depth), such that one might think the typesetter made an error; whereas my measurements indicate a significantly longer bill ( $t$ -test:  $t=4.80$ ,  $P<0.0001$ ) and wing ( $t=1.68$ ,  $P<0.004$ ) in *borneensis* than in the other two taxa (Table 11). I also find that my data for bill depth, gathered as an afterthought in AMNH and with a small sample size, show significant differences between the taxa, with *borneensis*

coming out much the deepest and *castaneus* marginally the shallowest. Incidentally, the bill in *borneensis* is commonly also more steeply and fully hooked (for its generally greater dimensions see also Plates 13–16).

One might speculate over ecological differences between the taxa, given that *glaucinus* and *castaneus* occur alongside other species of *Myophonus*: *glaucinus* with Blue Whistling Thrush *M. caeruleus*, and *castaneus* with both *M. caeruleus* and Shiny Whistling Thrush *M.*

**Table 10.** Comparative plumage matrix for Sunda Whistling Thrush taxa: immatures. An asterisk (\*) against a topographical feature indicates an area where no difference was found between two of the three taxa. Some specimens of *M. borneensis* show a slight violet gloss over the front of the body. The account of *M. castaneus* is based solely on AMNH 590374.

Character	Immature <i>M. castaneus</i>	Immature <i>M. glaucinus</i>	Immature <i>M. borneensis</i>
Lores	dull black; fairly long	dull black	dull brown; short
Crown	glossy blue mixed with dark brown	glossy dark blue (not stronger on forehead)	dull brown
Upper mantle	glossy blue mixed with dark brown	glossy dark blue	dull brown
Rest of upperparts	chestnut	glossy dark blue on back, rest brownish-black	dull brown
Shoulder*	glossy blue (small)	glossy blue (small)	glossy violet (trace)
Wings	brown (chestnut outer webs)	brownish-black (glossy dark blue outer webs)	dull brown (slightly paler on outer webs) with white lesser under primary coverts and adjacent edge of wing
Tail	chestnut	brownish-black	dull brown
Face	blackish-brown with dark chestnut tinge	brownish-black	dull brown with tiny white shaft-dots under and behind eye
Throat	blackish-brown with dark chestnut tinge	brownish-black	dull brown
Breast	blackish-brown	brownish-black with concealed thin white shaft-streaks	dull brown with distinctive off-white streaks (shafts and adjacent area of vanes)
Belly	greyish-black	brownish-black with concealed thin white shaft-streaks	dull brown with distinctive off-white streaks (shafts and adjacent area of vanes)
Flanks	dark chestnut	blackish	dull brown
Vent	dark chestnut	blackish	dull brown

**Table 11.** Morphometrics of Sunda Whistling Thrush. Bill depth was measured at the gonys.

Taxon	Bill from skull	Bill depth	Tarsus	Wing	Tail
<i>M. glaucinus</i>	29.0±1.2 (n=38)	7.7±0.1 (n=17)	43.8±1.5 (n=40)	138±5.5 (n=40)	86.6±5.3 (n=40)
<i>M. borneensis</i>	30.9±1.8 (n=26)	8.5±0.1 (n=6)	46±1.7 (n=28)	141±6.5 (n=27)	89.5±6.9 (n=26)
<i>M. castaneus</i>	29.2±0.95 (n=29)	7.3±0.1 (n=8)	45.6±1.3 (n=30)	136±6.3 (n=30)	90.7±6.1 (n=30)
<i>F</i>	17.2	9.4	20.8	6.53	4.38
<i>P</i>	<0.0001	0.0009	<0.0001	0.002	0.02

*melanurus*. It is interesting that the most distinctive of the *glaucinus* complex should occur where two other congeners are present (Sumatra is the only place on earth hosting three *Myophonus*), the next most distinctive where there is one other congener, and the least distinctive (in adult plumage) where no other representative of the genus is present. This circumstance certainly raises the possibility of greater ecological specificity in those with sympatric congeners—*M. borneensis* is the only one of the three, and indeed the only *Myophonus* I am aware of, to descend to sea-level in places—and this in turn suggests an ecological separation between the taxa which might reflect real biological differences at the species level.

Inquiries reveal that such differences indeed exist. P. A. J. Morris (verbally 2004) and J. A. Tobias (*in litt.* 2004) provide independent observations indicating that *castaneus* is the most anomalous of the three. Tobias only ever saw it perched in trees in the subcanopy and mid-storey of forest, always near water-

courses, and never on the ground, and Morris's experience is broadly similar, although he has seen it fairly regularly on rocks in streams, and sometimes in fruiting trees away from water; but even on Gunung Kerinci, where watercourses are almost always dry owing to the volcanic substrate, the species is only found along them. Both observers comment that competition from the syntopic *M. melanurus* may have resulted in its current narrow niche, since *melanurus* is commonly found both on the ground and away from streams. Tobias detected a possible correlation between abundance and degree of independence from water: thus *castaneus* was scarce wherever he went within its range (Morris concurs), *borneensis* moderately common (Morris concurs), being mainly terrestrial and not exclusively tied to waterbodies (but most often found in gullies and along streams), and *glaucinus* common (at Gunung Gede, Java) and the least tied to water, occurring mostly on the ground, often on ridges

and paths. Morris finds *castaneus* has a jizz distinct from *glaucinus*, being less compact and more elongate.

Vocal differences probably also exist, but there is a problem of strict comparability. Thus R. F. A. Grimmett (*in litt.* 2004) describes the call of *castaneus* as a shrike-like grating or jay-like *waaach* and that of *glaucinus* as a squirrel-like screeching, and tape-recorded material kindly compiled by S. van Balen (*in litt.* 2004) is suggestive of real differences. However, Sheldon *et al.* (2001) indicate that in *borneensis* the normal call is a high-pitched screech similar to but harsher and longer than that of a forktail, while the alarm call is a high-pitched ringing whistle like a coin dropped on a hard surface. Worse, in Smythies and Davison (1999) *borneensis* is said to have 'a long chattering call and a pencil-on-slate screech' (Harrisson), plus a 'pleasant whistling note' (Whitehead). The first and third of these calls may be the same, or the third may be the same as the dropped-coin alarm call in Sheldon *et al.* (2001), or neither may be the case. Thus *borneensis* may have four common vocalisations (the forktail-like screech and the pencil-on-slate screech must, I think, be the same), and if this also applies to the other two taxa, comparisons of the various calls may well not involve the appropriate match.

I suggest 'Javan Whistling Thrush' and 'Bornean Whistling Thrush' for the newly split *glaucinus* and *borneensis*, as these two taxa are the only *Myophonus* endemic to their respective islands. However, 'Sumatran Whistling Thrush'—although it completes the pattern and maintains the perceived relationship that gave the original species the name 'Sunda'—is perhaps less appropriate for *castaneus*, since Sumatra already has the endemic Shiny Whistling Thrush. King (1997) gave *castaneus* the name 'Brown-winged Whistling-thrush' when he separated it; but P. A. J. Morris (verbally 2004) reports that he uses 'Chestnut-winged Whistling Thrush' in his bird list, and I tend to favour this rather more apposite and evocative name.

Each of these new species adds to the uniqueness of the island on which it occurs. *M. castaneus* is an addition to the large complement of species defining the Sumatra and Peninsular Malaysia Endemic Bird Area (Stattersfield *et al.* 1998), and its scarcity suggests that it might warrant treatment as Near Threatened. *M. glaucinus* likewise bolsters the Java and Bali forests Endemic Bird Area (Stattersfield *et al.* 1998), although its abundance suggests that it is probably a Least Concern species. *M. borneensis* seems to be confined to the north of Borneo, but its elevational range may extend too low to qualify it as a member of the assemblage used to establish the Bornean mountains Endemic Bird Area (Stattersfield *et al.* 1998), and it, too, is probably sufficiently common (though nowhere abundant) to be treated as of Least Concern (for all global threat categories and criteria see IUCN 2001).

### WHITE-CROWNED SHAMA *Copsychus stricklandii*

The White-crowned Shama, endemic to northern Borneo, was described as a species in the nineteenth century and, despite its obvious proximity to White-

rumped Shama *C. malabaricus*, it persisted as a full species for most of the twentieth century. Chasen and Boden Kloss (1930) appear to have laid the foundation for this position when they declared:

*K. [Kittacincla = Copsychus] stricklandii* [*sic*] cannot be considered a subspecies of *K. malabarica* because over a considerable area in northern Sarawak a form of the latter, *K. malabarica suavis*, occurs side by side with *K. stricklandii*.

This did not stop Chasen (1935) from promptly and without explanation lumping them, as, briefly, did Ripley (1952), followed by Smythies (1957, 1960). However, again without explanation, Ripley (1964) soon afterwards unlumped them and, although Smythies (1981) kept them together, Ripley was duly followed by Sibley and Monroe (1990), MacKinnon and Phillipps (1993), Inskipp *et al.* (1996), King (1997) and—following the brief discussion by Davison (1999)—Smythies and Davison (1999). Only Andrew (1992) stood out against this trend.

What caused Chasen to change his mind one way inside five years, and Ripley his the other inside twelve, is unrevealed by either author, but clearly the problem hinges around the interpretation of events when the taxa come into contact. Chasen and Boden Kloss (1930) noted that, while *suavis* is confined south of 'a line drawn between... Labuan Island and Silam in Darvel Bay', *stricklandii* penetrates the area occupied by *suavis* 'as far as Central Sarawak in the west and beyond the Dutch boundary to the east'; in other words the two taxa appear to be straightforwardly sympatric without interbreeding over part of their ranges (this is the stated explanation for the split in Sibley and Monroe 1990). On the other hand, although ostensibly they accepted the split, Smythies and Davison (1999) reported on the two taxa in a way which is difficult to reconcile with their separate species status. Thus, in plumage *stricklandii* is 'exactly like White-rumped Shama' except for the white crown and, possibly, a shorter (on average) tail; in voice 'no differences have been noted between the songs of this and the White-rumped Shama'; and in habits *stricklandii* is again 'exactly like White-rumped Shama'. On this basis Smythies and Davison concluded: 'acceptance of this species as distinct from White-rumped Shama may be considered a borderline case', referring to 'a huge, and apparently secondary, contact zone (which may be termed overlap, transition or hybrid swarm) with White-rumped Shama'. In preparing the ground for this judgement Davison (1999) measured this as 'at least 290 km broad', clearly deciding that it is *not* a zone of overlap but one of 'extensive hybridisation', and concluding that 'recognition of two species... rests not on sympatry but on the restrictedness and degree of stability of the intermediate zone'. Perhaps most revealingly, Davison (1999) reported that acceptance of two species was 'in order to be in line with Inskipp *et al.* (1996)'.

The single obvious character that sets *stricklandii* apart from all other races of *malabaricus* (apart from the semi-adjacent *barbouri* of Maratua: see below) is its

**Table 12.** Morphometrics of three taxa of *Copsychus malabaricus* from Borneo and Maratua: *barboursi*, *stricklandii* and *suavis*. The statistical comparisons were made between *suavis* and *stricklandii* only, *barboursi* being added here only to illustrate its striking tarsal and wing differences.

	Bill	Tarsus	Wing	Tail
<i>C. m. barboursi</i>	21 (n=1)	31 (n=1)	101 (n=1)	127 (n=1)
<i>C. m. suavis</i>	21.0±1.2 (n=45)	27.2±1.2 (n=46)	95.2±5.3 (n=48)	135.2±20.9 (n=46)
<i>C. m. stricklandii</i>	21.2±1.3 (n=37)	27.8±1.4 (n=38)	95.9±4.1 (n=39)	127.3±15.2 (n=38)
<i>t</i>	0.611	2.03	-1.36	-2.00
<i>P</i>	NS	NS	NS	0.049

white central crown (Plates 17–18). However, this crown is variable in completeness, with a high proportion of specimens (25 out of 45—56%—of those that could be assessed for this character in AMNH, BMNH, RMNH and USNM, including birds from the same locality) showing a certain amount of black: it is likely that such specimens are hybrid *stricklandii* × *suavis* from the broad contact zone. Davison (1999) and Sheldon *et al.* (2001) drew attention to an unpublished report in which D. R. Wells had noted birds in Danum Valley, Sabah, with black tips to their white crowns, suggesting that they might be such hybrids. Smythies and Davison (1999) also alluded to this information, but what other evidence they had for the intergradation of the two taxa is not clear, although Davison (1999) referred to records of intermediates by Stresemann (1938), clearly a much neglected paper in the resolution of this issue, since the case it makes for conspecificity is compelling. Moreover, at Kayan Mentarang (East Kalimantan) van Balen and Nurwatha (1997) reported seeing a white-crowned male holding a territory in which a dark-crowned female was attending a nest with three eggs.

Certainly if *stricklandii* is a species one might well expect it to possess other, subtler characters, despite Smythies and Davison's assertions to the contrary. I therefore measured and compared material of *stricklandii* (including specimens with black-flecked white crowns) and *suavis* in AMNH, BMNH and USNM—in BMNH I measured only those 18 (of 29) specimens of *stricklandii* (excluding the type) which are or seem to be fully mature. I was unable to find any consistent differences between these taxa except for the crown colour; Table 12 and Plates 17–18 show how similar the two taxa are in both measurements and plumage, where the notion of a north–south cline in increasing tail size is supported. S. van Balen reports (verbally 2004) that, always accepting the high level of individual variation in the songs of *C. malabaricus* within any given population, he has never detected any pattern that separates *stricklandii* from *suavis*, thereby confirming the statement in Smythies and Davison (1999).

Dependence on a single character for the separation of two taxa as species is inherently risky, and in the absence of any other distinguishing physical character between *stricklandii* and *suavis*, and given a known zone of hybridisation almost 300 km broad, it seems appropriate to treat *stricklandii* as a race of *malabaricus*. There is an interesting parallel with the superficially rather similar Mocking Cliff-chat *Thamnolaea [Myrmecocichla] cinnamomeiventris* in West Africa, where

black-crowned birds resembling race *cavernicola* occur alongside white-crowned birds of the race *coronata*, but for which the general consensus appears to be that the forms are commingling and not separating assortatively (Keith *et al.* 1992, Borrow and Demey 2001). Moreover, if *stricklandii* is maintained as a species it would be rather inconsistent (and, frankly, somewhat perverse) not to extend similar treatment to the interesting form *barboursi* of Maratua, which has typically been placed as a race of *stricklandii*, since it differs from the latter in at least *two* characters—absence of white in the tail and considerably longer tarsus and wing (Bangs and Peters 1927) (see Table 12). Of course, it would then be open for argument that the other form with an all-black tail, *melanurus* from the West Sumatran islands, is scarcely less deserving of species status, as perhaps is the one with an almost all-black tail, *nigricauda* of the Kangean Islands (unless one attempts to unite all taxa with little or no white in the tail under a single polytypic island-relic species, even if one of them has a white crown). These are not serious suggestions; the wider the splitting vista opens, the more compelling is the case to retain *Copsychus malabaricus* as a broad species which embraces all forms with black tails and white crowns.

## COMMENTARY

A recent attempt by the British Ornithologists' Union to provide a more objective basis for discriminating taxa at the species level, using the number of diagnostic characters (Helbig *et al.* 2002), in my view sets thresholds too low to be widely applicable; certainly *Copsychus malabaricus barboursi* would qualify under the BOU criteria. The quest for consistency in the discrimination of taxonomic rank requires some objectification of the strength or significance of the diagnostic characters in addition to their mere number. Even so, judgement over the taxonomic position of allopatric forms will always remain a matter of opinion, albeit much under the influence of recent precedent and current practice. The subjectivity of my own conclusions here is undisguised, but the thresholds I set are intended to be reasonably consistent and objective in the way number and strength of characters are combined in order to reach an opinion.

I acknowledge, however, that greater consensus in these matters is likely to be achieved where the evidence is reviewed as fully as possible, and that in this regard more might have been done. This review

places its weight on mensural data and, in particular, plumage morphology, information which is easily obtained from museum material. A more intensive trawl of sources might have yielded helpful vocal evidence, but casual vocal comparisons have their own pitfalls relating to individual, local and seasonal variation, and to homology of calls. Moreover, biomolecular analysis may only serve as a rough guide in species-level evaluation. On the other hand, the study of specimens has perhaps been unreasonably neglected in recent years as a resource for analysis and the development of argument in such evaluations. If this is so, and if my conclusions are generally accepted, I hope greater account will be taken by future researchers of the material available in the many museums of the world, although I recognise that the costs and logistics of viewing such material are by no means an insignificant constraint on the progress of avian taxonomy in general, and of Asian avian taxonomy in particular.

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