

THE STATUS OF *TUPAIA SPLENDIDULA* GRAY
(PRIMATES TUPAIIDAE)

by

LORD MEDWAY

Department of Zoology, University of Malaya, Kuala Lumpur

The type description of the Bornean tree-shrew *Tupaia splendidula* GRAY (1865) was based on two specimens, one in alcohol, habitat Borneo, the other a mounted skin, habitat unknown, both in the British Museum (Natural History). No measurements were given, but the species was distinguished from *Tupaia ferruginea* (= *T. glis* DIARD) by its richer, redder colouration, and from *Tupaia tana* RAFFLES by its short head, smaller size, and by the absence of the three distinct stripes found on the back of the latter. Later the skull of the specimen in alcohol was extracted by GÜNTHER (1876). This skull was re-examined by THOMAS and HARTERT (1894), who found that the specimen was in fact a young example of *Tupaia tana*. This identification is confirmed by Mr. J. EDWARDS HILL (*in litt.*, 1961) who also notes that no other specimen of *splendidula* from the Bornean mainland has since been added to the British Museum collection. LYON (1911) gave measurements of a specimen of *splendidula* from Klumpang Bay, and later published an important review of the whole genus (LYON, 1913). Finally, CHASEN (1940), in his "Handlist of Malaysian Mammals", included *splendidula* as a separate species (without having been able to see an example), but in a footnote suggested that it should perhaps be considered as a phase of the very variable *Tupaia glis*. However, three fresh skins in the Museum Zoologicum Bogoriense, recently collected in eastern Borneo, demonstrate that *splendidula* is indeed a good species, and extend the known range of this tree-shrew in the island.

The specimens are an adult male (no. 8091, 22.X.56) from S. Bengin, and a subadult male (no. 8094, 1.XII.56) and an adult female (no. 8093, 31.XI.56) from Kembang Djanggut, both localities in West Kutai, central east Borneo (Kalimantan), collected by A. M. R. WEGNER. The female was lactating, and has three nipples on the right side, two on the left.

The pelage is very distinctive. UPPERPARTS: Crown dark; short, close fur tapering to a point over the nape, grizzled yellowish buff and black. Withers red; each hair basally grey, but tipped a rich red-brown, approximately Mars Orange of Ridgway, interspersed with strong glossy black

hairs which become more profuse towards the mid dorsal line where they predominate. The shoulder flash is paler, almost Xanthine Orange. The centre of the back is black, the prominent guard hairs long and glossy, uniformly black to the base; shading to red at the flanks where the hairs are tipped the same colour as on the withers. The tail is a rich Mahogany, at mid length having hairs Mars Orange basally, black distally, tipped red. Feet dark, slightly grizzled buffish, and not red as shown in GRAY'S (1865) plate. UNDERPARTS: Chin and throat pale, Orange Rufous or Xanthine Orange; hairs uniformly coloured to the base. Rest of the underparts a darker ruddy brown; the fur is soft, basally grey and only tipped red. The tail is distichous; bright Ferruginous or Mars Orange in the midline, darker laterally.

These specimens are thus quite distinct from the extensively grizzled *Tupaia glis* cf. *longipes* THOMAS of the same locality, which is represented at Bogor by the skins of two males. In addition, the collector's measurements (Table 1) show that the tail of *splendidula* is both absolutely and proportionately shorter than that of sympatric *glis* (cf. 182—215 mm for the tails of ten *glis* from nearby British North Borneo; CHASEN and KLOSS, 1931); also that there is no overlap in the length of the hind foot (cf. 45—51 mm for North Bornean *glis*; CHASEN and KLOSS, *l.c.*). The two species cannot be separated by skull length, but the maxillary tooththrow of *splendidula* is shorter than that of these *glis*, without overlap (cf. 19.5—21 mm for North Bornean *glis*; CHASEN and KLOSS, *l.c.*).

TABLE 1. Measurements of *splendidula* and related forms, in millimetres.

Species	Head & body	Tail	Hind foot	Maxillary tooththrow
<i>Tupaia splendidula</i> no. 8091 adult	182	158	43	17.5
" " no. 8093 "	185	148	42	17.6
" " no. 8094 subadult	167	146	44	17.6
" <i>glis</i> no. 7222 "	180	196	50	19.2
" " no. 8110 adult	189	203	53	19.3
" <i>lucida</i> type	210	154	39	—
" <i>natunae</i> type	184	140	40	18.5
" <i>carimatae</i> type	175	145	37	20.2
" <i>mülleri</i> type	195	150	—	—

Three other forms of *Tupaia* from offshore islands within the Bornean province must also be ascribed to *splendidula*. One (*carimatae* MILLER) was listed by CHASEN (1940) as a distinct species; two (*lucida* THOS. & HART.; *natunae* LYON) as races of *Tupaia glis*.

HILL (1960) has demonstrated the great plasticity of *glis*. Distinct forms occur on many of the lesser Indo-malaysian islands, and some of the smaller, more highly coloured races accepted as subspecies of *glis* come very close to *splendidula*. There is no record of both species occurring together on any one of these offshore islands, but the published measurements of the types from Laut, Bunguran, and Karimata, as well as their colour patterns as described, indicate affinity with *splendidula* rather than with the *glis* of mainland Borneo (Table 1). LYON's *natunae* may not in fact be distinguishable from typical *splendidula*. The cranial character by which the two were separated ("a more inflated braincase") is shown by the present specimens to be invalid: the width of the braincase above the roots of the zygoma on the two fully adult *splendidula* to hand are (8091) 19.1 mm and (8093) 19.2 mm, slightly greater than the corresponding measurement on the type *natunae*, 19 mm (LYON, 1911).

The type description of a fourth tree shrew, *mülleri* KOHLBRUGGE (1895), from near Bandjermasin (included by CHASEN as a separate species; not seen), appears to be a re-description of *splendidula typica*. The measurements given indicate a proportionately short tail, compatible with *splendidula*. Probably *mülleri* should be placed in synonymy with this species, but I have not seen an example, so can give no definite judgement.

For the time being, CHASEN's "Handlist" (1940 p. 4) should therefore be modified to read:

TUPAIA SPLENDIDULA

***Tupaia splendidula splendidula* GRAY**

Tupaia splendidula GRAY, Proc. Zool. Soc., 1865, p. 322, pl. 12: Borneo.

Distr. - Mainland of Borneo (so far only from the south east).

***Tupaia splendidula lucida* THOS. & HART.**

Tupaia splendidula lucida THOMAS and HARTERT, Nov. Zool. 2, 1895, p. 490: Laut Island.

Distr. - Laut Island, North Natuna Islands.

***Tupaia splendidula natunae* LYON**

Tupaia natunae LYON, Proc. Biol. Soc. Wash. 24, 1911, p. 168: Bunguran Island.

Distr. - Bunguran Island, North Natuna Islands.

***Tupaia splendidula carimatae* MILLER**

Tupaia carimatae MILLER, Proc. U.S. Nat. Mus. 31, 1906, p. 61: Karimata Island.

Distr. - Karimata Island, west Borneo.

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