

Short Communication

THE FEATHER-TAILED GLIDER (*Acrobates pygmeus*) IN NEW GUINEA

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Abstract

Acrobates pygmeus is a small arboreal marsupial thought to be restricted to eastern Australia, from southeastern South Australia to the tip of Cape York Peninsula in northern Queensland. Here I discuss the possibility that the species also occurs in New Guinea, based on two poorly-localized museum specimens (in London and Stockholm) supposedly collected from that island.

Key words: Feather-tailed glider, *Acrobates pygmeus*, Acrobatidae-marsupials, New Guinea.

The marsupial family Acrobatidae comprises two monotypic genera of small-bodied possums – *Distoechurus pennatus* (the Feather-tailed possum) and *Acrobates pygmaeus* (the Feather-tailed glider) (Aplin and Archer, 1987). *Distoechurus* occurs throughout New Guinea at elevations below 1,900 metres (Flannery, 1994), while *Acrobates* is thought to be restricted to forests and woodlands in eastern Australia (McKay, 1988; Ward, 1990).

However, there is also an alleged record of *Acrobates* from an unspecified island north of New Guinea – the holotype of *Acrobates pulchellus* Rothschild, 1892. Rothschild (1892: 546) named *pulchellus* based on a specimen now at the Natural History Museum, London (BMNH 1939.2988, skin and skull of an unsexed adult), received from the dealer A. Bruijn and supposedly collected on “one of the small islands in northern Dutch New Guinea [= West Papua].” (The museum label of this specimen bears only the locality “New Guinea.”) Although Rothschild (1892) claimed that it possessed several distinctive features, Tate (1938) reviewed the status of *pulchellus* and concluded that the holotype was probably a specimen of *Acrobates pygmaeus* transported as a pet from Australia, or that the type locality was simply erroneous. The holotype of *pulchellus* does potentially possess one unique external trait – a very short tail. Tate (1938) gave the tail length of the holotype (measured on the dry skin) as 2.25 inches (= 57 mm); tail length in Australian *A. pygmaeus* ranges from 65 – 90 mm in the specimens I have examined (listed below). However, it is unclear whether the short tail of the holotype is natural (see Rothschild, 1892), the result of an injury (see Tate, 1938), or (as I strongly suspect) simply results from distortion in its preparation as a dry skin.

Laurie and Hill (1954: 19) continued to recognize *Acrobates pulchellus* as a valid species, but Van Deusen (1960) echoed Tate’s conclusions, which have since been generally

accepted (e.g. Groves, 1993). Nevertheless, given its cryptic habits, the presence of suitable habitat in New Guinea, and the fact that it reaches the very northern tip of the Cape York Peninsula of Queensland (see Tate, 1952), Flannery (1995b: 188) suggested that *Acrobates* might indeed occur undetected in New Guinea (particularly in the woodlands and lowland rainforests of the Trans-Fly region of far southern New Guinea, which support a number of mammal species otherwise known only from Australia; see Norris and Musser, 2001).

During a recent visit to the Naturhistoriske Riksmuseum (Swedish Museum of Natural History) in Stockholm, I examined a small series of specimens from New Guinea identified as *Distoechurus pennatus*, one of which (NRM A58-3160, skull only) is in fact *Acrobates*, as confirmed by its very small size, delicate and laterally unflared zygomatic arches (such that the greatest width of the skull lies across the braincase rather than the zygoma), unreduced third upper premolar, and lack of a diastema behind the first lower premolar (cf. Thomas 1888). The locality for this specimen, which was apparently collected in 1899–1900 and received from the dealer J. Riedel (E. Ahlander, in. litt.), is given only as “Nya Guinee”.

The validity of both New Guinean records of *Acrobates* (in Stockholm and London) is left open to doubt on account of their imprecise locality data. Nevertheless, the records are lent potential credibility by the fact that both specimens have unusually small skulls. A number of measurements for these two individuals lie below or at the lower bound of the range of variation seen in Australian *Acrobates* (Table 1), despite the fact that the Australian sample I have measured includes animals that range in age from barely mature adults (in a few cases, possibly nearly mature subadults) to very old adults. Although two forms of *Acrobates pygmaeus* have sometimes been recognized from Australia (*A. p. pygmaeus* Shaw, 1794, with type locality Sydney, New South Wales and *A. p. frontalis* De Vis, 1887, with type locality Herberton, Queensland), there seem to be no trenchant or stepwise differences between these populations, but rather a slight clinal increase in body size from north to south. Thus, the small size of both putative New Guinean specimens is consistent with their supposed provenance at the northern limit of the species' distribution.

No acrobatid (or burramyid) has ever been recorded from an oceanic island (Flannery, 1994, 1995a), which suggests that small possums possess a very limited capability for overwater dispersal. If the holotype of *pulchellus* was actually collected off the West Papuan coast as Rothschild (1892) suggested, it was thus probably from a land-bridge island that was joined to north-west New Guinea during the late Pleistocene (such as Salawati, Yapen, Misool, or any number of tiny coastal islands) rather than an oceanic island such as Biak-Supiori, Numfoor, Batanta, or Waigeo, all of which were separated from New Guinea throughout the Pleistocene (Dam, 1999). However, as noted above, if *Acrobates* does actually occur in New Guinea, it is much more likely to be in the Trans-Fly region than on any such north-western islands.

New species of mammals are still continually described from New Guinea (e.g. Menzies, 1996; Flannery and Groves, 1998; Bergmans, 2001; Helgen, 2004; Helgen and

Flannery, 2004), and, in addition to *Acrobates*, the Spectacled hare-wallaby (*Lagorchestes conspicillatus*) and the False water-mouse (*Xeromys myoides*) are two mammal species previously thought to be restricted to Australia that have recently been discovered living in New Guinea (Hitchcock, 1997, 1998). One reason given by Tate (1938: 60) for rejecting the type locality of *pulchellus* was that "New Guinea... broadly speaking, has been well explored," but sixty-five years later these continuing discoveries reveal that much remains to be learned about the composition of the New Guinea biota.

Table 1. Selected cranial measurements for *Acrobates pygmeus* from Australia and New Guinea.

	<i>A. p. pygmeus</i> Australia	<i>A. p. pulchellus</i> New Guinea
Greatest length of skull	20.2 ± 0.48 18.96-21.34 (22)	18.5 18.51 (1)
Condylbasal length	19.6 ± 0.50 18.50-20.74 (21)	17.8 17.83 (1)
Entire maxillary toothrow	8.7 ± 0.20 8.12-8.99 (25)	8.2 8.14-8.16 (2)
Greatest width of skull	13.2 ± 0.33 12.38-14.00 (25)	12.2 11.85-12.62 (2)

Note: Measurements (in mm) are presented as a mean (rounded to the nearest tenth) followed by a standard deviation; ranges are given below each mean, followed by sample size in parentheses. Variables were measured with digital calipers to the nearest 0.01 mm. The "entire maxillary toothrow" is the crown length from first upper incisor to last upper molar.

Specimens measured

Abbreviations: Natural History Museum London (BMNH); Melbourne Museum, Melbourne (NMV); Swedish Museum of Natural History, Stockholm (NRM); South Australian Museum, Adelaide (SAM); Museum für Naturkunde, Berlin (ZMB).

BMNH 25.325.3, MBNH 20.5.6.12, and BMNH 14.1.23.4, three males, from Gin-Gin (25°00'S, 151°57'E), Queensland. BMNH 1939.2984-2988, one male, three females, one unsexed, from Lower Fitzroy valley (possibly Fitzroy River, 23°30'S, 150°40'E), Queensland. ZMB 7001, unsexed from "Queensland". BMNH 49.3.17.1, male (lectotype of *Acrobates pygmeus*; Thomas, 1922), from vicinity of Sydney (33°54'S, 151°13'E), New South Wales. BMNH 49.9.35.6, unsexed (Gould collection), from "New Holland" [=Australia]. SAM M7372, male from Bondo (36°21'S, 149°09'E), New South Wales. NMV 3111, male, and NMV 3117, female, from Deniliquin (35°31'S, 144°56'E), New South Wales. SAM M10931, male, from Millewa (36°11'S, 144°41'E), Victoria. NMV 28293, male, from Sherbrooke Forest Park (37°53'S, 145°21'E), Victoria. NMV 8174, male, from Ferny Creek (37°52'S,

145°20'E), Victoria. NMV 3997, male, from Bullumwaal (37°38'S, 143°31'E), Victoria. NMV 7511, female, and NMV 7512, female, from Gellibrand Road (ca. 38°31'S, 143°32'E), Victoria. NMV 3985, male, from Seville (37°46'S, 145°27'E), Victoria. NMV 4002, female, from Beaconsfield (38°02'S, 145°22'E), Victoria. NMV 3992, female, from Gordon (37°35'S, 144°06'E), Victoria. SAM M12218, female, from Langkoop (37°06'S, 141°02'E), Victoria. SAM M6086, unsexed, from Lucindale (36°58'S, 140°22'E), South Australia. SAM M3008, unsexed, from Naracoorte (36°58'S, 140°45'E), South Australia. BMNH 1939.2988, unsexed, from "New Guinea" (specimen label) or "one of the small inlands in northern Dutch New Guinea" (Rothschild, 1892: 546). NRM A58-3160, unsexed, from "New Guinea".

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