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A NEW SPECIES OF RING-TAILED PHALANGER
(*PS. LANIGINOSUS* GROUP) FROM THE BUNYA
MOUNTAINS, S.E. QUEENSLAND.

By

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(Plate xlv, and Figure 1.)

After the 1919 annual meeting of the Royal Australasian Ornithologists' Union in Brisbane an excursion was made, from the 1st to 8th October, to the Bunya Range portion of the Great Divide, an excellent account of which was written by Mr. A. H. Chisholm.¹ Travelling 153 miles by train from Brisbane, *via* Toowoomba, to Dalby, which is the nearest point of importance to the range, the party traversed another thirty miles of plain country to the dry forests of the foothills, finally climbing some three miles along a scant and rocky trail winding through uninviting forest country to the camp situated "over 3,000 feet above sea-level." The camp was pitched at the northern base of the Mt. Mowbullian peak, which attains 3,700 feet and is said to be "very little lower than the highest peak of the Macpherson Range"; the actual site was in one of the perfectly open park-like stretches of country, described as being remarkably characteristic of the Bunya Range and as occurring "strangely, right in the middle of great stretches of jungle . . . with, overall, the statuesque forms of the Bunya pines."

In these very distinctive surroundings one of us (A. S. Le Souef) secured a young adult female ring-tailed opossum, the colouring of which is darker than that of any eastern form of the *Ps. laniginosus* group and of a different tone to that found in any Australian species of *Pseudochirus*, being so striking as to suggest that it is possibly the outcome of prolonged isolation in the unusual environment, and hence worthy of description as a new species. It was shot at the nest, built in a bush known as the "Wild Grape" or "Supple Jack," in dense forest which Chisholm describes as "the dimly-lit jungles of sub-tropical mountains." The red tone of the single specimen was so unusual that it was regarded as a possible mutant and stored away pending the acquisition of others, but recent consideration of its unique habitat and of the allied forms, indicates that it may represent an extreme blackish-red form of the *Ps. laniginosus* group, characteristic of the dense rain forests of the Bunya Range, of which the local pine is a notable feature.

¹ Chisholm.—The Emu, xix, 3, 1920, p. 302.

The pines, from which the range derives its name, are described as very distinctive of the area, and, as Chisholm says, "look where you will on these highlands the gaze must ever be arrested" by them; he then quotes Andrew Petrie as measuring ordinary-sized trees 150 feet high and about four feet in diameter, and as saying that "The fruit of this pine is a large cone or core, about 9 by 6 inches, and covered with small cones, similar in appearance to a pineapple. It is these small nuts that the blacks eat"; the natives are said to have been very fond of them and to have gathered in the appropriate seasons for what were literally huge picnics. It is possible that the flavour, so attractive to aborigines, may have resulted in the nuts forming part of the diet of the phalangiers and thus have possibly influenced the slight cranial and dental differences, apart from forming an added inducement to isolation, while the presence of the pines and thick jungle associated with them may similarly have affected the striking coloration.

Relevant to the above, in response to our inquiry Mr. C. T. White, Government Botanist of Queensland, who accompanied the R.A.O.U. party to the Bunyas, has very kindly forwarded the following: "I do not know if the Ring-tail Opossum would eat the Bunya nuts, but I should certainly think so, as they are so large and full of food material and afford an article of diet to so many scrub animals.

"The Bunya Range is an isolated piece of country rising a good deal higher than the immediate surrounding hills and plains. In consequence of this it has a much higher rainfall than any of the immediate neighbouring places, up to 37 or 38 inches per annum, whereas the nearest approach to it is Nanango² with a rainfall of only 31 ins. In consequence of this there are many distinctive plants common on the Bunyas, which one does not find either in the plain country or the hills country to the east and south until one reaches the higher parts of the Blackall Ranges and Macpherson Ranges respectively."

Apart from this, there is an important indication of range restriction provided by the distribution of the Bunya pines, which occur sparsely in the Blackall Ranges to the north but are non-existent in the Macpherson Ranges to the south. A further indication of the possible isolation of the phalanger is shown by the non-occurrence in the Bunyas of the Albert Lyre-bird (*Menura alberti*), which is plentiful in the National Park of the Macphersons, and the Rufous Scrub-bird (*Atrichornis*), also found in that Park.

Though it may not be quite evident how definite or efficacious is the barrier to an extension southward of this highland form, the foregoing would suggest that a barrier does exist. There is, indeed,

²About 20 miles north-east of Mt. Mowbullian, altitude 1,132 feet.

a pronounced dip immediately south of Crow's Nest, a little south-east of Mt. Mowbullin, to the flat plain country around Toowoomba, where the railway crosses at the altitude of 1,921 feet; this elevated plain country appears to obliterate any trace of the Bunya Mountain flora or other characteristics, and extends southward for a considerable distance before giving rise to the Wyreema Range, which joins the Macphersons.

COMPARISON WITH ALLIED FORMS.

It is noteworthy that the ruby tone of this sub-tropical, mountain-jungle form of Queensland almost parallels the coppery tones of the highland New Guinea species of the sub-genus *Pseudochirops*, which are variously described as silvery, shining, or uniform, coppery brown. The Queensland specimen, however, lacks their dark dorsal stripe, and has a white tail-tip not present in the New Guinea forms of *Pseudochirops*, while its ear is typical of the sub-genus *Pseudochirus* in being longer than broad; the sole Australian representative of the former sub-genus, *Ps. archeri*, has the white tail-tip, but absence of the ruby or coppery tone, and the sub-generic characters of the dorsal stripe and shape of the ear immediately distinguish it. Not only, therefore, does the coloration of the Bunya female appear to parallel that of some New Guinea forms, but there seems no reason to doubt that the rubaceous-chestnut tone, with its intermingling of black dorsally, distinguishes it from any form of the genus described hitherto.

The "rusty-red" form described and figured by Gould³ under the name *Phalangista cookei* (*nec.* Desmarest) appears to be nearest to the Bunya form, but comparison with Gould's plate shows the red of his dark upper figure to be of an entirely different tone. In this regard it may be further noted that close comparison with the colours listed by Matschie for his holotype of *Ps. pulcher*,⁴ proposed to replace the preoccupied name of Gould's *cookei*, shows not only that his colours do not agree very well with the plate but also that they are not at all applicable to the Bunya specimen.

It may be noted here, as indicative of the peculiar conditions ruling in the Bunya region and the distinctness of the deep red form occurring there, that the highland races of the Tumut district of south-eastern New South Wales and the Cairns tableland of north-eastern Queensland, in altitudes approximating to 3,000 feet, are both uniformly greyish and have shorter molar-rows and longer hind feet.

In view of the above, coupled with the diagnostic characters detailed below, it would seem that the highland female represents

³ Gould.—Mammals Austr., i, 1856, p. xxv, pl. xviii.

⁴ Matschie.—Sitzb. Ges. Natf. Freunde, Berlin, 1915, No. 4, p. 84.

an extreme and distinct phase of a rusty-red form, such as Gould described, which has developed independently during a prolonged period of isolation, or even merely as a result of the altitude and characteristic surroundings. There appears to be no doubt, however, that it represents a specifically distinct form which may be described as follows:

PSEUDOCHIRUS RUBIDUS sp. nov.

An unusually coloured form, in which the rubaceous chestnut of the sides and limbs contrasts markedly, though not sharply, with the back, which is grizzled blackish and buffy brown, with a peculiar ruby or coppery tone throughout. The very dark coloration of the single female suggests that the male will probably prove to be the lighter of the sexes.

Colour.—A scintillating or iridescent ruby or coppery sheen is present which it is impossible quite to realize in colour charts or figures. It was at first considered to be about "reddish old copper" of Dauthenay's Repertoire, pl. 96, but closer comparison showed his "ruby" of pl. 158 to come nearest to the striking tone of the holotype, especially if the colour plate is slanted to eliminate the metallic sheen.

The general colour of the back is perhaps best summed up as grizzled buffy-russet black, with the black predominating in the centre, and the buffy tipping more pronounced on the sides; the basal two-thirds of the fur is nearest deep neutral grey (Ridgway, 1912), succeeded by about a 4 mm. band of palish rubaceous chestnut tipped with shining light buff and whitish, over all of which in certain lights and angles is seen the ruby tinge. The outsides of the limbs and lower sides of the body are about chestnut (Ridgway) washed with ruby (Dauthenay, 1905); the head is a warmer chestnut with a strong tipping of black between and behind the ears. Backs of ears about tawny russet, paler at the hinder border but without any trace of a white spot. Upper surface of manus and pes of the same rich ruby chestnut as the limbs. The centre of the undersurface is pale russet of Ridgway, with a very pale area on the throat; basally the hairs are pale grey. Tail auburn-blackish above and coppery-chestnut below for basal three-fifths; distal two-fifths buffy white.

External characters.—The fur of the back is longer, denser and possibly slightly more crimped than in *laniginosus* from New South Wales; the main fur on the centre of the back measures about 22 mm., interspersed with longer black hairs about 28 mm. long. Ear decidedly smaller than in any of the races of *laniginosus*. Hind-foot comparatively small, about the minimum for adults of the allied species; much smaller (5 - 7.5 mm.) than in Matschie's *pulcher*.

Skull.—The posterior palatal foramina appear to provide the most notable character, being quite small (3.5×2.8 mm.) and intermediate in size between the very large ones found in most southern specimens of *laniginosus* and the very small, sometimes non-existent, ones of the Tasmanian *cooki*. The largest posterior foramina in a series of twelve *cooki* is 2.8×1.7 , while the smallest in over twenty *laniginosus* of various localities is 5.5×3.5 and these seem to be mere perforations in a dried membrane as the true bony openings (9.2×3.5) appear to be traceable beneath; the true bony posterior foramina in *laniginosus* range from 6.2×3.6 to 11.2×4 mm. The constriction is comparatively broad, being wider than in crania of *laniginosus* of a similar basal length.

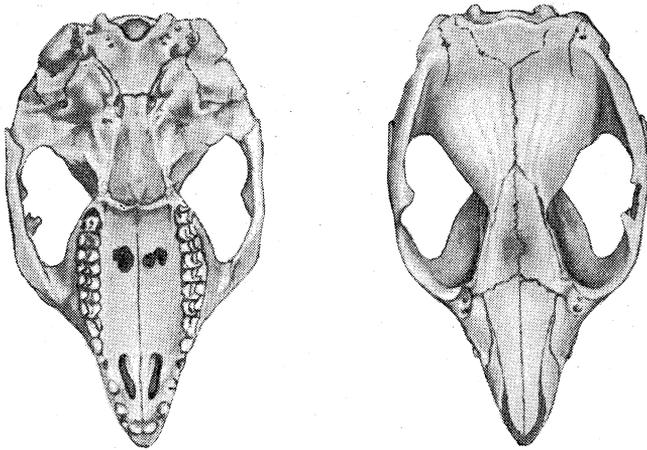


Figure 1.

Dentition.—The length of m^{1-3} is as in the larger-toothed races of *laniginosus*, but p^4 is shorter than in any south-eastern race of that species, measuring 2.8 as opposed to a range of 3.1–3.5 mm. in over twenty specimens.

Dimensions.—Filled out skin of the holotype: head and body 292; tail 300; ear, length from inner base 23, outer base 24.5; breadth 17.5; hindfoot 42.5 mm.

Skull: basal length 54; zygomatic breadth 32.8; nasals 21.8×9.2 ; constriction 7.8; palate length 32.2; palatal foramina, anterior 6.2, posterior 3.5×2.8 and 2.2×2.7 ; pm^4 2.8×2.4 ; molars, ms^{1-4} 15.2, ms^{1-3} 12.2.

Holotype.—Young adult female. Australian Museum No. M.2791. Shot at the nest, in dense forest, by the late Mr. Fred. Morse, a well-known ornithologist, in early October, 1919, and presented to the Museum by Mr. A. S. Le Souef.

Habitat.—The Bunya Range, south-eastern Queensland. Holotype from a little north of Mt. Mowbullian, at 3,000 feet.

The rich red of the limbs and sides, and heaviness of the black pencilling on the back, with the suffusion of ruby, as well as the size and character of the posterior palatal foramina, and the shorter fourth premolar, readily distinguish this species from all known forms of the *peregrinus-laniginosus* group.

The authors are greatly indebted to Miss Ethel A. King for the faithful and lifelike coloured figure, to which so much care was devoted in achieving accuracy for the elusive and changing shades, and also for the text-figure of the skull. They are also indebted to Mr. C. T. White, Government Botanist of Queensland, for the very useful notes quoted in the introduction, and to the Senior Taxidermist of the Australian Museum, Mr. H. S. Grant, for helpful interest in regard to the sorting and comparison of a comprehensive series of ring-tailed phalangers, and to the Assistant Taxidermists, Messrs. J. H. Wright and W. Barnes as well.

EXPLANATION OF PLATE XLV.

Pseudochirus rubidus, sp. nov. Holotype female. Locality: North of Mount Mowbullán, Bunya Range, Queensland.



EA King