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A Recharacterization
of *Collocalia papuensis* Rand,
the Three-toed Swiftlet

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During a study of the swiftlet genus *Collocalia*, I noticed that the range of the species *C. whiteheadi* as currently understood is discontinuous and that one population, *C. w. papuensis*, generally considered as belonging to this species, differs from all other swiftlets in having only three toes.

Whitehead's swiftlet, characterized by a distinctly forked tail, uniformly dark back and rump, and naked tarsus, was described first from Lepanto, North Luzon, Philippine Islands, by Ogilvie-Grant in 1895 (p. 459), and since then there have been many reports of *C. whiteheadi* from various islands in the Philippines (McGregor, 1909, p. 353; Peters, 1940, vol. 4, p. 221; Delacour and Mayr, 1946, p. 126; and many others). It has also been recorded from New Guinea, Bismarck Archipelago (New Ireland), and Solomon Islands (Guadalcanal) but not from the intervening islands, the Celebes, Lesser Sundas, Moluccas, and western Papuan islands, or from Australia. All localities mentioned in this paper are shown in figure 1.

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A larger number of the New Guinea records belongs to the species to be recharacterized in this paper, and I believe the rest belong to what may prove to be another unrecognized species. The unique Guadalcanal specimen belongs to still another species, and the single specimen from New Ireland may be conspecific with it.

I am grateful to Dr. Dean Amadon, American Museum of Natural History (AMNH), and Mr. James D. Macdonald, British Museum (Natural History) (BMNH), for lending the crucial specimens used for this study. I am also indebted to Drs. S. Dillon Ripley and Alexander Wetmore for their advice and comments, to Dr. Richard L. Zusi for preparing the illustrations, and to Mrs. Mary LeCroy for providing the map and information on New Guinea specimens. I particularly wish to thank Drs. Dean Amadon, Paul Slud, George E. Watson, and Richard L. Zusi for their critical reviews aimed at improving the manuscript.

New Guinea Records

Ogilvie-Grant (1912, p. 283) was the first to report the presence of *C. whiteheadi* in New Guinea. This record was based on a single specimen from Parimau, Mimika River, western New Guinea, which he later described (1915, p. 190) as "easily distinguished from *C. lowi*, the only other species of this group approaching it in size, by having the tail distinctly forked and the tarsi entirely devoid of feathers."

Rothschild and Hartert (1913, p. 491) recorded a female *C. whiteheadi* from Mount Goliath (not less than 5000 ft.), Snow Mountains, western New Guinea. Mayr and Rand (1937, p. 76), discussing another female from Baroka, Hall Sound, southeastern New Guinea, stated: "This bird agrees with a female from Mt. Goliath (wing 139) taken at 5000 ft., and both differ from north Luzon birds in the paler, more grayish throat; in the north Luzon birds the throat is more nearly like the abdomen." They regarded *C. whiteheadi* as a subspecies of *C. lowi* (= *C. maxima lowi*, type-locality: Labuan Island, North Borneo; see Deignan, 1955a) without giving any reason. Neither *C. m. maxima* nor *C. m. lowi* has ever been recorded from the Celebes, the Lesser Sunda Islands, the Moluccas, or the western Papuan islands.

Rand (1941, p. 10) described New Guinea *Collocalia* specimens from Hollandia (1 specimen) and the Idenburg River area (12 specimens) from sea level to 1800 meters altitude as a new subspecies, *C. w. papuensis*, including the single specimens from Mount Goliath and from Baroka as paratypes. The characters used by Rand to differentiate *C. w. papuensis* from nominate *whiteheadi* from North Luzon were "throat considerably paler, more silvery gray, contrasting with the brownish abdomen; and the upperparts slightly more iridescent."

He also noted that the "thirteen specimens from north New Guinea all have the tarsus fairly well feathered; the Mount Goliath bird has it unfeathered, as does the Baroka bird."

Mayr (1941, p. 85) listed *C. w. papuensis* with its range as given in the original description. Mayr and Gilliard (1954, p. 342) reported four later specimens of "*C. whiteheadi papuensis*" from the foothills of Mount O'-mar and Mount Orata, Kubor Mountains, east-central New Guinea. Three of these specimens that I was able to examine (2 skins and 1 spirit specimen) in the American Museum of Natural History have the tarsus bare. Another spirit specimen could not be located.

Iredale (1956, pp. 219-220) treated *C. papuensis* as a full species noting that one of its characters was a bare tarsus. He was apparently unaware that *C. w. papuensis* had been described from a composite series of specimens with feathered (including the type) and unfeathered tarsi. He also believed the similarity of *C. w. papuensis* to *C. w. whiteheadi* from Luzon to be only "coincidental, as so many local species are known in this group."

Salomonsen (1963, p. 510) named the bare-legged specimens from Mount Goliath, from Baroka, and from the Kubor Mountains, as a new subspecies, *C. w. nuditarsus*, differing from *C. w. papuensis* "in having a bare tarsus, completely devoid of feathers; also in having the upper-parts dull black, almost without any iridescence, the feathers of nape with blackish grey basis, not—or almost not—contrasting with the black tips; the colour of throat not differing from that of breast and abdomen, but the entire underparts being uniform sooty-brown, darker than in *papuensis*." He further (p. 511) stated: "The difference between *papuensis* and *nuditarsus* in the feathering of the tarsus is very striking. The differences in plumage coloration are constant and easy to be seen in all specimens."

I have examined Salomonsen's parotypic series (5 specimens in AMNH) and Ogilvie-Grant's specimen (1912) from Parimau, Mimika River. The Parimau and Mount Goliath specimens differ slightly from Baroka and the Kubor Mountains specimens in having more blackish brown feathers on the back. All appear closely related, but may represent two different populations of an unrecognized full species. This situation, however, requires further study. Rand and Gilliard, in their recent "Handbook of New Guinea Birds" (1967, p. 277), still consider *C. w. papuensis* to be the only population of *C. whiteheadi* that occurs in New Guinea.

Medway (1966, pp. 162-164), in a review of field characters in the genus *Collocalia*, mentioned neither *C. w. papuensis* nor *C. w. nuditarsus*. He treated *C. whiteheadi* not as a distinct species but as a race of *C. brevirostris* (type-locality: Assam; Horsfield, 1839; see also

McClelland, 1839, and Deignan, 1955b), as had Stresemann (1926) because of the "intermediate [systematic] position" of *C. inopina* (type-locality: Ma-fu-ling, Hupeh, China; Thayer and Bangs, 1909) and the similarities in nest structure.

All authors who have discussed *C. w. papuensis*, however, have overlooked one very important character. The type and paratypes (examined in the American Museum of Natural History and the Bogor Museum) from Hollandia and the Idenburg River area have three toes instead of four.

I believe the three-toed birds represent a full species, which is characterized thus below.

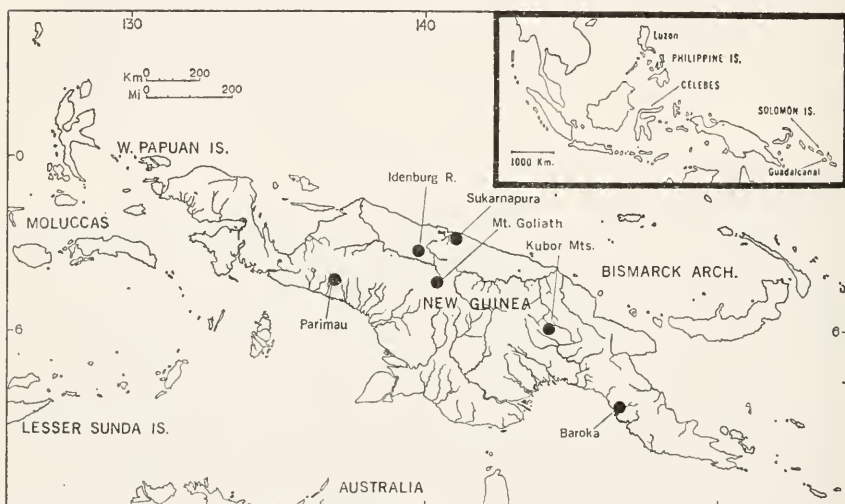


FIGURE 1.—Localities in New Guinea from which *Collocalia papuensis* and "*C. whiteheadi*" have been secured.

Collocalia papuensis Rand

THREE-TOED SWIFTLET

Collocalia whiteheadi papuensis Rand, 1941, American Mus. Novit., no. 1102, p. 10.

HOLOTYPE.—AMNH 305670, ♂ ad., 1800 m altitude, 15 km southwest of Bernhard Camp on Idenburg River, Netherlands New Guinea (now West Irian); Jan. 20, 1939; collected by Richard Archbold, A. L. Rand, and W. B. Richardson (original no. 9049).

SPECIMENS EXAMINED.—13. Hollandia: 1 ♀, July 11, 1938; Bernhard Camp, 50 m: 7 ♂♂ and 2 ♀♀, Mar. 23–May 3, 1939; Bernhard Camp, 850 m: 1 ♂, Apr. 9, 1939; 15 km southwest of Bernhard Camp, 1800 m: 1 ♂ and 1 ♀, Jan. 20, 1939. This is the same paratype series that was available to Rand.

SPECIFIC CHARACTERS.—Three toes (hallux lost) instead of four; a character unique in the genus. Tarsus densely feathered; upper parts dark fuscous brown, slightly iridescent; crown and back with white concealed barbs; feathers around the neck paler than back and crown; bases of feathers forming supraloral spot, light brownish grey contrasting with their black shafts and tips; throat silvery grey, abdomen grayish brown; dark shafts pronounced on feathers of abdomen and undertail coverts, tenth primary shorter than eighth.

MEASUREMENTS (mm).—Wing (chord): 9 ♂♂, 119.5–136.5 (129.5); 4 ♀♀, 125.0–136.0 (131.6); type, 126.0. Central tail feathers: 9 ♂♂, 45.5–51.0 (48.2); 3 ♀♀, 48.5–50.5 (49.6), type, 48.0. Outermost tail feathers: 9 ♂♂, 48.5–56.5 (52.4); 4 ♀♀, 49.0–53.0 (51.7); type, 52.0. Tail furcation (difference between longest and shortest rectrix): 9 ♂♂, 3.0–5.5 (4.2); 3 ♀♀, 2.5–3.5 (3.0); type, 4.0.

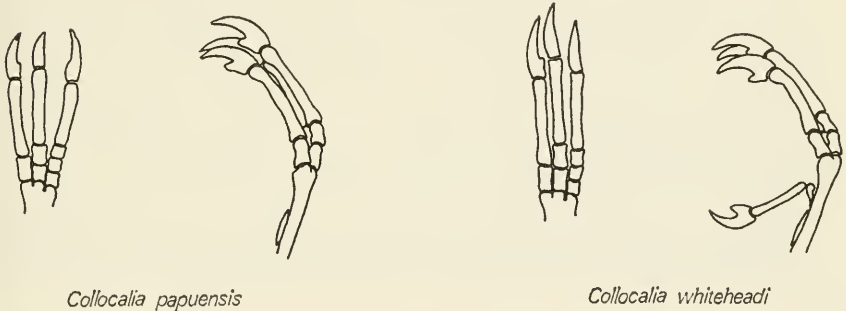


FIGURE 2.—Front and side views of bones of the foot in *Collocalia papuensis* and *C. whiteheadi* drawn from X-rays. Splint of bone along tarsus of both species is a sesamoid of the flexor tendons.

RANGE AND HABITAT.—Known from Sukarnapura (Hollandia) and the Idenburg River area between sea level and 1800 meters in the western part of New Guinea (now West Irian).

According to Rand (1942, p. 459), *C. w. papuensis* was common at Bernhard Camp, where it fed in parties of 20 to 30 birds. The flocks were usually too high to permit collecting, but occasionally they came low over the marshes; *Chaetura novaguineae* often and *Collocalia vanikorensis* sometimes fed with them (see also Rand and Gilliard, 1967, p. 278).

REMARKS.—The primaries of the birds from the Idenburg River area are in molt (primary scores 35 to 100; see Newton, 1966, p. 43) in descending mode from the first (inner) primary (see Stresemann and Stresemann, 1966, pp. 407, 410); the primaries of the Hollandia specimen are fresh (July 11), but its central tail feathers are in molt.

The second toe on both feet of one male specimen from Idenburg River (AMNH 339915) is abnormal. It has only two phalanges and lacks the claw. An X-ray shows that the tip of the second phalanx is rounded and spongy.

Forbes (1882), Mayr (1945a, p. 106), Delacour (1951), Bock (1958), and Bock and Miller (1959) gave examples of related species of birds with three and four toes. I agree with the opinion that the mere loss of one toe is not in itself sufficient reason for separating generically two species that differ only slightly in other characters. The three-toed swiftlet is such a case. It agrees with the other species of *Collocalia* in all other characters including phalanx formulae (3, 4, 5; see fig. 2) of its remaining toes and in having seven secondaries.

Other "*C. whiteheadi*" Records

There remains to be discussed the *C. whiteheadi* records from the Bismarck Archipelago and the Solomon Islands. Mayr (1935, p. 3) described a single specimen from Guadalcanal as *C. lowi orientalis* differing from "*C. lowi whiteheadi*" in being "much darker and with a pale rump; tarsus with a few feathers. . . ." He later (1945b, p. 238) included *C. l. orientalis* as a race of the species *C. whiteheadi* (see Peters, 1940, vol. 4, p. 222). I prefer, for the present, to consider *C. orientalis* as a separate species because it differs from *C. papuensis*, *C. nuditarsus*, and *C. whiteheadi* (North Luzon) in having a pale rump, the fourth toe and tarsus thinly feathered, and a less curved bill.

Salomonsen (1963, p. 511) regarded *C. w. orientalis* as a race of *C. whiteheadi* along with *C. w. nuditarsus*. In the same paper he described the unique specimen from New Ireland as *C. w. leletensis*, diagnosed as follows: "Tarsus unfeathered as in *nuditarsus*, and the colour of the under-parts is also exactly similar to that in *nuditarsus*. *C. w. leletensis* differs, however, strikingly from *nuditarsus* in having a grey, contrasting band across the rump and, also, in having a much stronger and darker bluish gloss on the upper-parts." He also pointed out that *C. w. orientalis* differs from *C. w. leletensis* "in having much broader (double as broad) and slightly paler grey rump band; colour of upper-parts exactly as in *nuditarsus*, without the dark, bluish gloss of *leletensis*; colour of under-parts as in two preceding forms [*nuditarsus* and *leletensis*]; tarsus thinly feathered."

Although I have not examined the type, I believe that the pale rump indicates the specific affinities of *C. w. leletensis* better than tarsal feathering and that it is best treated as conspecific with *C. orientalis*.

Literature Cited

- BOCK, W. J.
1958. A generic review of the plovers (Charadriinae, Aves). Bull. Mus. Comp. Zool., vol. 118, pp. 27-97.
- BOCK, W. J., and MILLER, W. DEW.
1959. The scansorial foot of the woodpeckers, with comments on the evolution of perching and climbing feet in birds. American Mus. Novit., no. 1931, pp. 1-45.
- DEIGNAN, H. G.
1955a. The identity of *Collocalia maxima* Hume. Bull. British Orn. Club, vol. 75, pp. 82-83.
1955b. The races of the swiftlet *Collocalia brevirostris* (McClelland). Bull. British Orn. Club, vol. 75, pp. 116-118.
- DELACOUR, J.
1951. The significance of the number of toes in some woodpeckers and kingfishers. Auk, vol. 68, pp. 49-51.
- DELACOUR, J., and MAYR, E.
1946. Birds of the Philippines, xv+309 pp., with line drawings. New York: MacMillan & Co.
- FORBES, W. A.
1882. Exhibition of, and remarks upon, some preparations showing the rudimentary hallux of several birds commonly described as three-toed. Proc. Zool. Soc. London, pp. 548-549.
- HORSFIELD, T.
1839. Communication to the Society of Mr. McClelland's List of Mammalia and birds collected in Assam. Proc. Zool. Soc. London, pp. 146-167.
- IREDALE, T.
1956. Birds of New Guinea, etc., vol. 1, xv+230 pp., col. pls., figs. Melbourne: Georgian House.
- MAYR, E.
1935. Birds collected during the Whitney South Sea Expedition, xxx: Descriptions of twenty-five new species and subspecies. American Mus. Novit., no. 820, pp. 1-6.
1941. List of New Guinea birds: A systematic and faunal list of the birds of New Guinea and adjacent islands, xi+260 pp., map. New York: American Museum of Natural History.
1945a. In Delacour and Mayr, Notes on the taxonomy of the birds of the Philippines. Zoologica, vol. 30, pp. 105-117.
1945b. Birds of the southwest Pacific: A field guide to the birds of the area between Samoa, New Caledonia, and Micronesia, xix+316 pp., col. pls., line drawings. New York: The MacMillan Company.
- MAYR, E., and GILLIARD, E. T.
1954. Birds of central New Guinea: Results of The American Museum of Natural History Expedition to New Guinea in 1950 and 1952. Bull. American Mus. Nat. Hist., vol. 103, pp. 311-374.
- MAYR, E., and RAND A. L.
1937. Results of the Archbold Expeditions, no. 14: The birds of the 1933-1934 Papuan Expedition. Bull. American Mus. Nat. Hist., vol. 73, pp. 1-248, pl. 1, figs. 1-3.

McClelland, J.

1839. List of Mammalia and birds collected in Assam. Proc. Zool. Soc. London, pp. 146-167.

McGregor, R. C.

1909. A manual of Philippine birds, pt. 1: Galliformes to Eurylaemiformes, x + 412 pp. Manila: Bureau of Printing.

Medway, Lord

1966. Field characters as a guide to the specific relations of swiftlets. Proc. Linn. Soc. London, vol. 177, pp. 151-172, 2 pls., 2 text-figs.

Newton, I.

1966. The moult of the bullfinch *Pyrrhula pyrrhula*. Ibis, vol. 108, pp. 41-67.

Ogilvie-Grant, W. R.

1895. On the birds of the Philippine Islands, pt. 5: The highlands of the Province of Lepanto, North Luzon; With field-notes by John Whitehead. Ibis, pp. 433-472, pls.

1912. Notes on the birds collected by the B.O.U. Expedition to Dutch New Guinea: Appendix A, p. 263-302. In Wollaston, Pygmies and Papuans: The stone age to-day in Dutch New Guinea, xxiv+352 pp., illustr., map. New York: Sturgis & Walton Company. [Reprinted in Ibis, 1913.]

1915. Report on the birds collected by the British Ornithologists' Union Expedition and the Wollaston Expedition in Dutch New Guinea. Ibis, Jub. Suppl., no. 2, xx+329 pp., maps, pls., text-figs.

Peters, J. L.

1940. Check-list of birds of the world, vol. 4, xii+291 pp. Cambridge: Harvard University Press.

Rand, A. L.

1941. Results of the Archbold Expeditions, no. 32: New and interesting birds from New Guinea. American Mus. Novit., no. 1102, pp. 1-15.

1942. Results of the Archbold Expeditions, no. 43: Birds of the 1938-1939 New Guinea Expedition. Bull. American Mus. Nat. Hist., vol. 79, pp. 425-516.

Rand, A. L., and Gilliard, E. T.

1967. Handbook of New Guineabirds, x+612 pp., map, illustr. London: Weidenfeld and Nicolson.

Rothschild, W., and Hartert, E.

1913. List of the collections of birds made by Albert S. Meek in the lower ranges of the Snow Mountains, on the Eilanden River, and on Mount Goliath, during the years 1910 and 1911. Novit. Zool., vol. 20, pp. 473-527.

Salomonson, F.

1963. Whitehead's swiftlet (*Collocalia whiteheadi* Ogilvie-Grant) in New Guinea and Melanesia. Vidensk. Medd. Dansk. Naturh. Foren., København, vol. 125, pp. 509-512.

Stresemann, E.

1926. Beiträge zur Ornithologie der indo-australischen Region, II: Bruchstücke einer Revision der Salanganen (*Collocalia*). Mitt. Zool. Mus. Berlin, vol. 12, pp. 347-353.

Stresemann, E., and Stresemann, V.

1966. Die Mauser der Vögel. Journ. Orn., vol. 107, spec. no., viii+445 pp.