

SHORT NOTE

The Tongatapu rail *Gallirallus hypoleucus* (Finsch & Hartlaub, 1867) – an extinct species resurrected ?

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“An unfortunate number of birds were described from a single specimen only, never to be found again. A prevalent trend in ornithology has been to discount and ignore unique types, yet with proper evaluation of their morphology, in combination with careful review of the circumstances of their acquisition, the species founded on them can often be resurrected, adding to our knowledge of previous avian diversity” (Olson 1992).

The ships of James Cook’s 2nd voyage (1772-1775) were at ‘Eua and Tongatapu in the Kingdom of Tonga from 2 to 7 Oct 1773. Cook recorded that “Bald Coots of a blue Plumage” (= probably purple swampphen *Porphyrio porphyrio*) were “in abundance” (Beaglehole 1961: 263). Reinhold and George Forster, father and son naturalists who sailed with Cook, passed a small swamp on Tongatapu where the “purple water-hen, or *poule sultane*, resided in great numbers” (Kahn 1968: 260). They also saw “several small black Rails with red Eyes & Legs, such as are in Otahaitee” (= probably spotless crane *Porzana tabuensis*) (Hoare 1982: 385). Reinhold Forster’s variety of *Rallus pacificus* (= banded rail *Gallirallus philippensis ecaudatus*) was

seen at Tongatapu (Lichtenstein 1844: 178). The following year, Cook anchored off Nomuka on 26 Jun. Among the many items brought offshore by the natives for trade were “purple water-hens alive” (Kahn 1968: 437). Next day, the Forsters visited Lake Ano Ava where the “woods and shores abounded with pigeons, parroquets, rails, and small birds, which the natives brought for sale” (Kahn 1968: 439). Reinhold Forster said they got a “few Doves, Pigeons, Rails, Coots etc.” this day (Hoare 1982: 542). His son’s folio 127 was based on a specimen of *G. philippensis ecaudatus* obtained at Nomuka in 1774 (Lysaght 1959: 302).

Cook returned to the southern Tonga islands in 1777 in the course of his 3rd voyage (1776-1780). The people of Nomuka went to the ships offshore to trade when he arrived there on 29 Apr. William Anderson, surgeon and naturalist, recorded that among other items they had “some large wood Pigeons, small rails and large violet colour’d Coots” (Beaglehole 1967: II: 861). The ships were anchored at Tongatapu from 9 Jun to 11 Jul 1777. Among the birds noted by Anderson during the time spent in the southern Tonga islands in 1777 were “Rails as large as a pigeon of a variegated grey colour with a rusty neck, a black sort with red eyes not larger than a lark, large violet colour’d Coots with red bald crowns” (Beaglehole 1967: II: 923). These were, respectively, probably *G. philippensis*, *P. tabuensis*, and *P. porphyrio*.

Received 24 Sep 2010; accepted 28 Jan 2011

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Specimens of *G. philippensis*, *P. tabuensis*, and *P. porphyrio*, obtained at the southern Tonga islands during Cook's 3rd voyage, found their way into the collection of Joseph Banks. They are referred to in the Solander Catalogue, entries 108, 113 and 114, and are named and described briefly in Manuscript List 3, entries 122, 127 and 128 (Medway 1979) as *Rallus histrionicus*, *Rallus icteropus* and *Fulica porphyrio*. All were noted as being from the "Frdly Isles" (= Tongan Islands). Another rail specimen is referred to in the Solander Catalogue, entry 112 as "1 Rallus - Tonga tabu" (Medway 1979). This specimen is named and described briefly as *Rallus spectabilis* in Manuscript List 3, entry 126. The description is as follows: "*spectabilis* *R(allus)* albus, dorso inferna, cauda, et collo supra, fuscis albo transverse lineatis, alis fuscis, albo et rufo maculatis. Sol. cat. 112. Tonga Tabou". Unfortunately, the Banks specimen of *R. spectabilis* is no longer extant. It was probably among the birds included in the zoological specimens which Banks divided between John Hunter and the British Museum in 1792, only 2 of which are known to survive (Medway 2009).

Fortuitously, the Banks specimen of *R. spectabilis*, which was probably preserved in spirits (Medway 2009), was the basis of Latham's 1784 description (1781-1802: III (1): 232) of Variety B of the "Philippine Rail":

"The head in this variety is paler, and the streak over the eye grey: the hind part of the neck transversely striated brown and white: the middle of the back, and scapulars, white, with a very little mixture of brown on the first: wing coverts olive brown, transversely blotched with white; second quills white on the inner webs, on the outer olive brown; the greater quills olive brown, marked with large ferruginous spots; the first wholly white, the second white within: tail even with the end of the quills, barred olive brown and white: all the under parts white: bill and legs pale yellow brown. Inhabits *Tongataboo*. In the collection of Sir *Joseph Banks*".

No specific name was applied to this rail by either Gmelin (1788-1793: I (2): 714) or by Latham himself (1790-1801: II: 757), both referring to it simply as a variety of *G. philippensis*. In 1824, Latham (1821-1828: 9: 375) again included it as a variety of the "Philippine Rail". The only significant difference between this and his description of 1784 is that the plumage in this variety, rather than just the head, is now described as being paler.

Presumably, the rail from Tongatapu was a *Gallirallus* because Latham described it as a variety of *G. philippensis*. Gray (1859: 52) included it as a variety of *Rallus pectoralis* Gould, 1848

(= *G. philippensis*). Finsch and Hartlaub (1867: 163-164), "in view of the complete difference in colouring", disagreed with Gray and recognised this rail as a species which they named *Rallus hypoleucus*. Many years earlier, the compiler of the Solander Catalogue, who had access to all of the Banks bird specimens from Cook's voyages, clearly also considered his *R. spectabilis*, the rail from Tongatapu, to be a different species to his *R. histrionicus* (= *G. philippensis*). Latham, who also had the advantage of being able to personally examine the Banks specimen, regarded its plumage characters to be sufficiently different to those of the "Philippine Rail" itself to warrant its description as a variety of that species. The rail from Tongatapu differed from the extinct Tahiti rail (*Gallirallus pacificus*), described in detail by Reinhold Forster (in Lichtenstein 1844: 177-178), but it shared some plumage similarities including white or mainly whitish underparts. The plumage of the Tongatapu bird also differed from that of all other *Gallirallus* rails that are known to have survived into historic times in Oceania (list in Steadman 2006: 523). Its distinctive plumage suggests taxonomic distinction (Diamond 1991). Finsch and Hartlaub considered it in no way improbable, in view of the limited knowledge of the ornithology of the Tongan islands, and because of the hidden way of life of members of the Rallidae, that the "characteristic" rail from Tongatapu might never be found again. Unfortunately, this has proven to be true.

Finsch and Hartlaub (1869, 1870) included *R. hypoleucus* as a valid species in their later publications on the birds of Tonga, and Gray (1869-1871: III: 57) followed them in doing so. However, Sharpe (1894: 40) included *R. hypoleucus* in the synonymy of *G. philippensis*, and Mathews (1927-1930: I: 82) regarded the name as being a synonym of *Rallus forsteri* Hartlaub, 1852 (= *G. philippensis ecaudatus*). This may have been why *R. hypoleucus* was not mentioned by, for example, Rothschild (1907), Greenway (1967), Ripley (1977), Watling (1982), Fuller (1987), or Steadman (2006), and why Medway (1979) regarded the Banks specimen as *G. philippensis*. *R. hypoleucus* had passed into oblivion, both in life and in literature. Nevertheless, it appears that *R. hypoleucus* was a good species in its own right, as Finsch and Hartlaub (1867) believed. It may be known as the Tongatapu rail *Gallirallus hypoleucus* (Finsch & Hartlaub, 1867).

Live birds, including rails, were available for purchase by the Europeans when Cook was at the southern Tonga islands in 1777. For example, "small rails, and large violet colour'd Coots" were among the birds the natives at Nomuka brought to the ships to trade (Beaglehole 1967: II: 861). David Samwell, surgeon's mate, mentioned that the Tongans had "Variety of Birds some of which

they used to bring on Sticks to the Ship to sell" (Beaglehole 1967: II: 1040). There would have been ample opportunity to obtain the specimen of *G. hypoleucus* during the month that the ships were at Tongatapu. A few years later, rails were available for purchase there. In Mar 1793, members of d'Entrecasteaux's expedition obtained several birds at Tongatapu, including "the Philippine rail, *Rallus philippensis*", by purchase from the natives (Labillardière 1800: II: 109). The Banks specimens of *P. porphyrio*, *G. philippensis*, and *P. tabuensis* from Cook's 3rd voyage bore the general locality "Friendly Isles". This suggests that each of those species was probably encountered at more than one of the islands of the southern Tonga group which were visited on the voyage, whereas *G. hypoleucus*, which bore the specific locality "Tonga Tabou", was encountered only at that island. There is no evidence that this is an incorrect locality. Therefore, it seems that the type specimen of *G. hypoleucus* was obtained at Tongatapu.

Cook was assured by the Tongans that they had little or no traffic either amongst themselves or with any other islands except for Fiji from where they obtained red feathers and a few other items (Beaglehole 1967: I: 171). In late prehistory, red shining-parrots (*Prosopeia t. tabuensis*) and collared lorries (*Vini (Phigys) solitarius*) were transported by humans from Fiji to the southern Tonga islands for the sake of their red feathers which were much prized by the Tongans (Medway 2010). Several Fijians were at Tongatapu in 1777 while Cook was there (Beaglehole 1967: I: 163), but there is no evidence that rails were transported from Fiji to the southern Tonga islands at this time. The presence of Europeans at Tongatapu, who were known to be eager to acquire "natural and artificial curiosities", may have prompted Tongans from throughout the southern Tonga islands to bring such items to Tongatapu for sale. There is no evidence that rails were brought to Tongatapu for that purpose. Therefore, in the absence of evidence that it was transported by humans to Tongatapu, it seems that the type specimen of *G. hypoleucus* was from a population which lived on that island. In this event, the type locality of *Gallirallus hypoleucus* (Finsch & Hartlaub, 1867) is Tongatapu Island, Kingdom of Tonga.

Tongatapu in the 1770's may have seemed an unlikely place for the long-term survival of rails, particularly if they were flightless. The island had been settled by humans for c. 2,800 yrs, and had undergone extensive deforestation (Steadman 2006: 187). The Forsters described Tongatapu as "almost one continual garden" (Kahn 1968: 447). The countryside through which Cook walked on 26 Jun 1777 may have been typical of Tongatapu at that time. He found "by far the greatest part

of the Country cultivated and planted with one kind of production or a nother and the most of these plantations were fenced round. Some old Plantations lay uncultivated or in fallow, and there were places that had never been touched but lay in a state of Nature but even these places were usefull in affording them timber &c with which they were generally covered" (Beaglehole 1967: I: 139).

Anderson (Beaglehole 1967: II: 923) recorded that at Tongatapu in 1777 "The only Quadrupeds (beside hogs) are a few ratts, and some dogs which are not natives of the place but produced from some left by Captn Cook in 1773, and others got from an island call'd Feejee, which must also have been lately, as the breed is not yet so numerous as to furnish the neighbouring isles with any". Dog bones were recovered from the cultural layer of a site on 'Eua (Steadman 1993; Kirchman & Steadman 2005), but dogs must have died out before Cook visited the southern Tonga islands. Cook believed that the Tongans did not have any dogs in 1773 "as they were exceeding desirous of those we had on board, their desire was satisfied so far as a Dog and a Bitch would do it, the one was from New Zealand and the other from Huaheine or Uliatea" (Beaglehole 1961: 262; Kahn 1968: 266). Cook also left a "young Dog and a Bitch animals they have not and which they are very fond of" at Nomuka in 1774 (Beaglehole 1961: 451), but they may not have survived because Cook did not mention dogs when he was at Nomuka again in 1777 (Beaglehole 1967: I: 98-102, 120-121). Cook recorded that there were a "good many" dogs on Tongatapu in 1777, but they had not extended further than that island, "nor were they in the possession of any but the Chiefs" (Beaglehole 1967: I: 144-145). William Bligh, who had been at the southern Tonga islands with Cook in 1777, purchased some dogs at Nomuka 12 years later (Bligh 1792: 151). These were probably some of the progeny of the dogs introduced into Tongatapu that had been spread around the southern Tonga islands by then. In 1777, Cook took sheep on board his ship at Tongatapu lest the dogs should destroy them after he had gone. He considered nearby 'Eua to be the safest place for sheep because the dogs had not yet got to that island (Beaglehole 1967: I: 144, 157). The dogs introduced from Fiji into Tongatapu may have been less docile and less confined to settlement than the breed of dogs that had formerly lived in the southern Tonga islands.

The progenitors of the populations of volant *P. porphyrio*, *G. philippensis* and *P. tabuensis* that are present in the southern Tonga islands today may have colonised those islands after human arrival (Steadman 2006: 193). If so, those species managed to survive on Tongatapu for up to 3 millenia despite the presence of many humans who undoubtedly hunted and ate them, extensive deforestation,

and predation by introduced mammals. The same habitats on Tongatapu that supported *P. porphyrio*, *G. philippensis*, and *P. tabuensis* into historic times may also have supported *G. hypoleucus* into that era. All prehistoric *Gallirallus* bones from a single archaeological site on Tongatapu were referred to *G. philippensis* by Kirchman & Steadman (2005), but that does not mean *G. hypoleucus* did not exist on Tongatapu and survive into historic times.

G. hypoleucus, whether or not it could fly, would seem to be another *Gallirallus* that managed to survive into historic times on a long-inhabited island in Oceania. It may not have survived for very long after its European discovery in 1777. The dogs introduced into Tongatapu by Cook and from Fiji had "multiplied greatly" by 1793 when Malaspina was at Vava'u where a probably flightless, now-extinct *Gallirallus* sp., known only from a drawing, apparently also survived into historic times (Olson 2006). Those "new" dogs may have been a significant contributor to the demise of *G. hypoleucus* on Tongatapu and the *Gallirallus* sp. on Vava'u, particularly if both were flightless or weak of flight and in low numbers. Dogs are known predators of rails. William Mariner, who was resident in the Tongan islands for c. 4 years from 1806, recalled that at Vava'u "the king gave orders that all the dogs in the island, except a few that belonged to chiefs, should be killed, because they destroyed the game, particularly the *kalai*" (Martin 1818: I: 252). The *kalae* is the purple swamphen.

ACKNOWLEDGEMENTS

I am grateful to David Steadman and Richard Holdaway for their constructive comments on this paper.

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Keywords Kingdom of Tonga; Tongatapu; extinct rail; *Gallirallus hypoleucus*; description