BioOne COMPLETE

Clarifying the morphology of the enigmatic Kiritimati Sandpiper Prosobonia cancellata (J. F. Gmelin, 1785), based on a review of the contemporary data

Authors: Jansen, Justin J. F. J., and Cibois, Alice

Source: Bulletin of the British Ornithologists' Club, 140(2) : 142-146

Published By: British Ornithologists' Club

URL: https://doi.org/10.25226/bboc.v140i2.2020.a4

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Bulletin-of-the-British-Ornithologists'-Club on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Clarifying the morphology of the enigmatic Kiritimati Sandpiper *Prosobonia cancellata* (J. F. Gmelin, 1785), based on a review of the contemporary data

by Justin J. F. J. Jansen & Alice Cibois

Received 21 February 2020; revised 27 March 2020; published 22 June 2020

http://zoobank.org/urn:lsid:zoobank.org:pub:A7257C63-3200-40AC-8B7E-6C92B631AEA5

Summary.—The extinct Kiritimati Sandpiper *Prosobonia cancellata* is known from a single contemporaneous illustration by William Wade Ellis and a description by William Anderson. We reproduce Ellis' illustration for the first time, and we consider the illustration as almost in line with Anderson's description. Further, using both Anderson's work and Ellis' illustration, we prepared a description of the bird to replace Latham's interpretation of the depiction. Finally, we show that Kiritimati Sandpiper possessed several unique morphological characters.

Only two of the five species of Polynesian sandpipers (*Prosobonia* sp.), have available skins and mounts: the extant Tuamotu Sandpiper *Prosobonia parvirostris*, and a unique skin of Tahiti Sandpiper *P. leucoptera*. The extinct Moorea Sandpiper *P. ellisi* and Kiritimati Sandpiper *P. cancellata* are each known from a single illustration executed on the third circumnavigation commanded by Captain James Cook (Walters 1991, 1993). The fifth species, endemic to Henderson Island, is known only from bones and is undescribed (Wragg 1995, De Pietri *et al*. submitted). *Prosobonia* sandpipers were once widespread in the Pacific (Thibault & Cibois 2017).

Kiritimati Sandpiper was confined to Kiritimati (or Christmas) Island, now in the Republic of Kiribati, and geographically part of the Line Islands. It was illustrated by William Wade Ellis, surgeon's mate on board HMS *Discovery* during the third circumnavigation commanded by Captain James Cook (1776–80). Part of his crew visited the island between 24 December 1777 and 2 January 1778. There, or soon afterwards, an illustration was made by Ellis. He also illustrated, from the same island, Kiritimati Reed Warbler *Acrocephalus aequinoctialis* and Pacific Golden Plover *Pluvialis fulva* (Lysaght 1959: 334, 338). In 1785, John Latham initially described the sandpiper based on the drawing (see also Latham 1824: 9). However, it was formally described by Johann Friedrich Gmelin in 1789 (Gmelin 1789) from Latham's 1785 description. The illustration is now at the Natural History Museum, London (NHMUK), having originally formed part of the collection of Sir Joseph Banks.

As our entire knowledge of this species apparently derives from a single illustration, we located a description provided by William Anderson, the expedition's surgeon, which was mentioned but not presented by Lysaght (1959: 332–333). However, the identity of Kiritimati Sandpiper was challenged, for example by R. B. Sharpe, who identified it as a Wood Sandpiper *Tringa glareola* (Lysaght 1959: 332–333). Here, we present all of the known details concerning this enigmatic bird and publish the illustration for the first time, as well as discussing the trustworthiness of Ellis's drawing.

Extant descriptions

In Anderson MS (*c*.1780: 12):

23. ***Tringa aquinoctialis****. Magnitudo Alauda paula majora. Longitudo uncio 7.*

© 2020 The Authors; *This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial Licence, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.*

ISSN-2513-9894 (Online)

Downloaded From: https://complete.bioone.org/journals/Bulletin-of-the-British-Ornithologists'-Club on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Corpus superne fuscum albido variegatum. Inferne albidum pectore hypochondrusque fusco pari[l]is. Pileum fuscum linea alba supra oculos a basi Rostri fere a i [ad] nucham. Remiges fusca. Cauda rotundata rectricibus faucis albo fasciatim. Rostrum rectum nigrum. Habitat insula Diei Christi. Solitaria. Affinis Tringarum alpina helveticaque.

[Our translation]
23. ***Tringa aquinoctialis****. Slightly taller than a lark. Length 7 inches.*
Upper body brown with various white markings. Underside, white breast and flanks similarly brown. Brown cap, white line from top of eye to base of beak, almost reaching nape. Remiges brown. Tail rounded by rectrices (= round tail), white throat streaked. Beak straight and black. Lives on Christmas Island. Solitary. Affiliated with Tringa [*Calidris*] *alpina* and *Tringa helvetica* [*Pluvialis squatarola*].

Although the species were probably not present on Kiribati, these are the names the author referred to (i.e. species he was familiar with and that he used for comparison).

In Latham (1785: 274) we find the following description:

Barred Phalarope *Length seven inches and a half. Bill one inch, black: the feathers on the upper parts of the bird brown, edged with white transversely barred with dusky: quills dusky, with the ends brown, and the margins and tips very pale: tail the same, spotted on both webs with white: legs dusky.*
Inhabits Christmas Island. In the collection of Sir Joseph Banks.

In Gmelin (1789: 675) there is the following description:

cancellata *34. Tr. Pennis superioribus fulcis, margine albis, inferioribus albis transversim obscure lineatis, pedibus pinnatis obscuris.*
Barred Phalarope, Lath. Syn. III. I. p. 274. N. 5.
Habitat in insula nativitatis Cristi, 7 ½ polices longa.
Rostrum nigrum; remiges restricesque obscurae, margine et apice pallidiori.

[Our translation]
cancellata *34. Tr[inga], plumage dark brown above, with white edges, underside white transversely barred with dark lines, pinnate dark feet.*
Barred Phalarope, Lath[am]. Syn. III. I. p. 274. N. 5.
Lives on Christmas Island, 7 ½ inches long.
Bill black; remiges and rectrices dark, with paler margins and tips.

The use by Gmelin of 'pedibus pinnatis', literally 'winged' or 'feathered' feet, is odd. The feet are not feathered, so we believe that this adjective refers to the shape of the feet and should be translated as 'pinnate', i.e. having branches, tentacles, etc., either side of an axis, like the vanes of a feather.

In Latham (1824: 9) is the following description:

Barred Phalarope *Length seven inches and a half. Bill one inch, black: shape uncertain, feathers on the upper parts of the body brown, edged with white, transversely barred with dusky: quills dusky, with brown ends, the margins and tips very pale: tail the same, spotted on both webs with white: legs dusky.*
Inhabits Christmas Island. - Sir Joseph Banks.

© 2020 The Authors; *This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial Licence, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.*
ISSN-2513-9894 (Online)
Downloaded From: https://complete.bioone.org/journals/Bulletin-of-the-British-Ornithologists'-Club on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use



Figure 1. William Wade Ellis's painting of Kiritimati Sandpiper *Prosobonia cancellata*, held by the Natural History Museum, London, UK.

The illustration

One of our main aims was to confirm the accuracy of Ellis's illustration. Therefore, we analysed ten random illustrations made by Ellis during the third expedition, and checked the reliability of the artist: Blue-crowned Lorikeet *Vini australis* (Ellis no. 13), Hawaii Oo *Moho nobilis* (Ellis no. 26), Hawaii Mamo *Drepanis pacifica* (Ellis no. 27), Lesser Akialoa *Hemignathus obscurus* (Ellis no. 28), Iiwi *Drepanis coccinea* (Ellis no. 29), Hawaii Amakihi *Chlorodrepanis virens* (Ellis no. 31), South Island Saddleback *Philesturnus carunculatus* (Ellis no. 73), Tahiti Reed Warbler *Acrocephalus caffer* (Ellis no. 76), Ou *Psittirostra psittacea* (Ellis no. 79) and Akepa *Loxops coccineus* (Ellis no. 85). In general, most of these drawings are accurate, albeit with some incorrect details in several illustrations, but all of the species illustrated are recognisable beyond doubt. For example: there should be no red on the

© 2020 The Authors; *This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial Licence, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.*
ISSN-2513-9894 (Online)
Downloaded From: https://complete.bioone.org/journals/Bulletin-of-the-British-Ornithologists'-Club on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

forehead of Blue-crowned Lorikeet *Vini australis* (Ellis no. 13); the Hawaii Mamo *Drepanis pacifica* (Ellis no. 27) lacks pale wingtips and the yellow undertail-coverts are too short; the South Island Saddleback *Philesturnus carunculatus* (Ellis no. 73) should have reddish-brown (not black) undertail-coverts, a reddish (not yellow) wattle and the bill is proportionately slightly too large in the illustration; and the adult Ou *Psittirostra psittacea* (Ellis no. 79) has yellow reaching too far down the neck, should show whitish yellow undertail-coverts, has incorrect bill and nostril shapes, and the legs should be pinkish (not greyish, as depicted). On the illustration of the sandpiper (Lysaght 1959, no. 64) is written: 'W. W. Ellis ad viv: delint: et pinxt: 1778. Christmas Isle' (Fig. 1).

Conclusion

As Ellis's drawing in combination with Anderson's description are trustworthy (for some differences see below), the following combination should be used for the species description, rather than Latham's interpretation of the illustration.

Size and structure.—Kiritimati Sandpiper was of similar size to Tuamotu Sandpiper (15–17 cm; van Gils *et al*. 2020) according to Anderson (7 inches = 17.8 cm), or slightly larger according to Latham (7.5 inches = 19 cm). The shape appears unnatural, which may be a result of the artist's interpretation. The small head and short wings are clearly similar to Tuamotu Sandpiper.

Head.—Short white supercilium (not extending behind eye in the illustration, unlike in Anderson's text), and nape dark. Forehead, crown and hindneck darker brownish, remainder of the head paler brownish. Streaks of brown on throat, background paler brown.

Upperparts.—Brownish with paler feather fringes on the wing-coverts and primaries. Mantle as coverts.

Underparts.—Pale brownish / white underparts, undertail-coverts paler, with darker brown chevron-shaped feathers on the underparts.

Tail.—Rounded, with uniform-coloured feathers. Brownish background with dark streaks. Longer than the tips of the wings when folded.

Bare parts.—Bill black, straight, legs dusky-coloured, part of tibia feathered, tarsus long. Four toes.

Behaviour.—Solitary, loosely associated with other shorebirds.

Differs from Tuamotu Sandpiper in tail pattern, size and whitish throat.

Acknowledgements

We are grateful to Alison Harding at the Natural History Museum for access to William Anderson's manuscript and to Hellen Pethers for scanning of William W. Ellis's illustration. We thank Julian Hume and Robert Prŷs-Jones for their comments on the submitted manuscript.

References:

Anderson, W. *c*.1780. Ms. Descriptions of animals collected on Capt. Cook's second and third voyage round the world 1772–1775 & 1776–1780. Ms no. 81. Natural History Museum, London.

De Pietri, V. L., Worthy, T. H., Scofield, R. P., Cole, T. L., Wood, J. R., Cibois, A., Jansen J. J. F. J., Zhang, G., Mitchell, K. J., Feng, S., Chen, W., Tennyson, A. J. D. & Wragg, G. M. submitted. A new species of Polynesian sandpiper (Charadriiformes: Scolopacidae: *Prosobonia)* from Henderson Island, Pitcairn Group, and the scolopacid affinities of *Prosobonia. Zool. J. Linn. Soc*.

van Gils, J., Wiersma, P., Boesman, P. & Kirwan, G. M. 2020. Tuamotu Sandpiper (*Prosobonia parvirostris*). *In* del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona (retrieved from https://www.hbw.com/node/53917 on 21 February 2020).

Gmelin, J. F. 1789. *Systema naturae per regna tria naturae*, vol. 1(2). Georg. Emanuel Beer, Leipzig.

Latham, J. 1785. *A general synopsis of birds*, vol. 1. Benjamin White, London.

© 2020 The Authors; *This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial Licence, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.*

ISSN-2513-9894 (Online)

Downloaded From: https://complete.bioone.org/journals/Bulletin-of-the-British-Ornithologists'-Club on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Latham, J. 1824. *A general history of birds*, pt. 9. Benjamin White, London.
Lysaght, A. 1959. Some eighteenth century bird paintings in the Library of Sir Joseph Banks (1743-1820). *Bull. Brit. Mus. (Nat. Hist.), Hist. Ser*. 1: 251–371.
Thibault, J.-C. & Cibois, A. 2017. *Birds of eastern Polynesia: a biogeographic atlas*. Lynx Edicions, Barcelona.
Walters, M. 1991. *Prosobonia ellisi*, an extinct species of sandpiper from Moorea, Society Islands. *Boll. Mus. Region. Sci. Nat. Torino* 9: 217–226.
Walters, M. 1993. On the status of the Christmas Island Sandpiper, *Aechmorhynchus cancellatus*. *Bull. Brit. Orn. Cl*. 113: 97–102.
Wragg, G. M. 1995. The fossil birds of Henderson Island, Pitcairn Group: natural turnover and human impact, a synopsis. *Biol. J. Linn. Soc*. 56: 405–414.

Addresses: Justin Jansen, Naturalis Biodiversity Center, Postbus 9517, 2300 RA Leiden, Netherlands, e-mail: justin.jansen@gmail.com. Alice Cibois, Natural History Museum of Geneva, CP 6434, 1211, Geneva 6, Switzerland, e-mail: alice.cibois@ville-ge.ch

© 2020 The Authors; *This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial Licence, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.*

ISSN-2513-9894 (Online)

Downloaded From: https://complete.bioone.org/journals/Bulletin-of-the-British-Ornithologists'-Club on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use