THE MEASUREMENTS OF COOPER'S SANDPIPER AND THE OCCURRENCE OF A SIMILAR BIRD IN AUSTRALIA

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INTRODUCTION

Cooper's Sandpiper *Calidris cooperi* (Baird 1858) is known from a unique specimen collected by W. Cooper in 1833 on Long Island, New York, USA. In many respects it closely resembles Cox's Sandpiper *C. paramelanotos,* a 'new species' described by Parker (1982) from two specimens collected in South Australia.

The holotype and paratype of *C. paramelanotos* have morphologies that are demonstrably intermediate between the Pectoral Sandpiper *C. melanotos* and Curlew Sandpiper *C. ferruginea*; and my field observations of similar-looking birds in South Australia revealed nothing distinctive in their feeding behaviour or habits. Their call-notes could even be construed

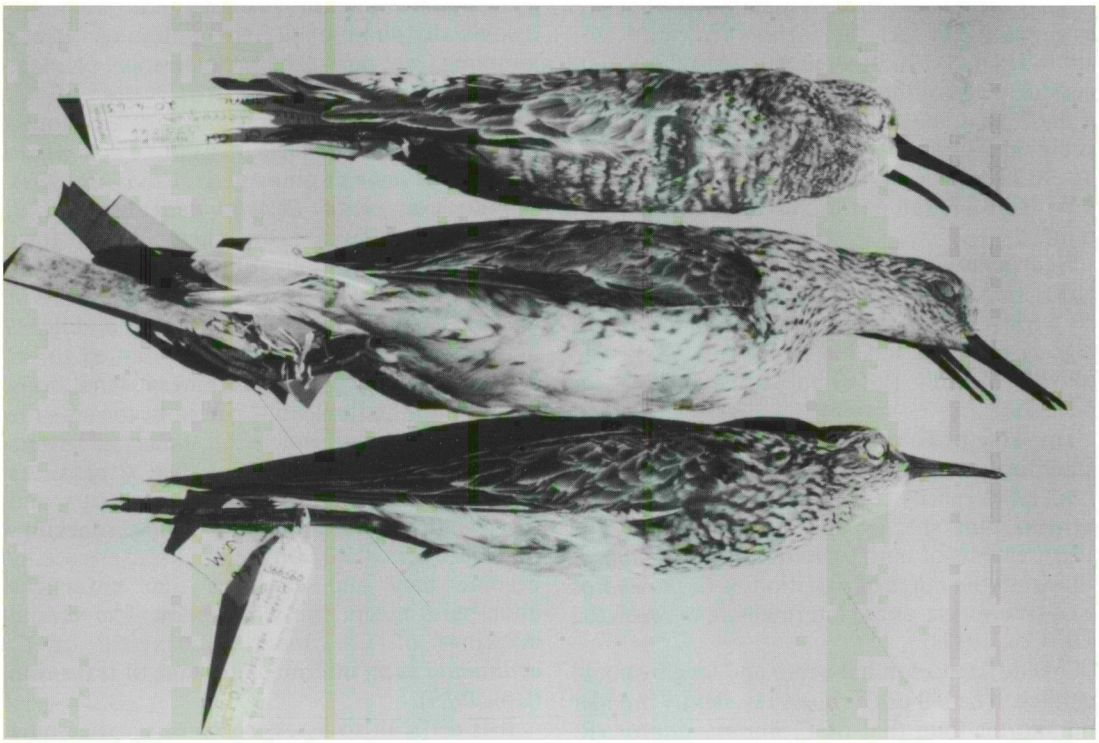

Figure 1. *C. ferruginea* (top), *C. cooperi* (centre) and *C. melanotos* (bottom). On *C. cooperi* note the well-stuffed body, bulged crop and thin, extended neck compared to the other specimens. Also, note the dark wedge-shaped streaks on the lower flanks of *C. cooperi.*
Photo: courtesy of R. L. Zusi, USNM.

as intermediate between those of the two species (Cox 1987). *C. cooperi* differs instead, according to Cox (1989), by having many characters intermediate between *C. ferruginea* and the Sharp-tailed Sandpiper *C. acuminata* which, nevertheless, is the reputed closest relative of *C. melanotos* (Marchant *et al.* 1986).

The types of *C. cooperi* and *C. paramelanotos* are probably hybrids (Cox 1989), but differing measurements of *C. cooperi* in early literature have led to some confusion. McAllan & Bruce (1988) compared Baird's (1858) description of *C. cooperi* with that of *C. paramelanotos* (Parker 1982) and wrote, "we have decided that the appreciably longer tail and total length measurements and shorter, straight bill of *cooperi* is [*sic*] sufficient to preclude it from further consideration in the identity of *C. paramelanotos.*"

The following account provides recently-taken measurements and plumage details of *C. cooperi* which indicate that some birds seen in Australia and identified as *C. paramelanotos* were, in appearance, closer to *C. cooperi.* This information is additional to that provided by Cox (1987, 1989).

MEASUREMENTS

The total length measurement of a bird cannot be repeated once it is skinned, afterwhich its size depends upon the skills of the preparator. Lucas (1888) lamented about the shape of stuffed Great Auks *Alca impennis,* "most of which are from two to eight inches longer than they should be . . . too slender, and with two pronounced a crop." Indeed, the holotype of *C. cooperi* exhibits the long, well-stuffed body, slender neck and bulged crop so commonly found in specimens of the last century (Fig. 1). It was collected in 1833 and Baird, who lived from 1823 to 1887 (Mearns & Mearns 1988), could not have measured it before it was skinned. Yet, although its true length will never be known, it can still be estimated from other repeatable measurements.

Early published measurements of *C. cooperi* vary greatly between the authors (*cf.* Baird 1858 and Ridgway 1919). I therefore requested accurate measurements of the holotype from Dr R. L. Zusi of the United States National Museum, where the specimen is housed. These he kindly provided (*in litt.* 30 November 1988):

Wing 145.7; tail 55; tarsus 29.9; culmen 31.1 (mm).

Significantly, they are very close to those Parker (1982) gave for *C. paramelanotos,* which has a longer (57.3 mm), not shorter tail than *C. cooperi (contra* McAllan & Bruce (1988), who followed Baird's (1858) measurements of the specimen).

The wing of *C. cooperi* is 0.7 mm beyond the upper limit of *C. acuminata* (145 mm, Marchant *et al.* 1986) but its remaining measurements are between that species and *C. ferruginea.* The measurements of both types of *C. paramelanotos* fall within the range of variation of *C. melanotos* or *C. ferruginea,* or are intermediate between the two (Cox 1987).

Fine differences in bill width and length should be noted. The bill of *C. cooperi* is slightly broader and shorter than that of *C. paramelanotos* (R. L. Zusi *in litt.* 31 August 1977) and slightly narrower and longer than that of *C. melanotos.* In life, it probably was slightly decurved, like that of *C. paramelanotos* (Cox 1989).

THE STOCKTON SANDPIPER

At least two birds seen in Australia and identified as *C. paramelanotos* resembled *C. cooperi* more (Cox 1989). Another trapped at Stockton, New South Wales, on 21 March 1981 and identified as a probable hybrid between *C. acuminata* and *C. ferruginea* (Lane *et al.* 1981) was later regarded to have been an example of *C. paramelanotos* that may prove to be a hybrid (Marchant *et al.* 1986, Cox 1987, Pringle 1987). More recently it was noted to have resembled *C. cooperi* (Cox 1989) and I have since examined photographs that show it had the same plumage characteristics as *C. cooperi.*

Ventral markings

C. cooperi and *C. paramelanotos* closely resemble each other but have differences in plumage that approach those between *C. acuminata* and *C. melanotos.* It is important to realise that the type of *C. cooperi* is in a transitional stage of plumage and does not display any phase of definitive plumage. It was moulting from non-breeding to breeding plumage when collected, like both types of *C. paramelanotos.* Its ventral markings are almost the same as those on specimens of *C. acuminata* in a similar stage of plumage growth (Cox 1989).

When examples of *C. acuminata* are moulting from non-breeding to breeding plumage their underparts are initially quite spotted, like *C. cooperi.* At first the new feathers of the breast are pale buff with dark brown spots and blotches in their centres that form a diffuse spotted gorget across the breast. These markings extend along the sides to the flanks but peter out towards the white belly, below which the undertail coverts exhibit dark brown wedge-shaped streaks. As feather growth continues the paler tips and fringes abrade while the dark central markings flare outwards, firstly on the flanks, to eventually become bars and chevrons that cover the underparts except the white belly. The ventral markings of *C. cooperi* are typical of *C. acuminata* in an intermediate stage of transition (Cox 1989).

It is difficult to assess the precise patterning of the entire underparts on the Stockton Sandpiper because the photographs show only parts of its ventral regions. Lane *et al.* (1981) said its " . . . head, neck and upper breast were also intermediate with some Curlew Sandpiper colouring in the generally Sharp-tailed Sandpiper appearance"; but otherwise they did not describe the underparts. However, it did have dark wedge-shaped streaks on the lower flanks (Fig. 2) identical to *C. cooperi* (Fig. 1), unlike *C. paramelanotos* which has unmarked flanks (Cox 1989). Its breast feathers had blackish-brown central markings (photo by W. Jones in Pringle 1987: 376, and Fig. 3) that were darker than on both *C. paramelanotos.* Most interesting of all, the Stockton Sandpiper probably returned in January and March 1988. I. A. W. McAllan, who observed the bird near where it was trapped seven years earlier, wrote (pers. comm. 10 April 1989) that the " . . . bird was close to a *cooperi* type having the merging breast." McAllan & Bruce (1988) said, "It was also probably the bird discussed by Lane *et al.* (1981) as it was banded above [*sic* = on] its right tibiotarsus, a method sometimes employed by the banders at Stockton."

C. melanotos and *C. paramelanotos* have densely streaked upper breasts with the markings

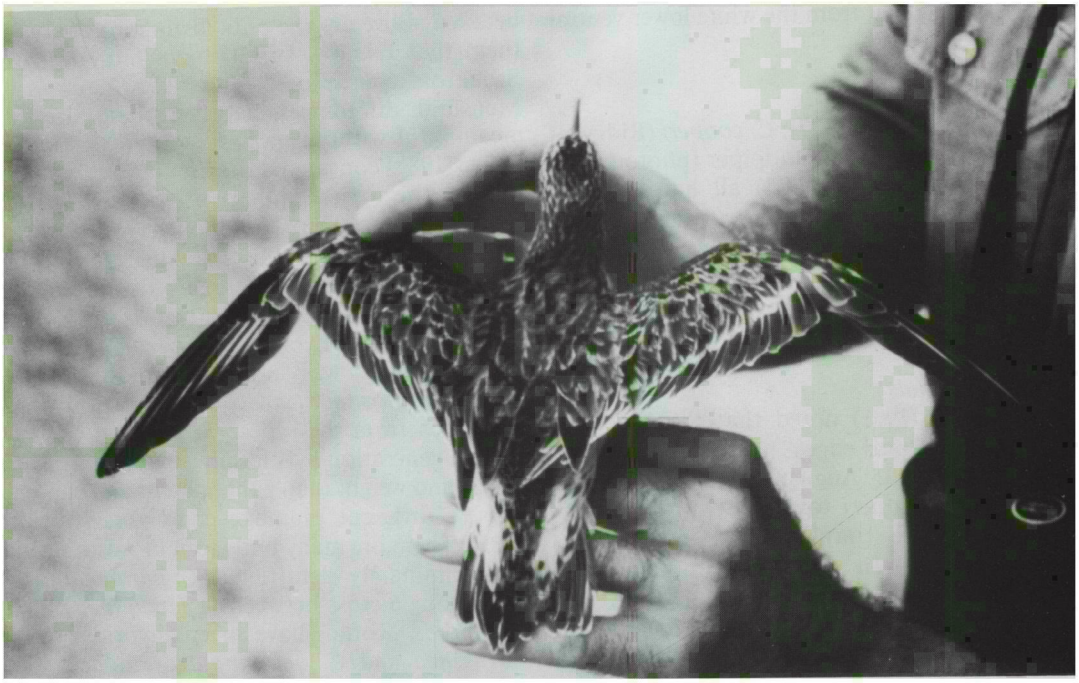

Figure 2. The Stockton Sandpiper, 21 March 1981. Note the pattern of the lateral uppertail coverts and compare with Figure 6 of Cox (1989). Also the dark wedge-shaped streaks on the lower flanks, curling around above the right-hand uppertail coverts. *Photo: courtesy of S. G. Lane.*

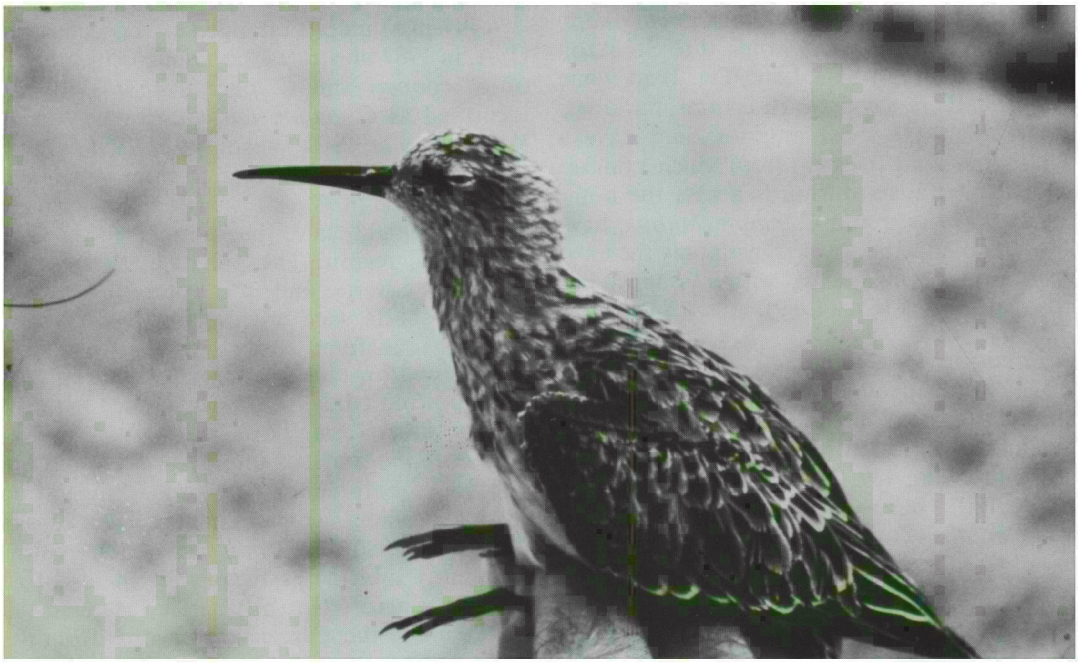

Figure 3. The Stockton Sandpiper, New South Wales, 21 March 1981. Note the very dark centres to the breast feathers. *Photo: courtesy of S. G. Lane.*

sharply demarcated from the white lower ventral areas (Cox 1987).

Colour of primary shafts

C. acuminata (Cox 1987), *C. cooperi* (Ridgway 1919) and the Stockton Sandpiper (photo by W. Jones in Pringle 1987: 375) all have whitish primary shafts, shading darker basally and terminally. *C. melanotos* and *C. paramelanotos* both have brownish primary shafts except for the tenth outer which is white (Parker 1982, Cox 1987).

Colour of tertials

Lane *et al.* (1981) noted that the Stockton Sandpiper had "buff edges" to its tertials, and R. L. Zusi (*in litt.* 31 August 1977) reported the tertials of *C. cooperi* to have whitish or buff edgings rather than the "rust" of *C. paramelanotos.* In breeding-plumaged *C. melanotos* the tertials are fringed chestnut, pale brown or brownish-buff, and in *C. acuminata* dull chestnut and whitish-buff (Marchant *et al.* 1986). However, any distinction is tenuous because it depends on the plumage wear or phase of a bird.

Uppertail coverts

The lateral uppertail coverts of *C. acuminata, C. cooperi* (Cox 1989) and the Stockton Sandpiper (photo by S. G. Lane, Fig. 2) are white with all feathers having dark central markings. In particular, the most anterior ones have a blackish line along the shaft from which a thicker diagonal bar tapers outwards across the outer web. *C. melanotos* and *C. paramelanotos* have white lateral uppertail coverts, with only the most posterior ones being marked with a V-shaped bar across both webs (Cox 1989).

Measurements

Given measurements of the Stockton Sandpiper (Lane *et al.* 1981) are possibly larger than those from dried specimens, but are:

Bill 34.5; wing 137; tail 54 (mm).

They fall between those of both *C. paramelanotos* (Cox 1987), but are not far from those of *C. cooperi,* considering the greater range of variation in related species.

DISCUSSION

However tenuous, the plumage differences between *C. cooperi* and *C. paramelanotos* detailed above are the only distinctions between them that I know. In all them, moreover, the Stockton Sandpiper matched *C. cooperi.* Mensural differences between them are not meaningful without more material. McAllan & Bruce (1988) considered the Stockton Sandpiper to be the "first positive" record of *C. paramelanotos* from New South Wales, but it might be regarded as the first Australian record of *C. cooperi.* Nevertheless, there is little reason to doubt the opinion of Lane *et al.* (1981) that it was probably a hybrid of *C. ferruginea* and *C. acuminata.* It was not an example of *C. paramelanotos* (*contra* Cox 1987) for it differed too much from the types.

First generation hybrids are sometimes greater in size and weight than either parent and can even possess different plumage characters (Buckley 1982). Therefore many birds seen in Australia and indiscriminately identified as *C. paramelanotos,* resembling a cross between *C. ferruginea* and *C. melanotos,* could have been hybrids of *C. ferruginea* and *C. acuminata* or indeed some other species. The appearance of the Stockton Sandpiper suggests it was a hybrid of *C. ferruginea* and *C. acuminata,* and its close resemblance to the type of *C. cooperi* indicates that that specimen is also a hybrid.

A juvenile sandpiper trapped in Massachusetts, USA, in 1987 illustrates the similar appearances of *C. cooperi* and *C. paramelanotos.* It was identified as *C. paramelanotos* (Buckley 1988, Kasprzyk *et al.* 1988, Vickery *et al.* 1988) but no valid reasons were presented to show why it was not a juvenile of *C. cooperi* (Cox 1989) which, perhaps, might have been expected in that geographic region. The precise pattern of its uppertail coverts and the coloration of its primary shafts were not described. Its ventral markings differed only slightly from *C. paramelanotos,* but as a juvenile of *C. cooperi* is unknown it cannot be safely aligned with the type of either form.

C. acuminata breeds in Siberia (Marchant *et al.* 1986), but summer records, "suggesting possible breeding," come from north-west Alaska (Roberson 1980). In some years, a few birds apparently join the eastward movements of *C. melanotos* across North America (Marchant *et al.* 1986) and there are several records from the north-east of the continent, including New York and Massachusetts (Mantlik 1986). *C. ferruginea* is also a Siberian breeder but small numbers have

bred in Alaska (Holmes & Pitelka 1964) and it is a casual migrant throughout North America, chiefly on the Atlantic coast (Scott *et al.* 1983). *C. melanotos* breeds in Siberia and North America (Marchant *et al.* 1986). The three species migrate to the Southern Hemisphere and if they occasionally interbreed a hybrid of any two could occur *en route* on the Atlantic shore of North America.

Hundreds of thousands of *C. acuminata* and *C. ferruginea* and smaller numbers of *C. melanotos* migrate to Australia (Lane 1987), where I estimate an average of about four or five putative hybrids (Cox's Sandpipers) are detected each year. They do not necessarily represent accumulative totals of different individuals for some records appear to refer to the same birds returning to favoured localities each year.

It has been suggested that these probable hybrids are 'sterotyped' (Marchant *et al.* 1986), but that is clearly not the case. Rather, the observers have not been discerning enough to detect the fine differences between these birds. Hybrids of boldly-patterned species are relatively easy to recognise, but those of cryptically-coloured birds such as sandpipers would tend to be overlooked or mistaken for something else that seems to match their description. In Australia they were usually identified as Dunlins *C. alpina* in the past (Cox 1987).

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