

Records of Little Stint, *Calidris minuta*, in Australia, 1977-2013, with comments on plumage phases

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Abstract

All known Australian records of Little Stint, *Calidris minuta*, from 1977 to 2013 with details sufficient to determine the plumage phase of each bird are examined. The results of this investigation indicate that most of the birds recorded were in their normal seasonal plumage condition and challenge previous statements that many Australian records are of Little Stints in 'reverse-cycle breeding plumage'. Also, the number of records suggests that a few Little Stints occur annually in Australia.

INTRODUCTION

The Little Stint, *Calidris minuta*, breeds in Arctic regions from Norway east to the New Siberian Islands. It spends the northern winter in southern Europe, Africa and east through India to Myanmar. Further east it is replaced by the Red-necked Stint, *Calidris ruficollis*, which breeds in Siberia from the Laptev Sea eastwards, and winters from central India to Taiwan south to Australia and New Zealand (O'Brien, Crossley and Karlson 2006). The Red-necked Stint is the most abundant of the migratory shorebirds on Australian coasts and wetlands during the southern summer (Lane 1987) and, in non-breeding plumage, its very similar appearance to Little Stint makes both liable to confusion in the field or even in the hand.

The first accepted record of Little Stint from Australia was in Victoria on 15 January 1977 (Higgins and Davies 1996). This initial sighting was followed by almost annual reports from many parts of Australia over the next 36 years

(Table 1) but, even though the species was regarded as a local rarity, the details of most remain unpublished. Some records were submitted to the former Royal Australasian Ornithologists Union Records Appraisal Committee (RAC) and later to the Birds Australia Rarities Committee (BARC). It remains on the South Australian Rarities Committee (SARC) notification list.

This paper is an attempt to summarise known Australian records of Little Stint up to October 2013 and to investigate their plumage phases because some authorities (e.g. Lane 1987; Pizzey and Knight 1997; BARC) state that most Australian records are of birds in reverse-cycle breeding plumage, a term defined by Lane (1987: 147) to mean birds 'showing breeding plumage during the non-breeding months.'

METHODS

In Table 1 we list 56 records of Little Stint from Australia over the period 1977–2013 for which we are confident that the plumage data are sufficient for correct identification. We acknowledge there are 30 additional reports spanning the period 1981–2011 (per Fletcher, Newman and Wakefield 1981; Hassell *et al.* 2013; Jenny Lau and Bill Ramsay) for which no such information could be found. These were from Tasmania (2); Victoria (17); New South Wales (3); Queensland (3); Northern Territory (1); Western Australia (3); and Cocos-Keeling Islands (1), and doubtlessly there are others we are unaware of. Also omitted from Table 1 are three records not accepted by BARC, and another stint photographed in

south-west Western Australia on 13 October 2013 that we were unable to identify as Little or Red-necked Stint. This last bird perhaps typifies the difficulties involved when attempting to assess plumage stages or even the specific identity of a bird from photographs.

The plumage stage of each Little Stint seen by us was assessed in the field or from many photographs. Assessments of birds not seen by us were reliant on photographs, written descriptions or necessarily the observer's conclusions, which were often loosely given, for example, as breeding or non-breeding plumage. Also, records in Hassell *et al.* (2013) are reliant on the trappers' judgement and there is ambiguity about whether some birds were juvenile or first-winter plumaged. Therefore, Column 4 of Table 1 lists our assessment of the plumage phase of each Little Stint, which may differ from the opinion of the original observer(s) or even published accounts.

For consistency with the term 'reverse-cycle breeding plumage', plumage terminology is based on that used by O'Brien, Crossley and Karlson (2006) and assessed where possible as: juvenile, 1st winter (1st basic), 1st summer (1st alternate), adult non-breeding (basic) and adult breeding (alternate). Moulting birds were assessed to be in pre-breeding moult (moulting from non-breeding to breeding plumage) or post-breeding moult (moulting from breeding to non-breeding plumage).

Other moults of young birds are more difficult to assess because they are sometimes suspended or not completed (Prater and Marchant 1977; Hayman, Marchant and Prater 1986; Pearson 1987) and individuals can display a bewildering mix of feathers from different plumage phases (Figure 5). Even so, four birds are listed in Table 1 as moulting to first summer plumage while another is listed to be in first post-breeding moult.

Only juvenile and adult breeding plumages are likely to show no sign of moult, with any difference between individuals in either phase

being due to plumage wear or gender. On the other hand, once juvenile plumage is discarded, young birds are usually in some stage of moult for about the next 15 months until adult breeding plumage is gained. Afterwards, the full post-breeding moult of adults includes a fairly quick body moult and concurrent lengthy wing moult from August/September to January/March (O'Brien, Crossley and Karlson 2006), and by January/March the partial moult to adult breeding plumage is already underway. Thus, other than juveniles, Little Stints in non-breeding plumage are commonly in some stage of moult. It is for this reason that we qualify our assessments of the plumage phases listed in Table 1 to be of birds that were *mostly* in the given plumage phase or of birds *clearly* in a given stage of moult.

RESULTS

Australian Records of Little Stint

Nearly half of the records listed in Table 1 were Little Stints found or seen by both of us (JC, CR) in South Australia and, it being impracticable, it is not proposed to describe all individuals. Suffice to say the first two of our records (Nos. 3 and 5) are specimens in the South Australian Museum (B32136 and B32522) that were collected as a direct consequence of the extraordinary controversy surrounding the first Australian record (see below p. 71, Discussion on Plumage phases, RAC 10 and 14). Subsequently, the first six South Australian records were detailed by Cox (1988).

Other published and unpublished records of Little Stints in Australia listed in Table 1 are all of single birds, but it can be noted from the given dates that sometimes two birds were at the same locality, although not necessarily together.

Plumage Phases

Table 1 lists four juveniles, as exemplified by Figure 1, recorded from September – December. It is also probable that some listed to be in various stages of breeding plumage were also juveniles

Table 1. Australian Records of Little Stint. Listed locations are abbreviated: Victoria (Vic); South Australia (SA); Tasmania (Tas); Western Australia (WA); New South Wales (NSW); Queensland (Q); Sewage Farm (SF); Game Reserve (GR); 10 records are birds trapped by the Victorian Wader Study Group (Hassell *et al.* 2013); while records with an asterisk* refer to birds said to be in reverse-cycle breeding plumage. Little Stints studied from photographs are indicated (P).

No.	Date	Location	Plumage phase	Reference and/or principal observer
1	15-29/1/1977	Werribee SF, Vic.	Moulting to 1st summer*	RAC 10; Higgins and Davies (1996: 252); P
2	22/1/1977	Werribee SF, Vic.	Moulting to 1 st summer*	RAC 14; P
3	10-11/3/1979	Dry Creek Saltfields, SA	Adult female breeding	Cox (1988); P
4	17/11/1979	Werribee SF, Vic.	Worn adult breeding*	Strudwick (1980); P
5	25/11/1979-7/12/1979	Dry Creek Saltfields, SA	Male 1 st winter	Cox (1988)
6	16-18/2/1980	Buckland Park Lake, SA	Pre-breeding moult	Cox (1988)
7	9-12/4/1982	Lake Forrestdale, WA	Adult breeding	Curry <i>et al.</i> (1983)
8	12/4/1982	Lake Forrestdale, WA	1 st summer or in pre-breeding moult	Curry <i>et al.</i> (1983)
9	17-23/10/1983	Price Saltfields, SA	Worn juvenile	Cox (1988)
10	7/4/1984	Comerong Island, NSW	Pre-breeding moult	Chafer (1989)
11	18/9/1984	Kanidal Beach, WA	Worn adult breeding*	BARC 104
12	6/12/1986-8/2/1987	Dry Creek Saltfields and Buckland Park Lake, SA	Adult non-breeding to pre-breeding moult	Cox (1988)
13	13/12/1986	Buckland Park Lake, SA	Juvenile	Cox (1988)
14	26/12/1987-26/3/1988	Dry Creek Saltfields, SA	1 st winter	JC; P
15	19-27/11/1988	Dry Creek Saltfields, SA	Adult non-breeding	JC (collected by R. Schodde: CSIRO 41928)
16	25/2/1989	Dry Creek Saltfields, SA	Adult non-breeding	JC
17	23/2/1991-10/3/1991	Dry Creek Saltfields, SA	Adult non-breeding	JC
18	14/12/1991	Price Saltfields, SA	Adult non-breeding	JC
19	3/1/1992	Dry Creek Saltfields, SA	Adult non-breeding	JC
20	18/1/1992	Werribee SF, Vic.	Adult non-breeding	Hassell <i>et al.</i> (2013)

No.	Date	Location	Plumage phase	Reference and/or principal observer
21	8-15/2/1992	Dry Creek Saltfields, SA	Pre-breeding moult	JC
22	22/3/1992	Price Saltfields, SA	Adult breeding	JC
23	11/4/1992	Price Saltfields, SA	Adult non-breeding	JC
24	29/12/1993	Werribee SF, Vic.	Adult non-breeding	Hassell <i>et al.</i> (2013)
25	26/2/1994	Dry Creek Saltfields, SA	1 st winter	JC
26	27/9/1996	Cairns Waterfront, Q.	Post-breeding moult	D. Harper and R. Lloyd
27	30/11/1997-18/12/1997	Price Saltfields, SA	Post-breeding moult	JC
28	2/12/1999	Inverloch, Vic.	1 st winter	Hassell <i>et al.</i> (2013)
29	23/12/2000	Little Eyre Island, SA	Adult non-breeding	Rogers (2002)
30	11/11/2001	Outer Harbor, SA	Juvenile or adult breeding	Rogers (2003)
31	2/12/2001	Lake McLarty, WA	Juvenile or adult breeding*	BARC 326
32	22/12/2001	Stockyard Point, Vic.	Adult non-breeding	Hassell <i>et al.</i> (2013)
33	22/2/2003	Mornington Penin., Vic.	1 st winter	Hassell <i>et al.</i> (2013)
34	24/9/2003	Ashmore Reef	Juvenile	M. Carter; P
35	27/12/2003	Werribee SF, Vic.	Adult non-breeding	Hassell <i>et al.</i> (2013)
36	22/3/2004	Lake McLeod, WA	Adult breeding	Hassell <i>et al.</i> (2013)
37	13/4/2005	Dry Creek Saltfields, SA	Adult breeding	Rogers (2008)
38	4/11/2005	Dampier, WA	1 st summer	C. Hassell and A. Boyle; P
39	15/1/2006	Point Cook, Vic.	Moulting to 1 st summer	Rohan Clarke; P
40	14/3/2006	Lake Victoria, Port Lonsdale, Vic.	1 st winter	Hassell <i>et al.</i> (2013)
41	30/3/2006-1/4/2006	Price Saltfields, SA	Pre-breeding moult	BARC 665; Rogers (2009); P
42	3/4/2006-4/4/2006	Tolderol GR, SA	Pre-breeding moult	Rogers (2009)
43	18-24/4/2006	Lake Murphy, Vic.	Adult breeding	BARC 482
44	12/12/2006	Barilla Bay, Tas.	Juvenile	E & B Wakefield; P
45	29/1/2008	Dry Creek Saltfields, SA	Adult non-breeding	BARC 666; Rogers (2010); P
46	13-20/7/2008	Werribee SF, Vic.	1 st summer*	BARC 574; P

Table 1 continued

No.	Date	Location	Plumage phase	Reference and/or principal observer
47	2-4/10/2008	Dry Creek Saltfields, SA	1 st post-breeding moult	BARC 667; Rogers (2010); P
48	17/12/2009	Broome, WA	1 st winter	BARC 632
49	2/11/2009	Woorinen, Vic.	Worn adult breeding	BARC 653
50	21/1/2010	Dry Creek Saltfields, SA	Adult non-breeding	BARC 668; Rogers (2012); P
51	22/01/2011	Barwon Heads, Vic.	1st winter	VWSG 35: 12, Clive Minton
52	7/5/2011	Dry Creek Saltfields, SA	Moulting to 1 st summer	CR; SARC 52; P
53	5/10/2012	Roebuck Bay, WA	Worn adult breeding	Chris Hassell; P
54	13/11/2012	Ashmore Reef	Post-breeding moult	Rohan Clarke
55	14-20/3/2013	Dry Creek Saltfields, SA	Early adult breeding	CR; SARC 60; P
56	3-15/4/2013	Dry Creek Saltfields, SA	Pre-breeding moult	CR; SARC 61; P

because in this plumage Little is the brightest of the four dark-legged stint species (Hayman, Marchant and Prater 1986) and in sunlight often appears to have very rich rufous dorsal plumage. Thus a juvenile could be mistaken for a breeding-plumaged adult. In this respect, a photograph of a Little Stint (No. 9) was captioned in Pringle (1987: 351) as 'Adult, breeding plumage' when that and other photographs examined show it was in worn juvenile plumage (Cox 1988). Juvenile Little Stints are typically illustrated to have a prominent white 'split supercilium' (Hayman, Marchant and Prater 1986; O'Brien, Crossley and Karlson 2006), but only faint traces of this feature may remain discernible later in the year when juveniles in Australia often display a more 'capped' appearance due to the pale supercilia and nape contrasting with the dark brown streaked crown (Figure 1).

Eight of the records relate to birds in first winter plumage from October – March. The Little Stint depicted in Figure 2, while a black-and-white photograph, was overall grey of a shade slightly darker than nearby Red-necked Stints and it

shows the newer, long, oval-shaped scapulars overlapping the retained, more rounded, juvenile wing coverts typical of this plumage stage. It also has a 'capped' appearance similar to later juveniles. Others listed as in 'non-breeding' plumage could also have been first year birds because most replace their juvenile wing-coverts from late December onwards and become indistinguishable from adults (Pearson 1987).

The first two Little Stints listed in Table 1 from Victoria in January were assessed to have been moulting from first winter to first summer plumage by the pale napes and subdued rufous edgings to the scapulars and tertials. No. 1 only appears to have brighter plumage because it was photographed in sunlight whereas No. 2 was not (see discussion of plumage phases below). Another Little Stint (No. 52) photographed in South Australia on 7 May 2011 was also moulting from first winter to first summer plumage, but had a very much duller plumage than the first two, while still exhibiting the pale nape and 'capped' appearance of an immature bird.



Figure 1. Juvenile Little Stint (No. 44), Barilla Bay, Tasmania, 12/12/2006. Bill & Els Wakefield



Figure 2. 1st winter plumage Little Stint (No. 14). Dry Creek Saltfields, SA, 28/1/1988.

David Eades

It is suspected that some of the breeding plumaged birds listed in Table 1 were still in their first year, but first summer Little Stints are thought not to be reliably distinguishable from breeding-plumaged adults unless the condition of their primaries can be assessed as all very worn or there is contrast between old inners and new outers. Their plumage is otherwise said to be rather dull, especially on ear coverts and breast (Prater and Marchant 1977).

Nevertheless, a Little Stint (No. 38) photographed at Dampier, WA, on 4 November 2005 was assessed to have been in first summer plumage because it had buff rather than rufous

fringes to the scapulars, a pale nape enhancing a slight 'capped' appearance and detailed notes provided by the observers state that the primaries lacked any wear. The latter aspect is important because adults moult their primaries concurrently with body plumage on or near the wintering grounds between August/September and January/March (O'Brien, Crossley and Karlson 2006) and any adult still in breeding plumage by November should have very worn or moulting primaries.

Another Little Stint (No. 46) stands out to be in first summer plumage. It was photographed in Victoria in July 2008 and is depicted in



Figure 3. 1st summer-plumaged Little Stint (No. 46), Werribee SF, Victoria, 14/7/2008. Jeff Davies

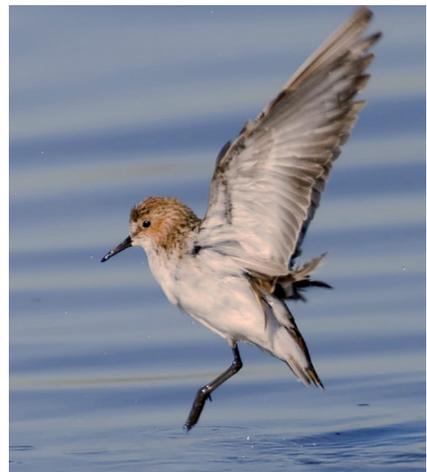


Figure 4. Another view of No. 46 Geoff Jones



Figure 5. Little Stint (No. 47) moulting from 1st summer plumage. Dry Creek Saltfields, SA, 2/10/2008. Colin Rogers

Figures 3 and 4. It shows some newly-grown scapulars tipped broadly grey with only slight rufous edges. Similarly, the tertials and mantle feathers have buff-coloured fringes and less rufous markings than would be expected for full breeding plumage. The bird also displays some very dark speckling across an uncoloured central upper breast and sides and has a slight 'capped' appearance similar to other first year birds. Most importantly, it was in primary feather moult. Four primary tips can be discerned in the enlarged photograph. Primary P10 has no overlapping feather, and P9 could be missing or not grown full length. The next inner two primaries have their tips very close together whilst a fourth is much shorter with its probable tip only just visible, protruding beneath a short tertial. This moult suggests the bird could not



Figure 6. Non-breeding plumaged Little Stint (No. 50), Dry Creek Saltfields, SA, 21/1/2010. Colin Rogers

have been an adult and instead was a young bird in a condition that prevented its migration north to Arctic breeding grounds.

A Little Stint (No. 47) at Dry Creek Saltfields, SA, on 2 October 2008 was probably moulting from first summer to non-breeding plumage. Figure 5 shows it was a remarkably messy-looking bird with its worn mantle feathers and tertials resembling, but not the same as, those of breeding plumage, and its wing coverts were extremely faded and almost worn to points. It also had some scapulars of non-breeding plumage which show the bird was moulting.

Fourteen Little Stints recorded from November - April are listed in Table 1 as 'Adult non-breeding' plumaged birds. Figure 6 is an example, but it is



Figure 7. Little Stint (No. 56) in pre-breeding moult. Dry Creek Saltfields, SA, 3/4/2013. Colin Rogers



Figure 8. Little Stint (No. 55) in early breeding plumage. Dry Creek Saltfields, SA, 20/3/2013. Colin Rogers

unknown how many of these were first year birds. Seven Little Stints recorded from February – May in Table 1 are listed to be in ‘Pre-breeding moult’, a stage where the old body feathers of adult non-breeding plumage are being replaced by the new emerging black-centred back feathers, broadly tipped grey and with bright rufous fringes becoming visible. The tertials are then broadly fringed bright rufous along their length and the head and breast feathering has emerging colour, as in Figure 7.

Eleven of the Little Stints in Table 1 are listed as adult breeding-plumaged. These birds occurred over two periods: March – April and then September – November, and it should be noted that the four records from the second period relate to birds in worn breeding plumage, as would be expected for that time of year. The Little Stint (No. 55) in Figure 8, while very similar to that in Figure 7 (No. 56), is a different individual that should be more correctly ascribed to early breeding plumage because, apparently, it has no remaining older feathers. Full breeding plumage is acquired when all older feathers are replaced. The broad grey tips of the new feathers then gradually disappear with wear, while continuing growth allows the bright rufous fringes to become the dominant plumage colour, as shown in Figures 9 and 10.

Of the remaining birds in Table 1, four recorded from September to December were assessed to

be in post-breeding moult. But two others seen in November (No. 30) and December (No. 31), while clearly coloured Little Stints, contained too little detail within their descriptions to clarify whether they were juvenile or adult breeding-plumaged birds.

DISCUSSION

Status

The 56 records listed in Table 1, together with the 30 undescribed reports and early unconfirmed records listed in Higgins and Davies (1996), render the case for Little Stint to be of annual occurrence in Australia as compelling. The case is reinforced by additional factors:

- (i) The difficulty of identification of some Little Stints in non-breeding plumage, even in the hand (Hassel *et al.* 2013), with the consequence that they are likely to be overlooked among Red-necked Stints.
- (ii) The lack of systematic observations in distant suitable habitat away from population centres.
- (iii) Saltfields and similar habitats that allow a relatively close approach by vehicle provide the most suitable conditions for identification of Little Stints but they make up a small fraction of the area frequented by stints and other small waders.



Figure 9. Little Stint (No. 53) in moderately worn breeding plumage. Roebuck Bay, WA, 5/10/2012. Chris Hassell



Figure 10. Little Stint (No. 4) in very worn breeding plumage. Werribee SF, Victoria, 17/11/1979. VWSG

However, the ratio of occurrence of Little Stint to Red-necked Stint based on trapping data is estimated by Hassel *et al.* (2013) to be in the region of 1:13,000, so detection of a Little Stint in a flock of Red-necked Stints poses challenges for even the most persistent observer. Furthermore, 35 of the 56 birds listed in Table 1 had some plumage colour which enabled them to be detected more easily in the field.

Plumage phases

The head and body moult of juvenile Little Stints takes place primarily between late September/October and January (O'Brien, Crossley and Karlson 2006) and juveniles are often distinct in the field until December (Hayman, Marchant and Prater 1986). The few Australian records accord with this timing, although it seems remarkable that one (No. 44) photographed on 12 December in Tasmania (Figure 1) was showing no sign of moult. This plumage at this date is of interest because juvenile Little Stints in the Kenyan Rift Valley typically replace head and body plumage (with 1st winter) by mid-October and early November (Pearson 1984).

The Little Stint (No. 14) in Figure 2 clearly moulted its juvenile plumage earlier than the Tasmanian juvenile (No. 44) as its plumage was entirely grey when found on 26 December 1987 and was still all grey, with no sign of body moult, when last seen on 26 March 1988. First winter plumage spans about six months (Pearson 1987) and therefore Little Stints moulting later from juvenile plumage, as the Tasmanian bird, could remain in first winter plumage until around May and then undergo body moult to first summer plumage later than adults.

The first primary moult (complete or partial) normally occurs between December and April (O'Brien, Crossley and Karlson 2006), usually when Little Stints are in first winter plumage, although some retain old inner primaries into first summer plumage (Prater and Marchant 1977). Other young Little Stints may vary moult-timing when necessary for Pearson (1987)

wrote that when a flooded site in Kenya was drying out completely in early February none of the young birds present had begun wing moult and, on another occasion, young birds in late January had a full set of well preserved juvenile flight feathers even though some were already assuming chestnut body plumage. He presumed the birds modify their moult to preserve mobility throughout the winter. Such birds must then moult their flight feathers later and this flexibility helps explain why one (No. 46), at least, did not migrate north and instead remained in Australia while gaining first summer plumage and undergoing primary moult in July. Another Little Stint (No. 47) had also obviously suspended or not completed some stages of moult in its first year, but by its second October was gaining non-breeding plumage synchronously with adults.

A sometimes obscure but seemingly consistent feature of immature birds (juvenile, 1st winter and 1st summer) is a pale nape that separates the dark crown and mantle feathering (Figures 1-4), whereas adults (non-breeding and breeding), including females (No. 3), have nearly uniform colouration extending from crown to mantle (Figures 6, 9 and 10). This difference has been confused because O'Brien, Crossley and Karlson (2006: 286, Figure 8) captioned a photograph to read that worn breeding birds have pale heads and look brightest on the nape. However, the bird they depicted was photographed in America in early July and has extensive pale buff fringes to its dorsal feathering (indicating the plumage was not very worn), a pale nape and darker cap. These aspects and the limited rufescent tones to its plumage indicate the bird was in first summer plumage rather than adult and, most notably, it had very similar plumage to the first summer Little Stint photographed in Australia in July 2008 (Figure 3).

Adult Little Stints normally gain non-breeding plumage from August to March (O'Brien, Crossley and Karlson 2006). The 14 records of Little Stint listed to be in 'non-breeding' plumage

in Table 1 span the period 19 November – 11 April and most were in the normal plumage cycle. However, as stated above, it is unknown how many were first winter birds which, later in the season, become virtually indistinguishable from adults, and the later records are therefore almost certainly referable to first year birds.

In Kenya adult Little Stints undergo moult to breeding plumage between January and May (Pearson 1987). During this time in Australia many are in pre-breeding moult and show white or greyish fringes to upperpart feathers that may look like non-breeding plumage from a distance, were it not for their obvious bright rufous-fringed tertials. The Little Stints in Figures 7 (No. 56) and 8 (No. 55) illustrate aspects of this plumage. Although both have rufous margins to many upperpart feathers they also have extensive pale fringing to these feathers, particularly the Little Stint in Figure 8. By June-July the pale fringes wear off revealing more of the rufous tones illustrated as full breeding plumage in field guides.

Some Australian records of birds said to be in breeding plumage were actually birds in pre-breeding moult, while many were said by Lane (1987: 147) to have been in “reverse moult cycles”. Therefore, the question of reverse-cycle breeding plumage is worth investigating as six of the records listed in Table 1 are birds said to be in this reversed plumage state, including five by RAC-BARC, which is at odds with most Australian records but explains how the term found its way into the literature.

Examining these records (denoted thus* in Table 1) we note the following:

Nos. 1 and 2: RAC 10 and 14

A controversy concerning the rightful discoverer of the first Little Stint identified in Australia became known locally as ‘stint wars’ (Mike Carter *in litt.* 2006) and this conflict resulted in the record never being properly described or published.

Reporting on RAC Case 10, Parker (1980) wrote “Among other things, it became clear that it could not be properly appraised separately from what is now Case 14.” Therefore, both cases were considered together.

RAC 10 is a submission of the record of a Little Stint seen by C. J. Doughty at Werribee Sewage Farm, Victoria, on 15 and 26 January 1977 and photographed by Mike Carter on 29 January.

RAC 14 is a submission by F. T. H. Smith of the record of a Little Stint at Werribee Sewage Farm, Victoria, on 22 January 1977 and photographed that day by R. J. Swindley.

Parker (1980) reported that each submission concerned a different Little Stint and that both records had been accepted by the RAC. He stated that the bird in RAC 10 was “...coloured but not in full breeding dress,” whereas the bird in RAC 14 was more “richly coloured” and that “It appears to be in full breeding dress.” However, an examination of Fred Smith’s field notes on the Little Stint of 22 January 1977 showed that the term ‘breeding’ is crossed out and replaced with ‘juvenile’. And, adding to this uncertainty, Parker (1980) incorrectly wrote that the record of Little Stint of 15 January 1977 (RAC 10) had been published, when his cited reference (Anon 1977) was merely an announcement about the 22 January 1977 (RAC 14) sighting.

We examined photographs relating to both submissions and consider they had also been confused because, contra Parker (1980), the Little Stint of RAC 10 was the more richly coloured of the two and in a slightly more advanced stage of moult (i.e. it had dropped two scapular feathers of first winter plumage) when photographed on 29 January 1977. Each bird was assessed to have been moulting into first summer plumage, similar to the way young Little Stints were assuming chestnut body plumage in late January in Kenya (Pearson 1987). It is also possible that each submission refers to the same Little Stint and that Parker’s conclusion of two birds was

due to the photographs being taken a week apart and under different lighting conditions. Whatever the truth, neither record is referable to a Little Stint in reverse-cycle breeding plumage.

No. 4: (no RAC or BARC submission)

Perhaps the most noteworthy Little Stint (No. 4) said to be in 'reverse-cycle breeding plumage' is the one trapped on 11 November 1979 at Werribee SF, Victoria (Strudwick 1980). Hassell *et al.* (2013) made the following comments about this bird:

"There are some notes on the data sheet for this bird that indicate it was an individual in breeding plumage; this is also shown by 5 slide images of the bird taken at capture. It is assumed this is the 'infamous reverse-cycle plumage' Little Stint that caused much interest at the time. The bird being in 'reverse-cycle breeding plumage' may account for the lack of primary moult and the unusually high weight of the bird."

This unusual Little Stint is depicted in Figure 10 and a close review of the photograph revealed two signal points:

- (i) It was in very worn breeding plumage typified by feathers with little or no pale fringing, giving all dorsal surfaces a dominant bright rufous colour;
- (ii) It was growing some new grey lesser coverts and at least two grey scapulars, all fringed translucent white.

These plumage features show the bird was in the first stages of post-breeding moult when trapped and as this moult normally occurs during September and early October (Pearson 1987) the most that can be said of the Little Stint in question is that its moult was delayed by about two months. In any case, this Little Stint was not in 'reverse-cycle breeding plumage', because, to be in that condition, it should have been moulting into breeding plumage in November, not the reverse!

No. 11: BARC 104

The report on this record of a Little Stint seen on 18 September 1984 at Kanidal Beach near the Eyre Bird Observatory, WA, states explicitly that the bird was in worn summer plumage. As this description is consistent for a September record it clearly was not of a bird in reverse-cycle breeding plumage.

No. 31: BARC 326

The report about this Little Stint seen at Lake McLarty, WA, on 2 December 2001, states that several observers were confident of the identification because the bird was "...reported to be in breeding plumage", with no signs of moult, in early December and comments (emphasis added):

"This is the 5th sighting to be accepted by BARC. With **all records to-date** involving birds considered **to be in reverse-cycle alternate plumage.**"

However, the report also comments on the brevity of the notes submitted and that "...the identification rested heavily on the presence of a white chin and the mantle 'V'". As committee members noted, both of these points are not diagnostic of Little Stint, because they are features shared by many Red-necked Stints, particularly if the latter are in moult. But as no sign of moult was detected or reported the committee accepted the identification.

As the juvenile Little Stint photographed in Tasmania on 12 December 2006 illustrates (Figure 1), rufous tones on coloured Little Stints seen in Australia in December need not be an indication of breeding plumage. As the report did not mention the possibility that this bird was in juvenile plumage, the conclusion that it was in breeding plumage is unsafe.

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The report on this Little Stint (the 8th record accepted by BARC, Figures 3-4) of a bird seen on 13–20 July 2008 at Werribee SF, Victoria, states:

“..this bird was in reverse-cycle alternate (breeding) plumage providing straightforward positive identification.”.

However, based on Pearson (1984), a Little Stint seen in July in full breeding plumage *should not be described as in reverse-cycle breeding plumage* because such a bird would then be following the normal moult cycle but without migrating north to the Arctic. Such a strategy is common with first year Red-necked Stint but much less common, although not unknown, in Little Stint in Southern Africa (Underhill 2013).

Therefore, even this record cannot be ascribed to a bird in reverse-cycle breeding plumage and instead, as detailed above, was a first summer plumaged Little Stint that was not in the right physical condition to migrate north.

A more accurate picture about the seasonal plumages of Little Stints in Australia is shown in Table 2, which is an analysis of records listed in Table 1.

CONCLUSIONS

While the normal wintering range of the Little Stint is thought to extend no further east than Myanmar (e.g. Hayman, Marchant and Prater 1986; O’Brien, Crossley and Karlson 2006), this

examination of Australian records over the period 1977-2013 reveals that the species is almost certainly an annual vagrant to somewhere on the continent. It has even been recorded as far east as New Zealand, where it is truly a rarity (Heather and Robertson 1996).

The notion that six records of Little Stint in Australia between 1977 and 2008 were birds in reverse-cycle breeding plumage is incorrect. None of the records, as discussed above, could be properly described as birds in reverse-cycle breeding plumage.

Most of the records conform to what is known about the moult cycles of Little Stint, although retardation is evident in some birds. This is perhaps because moult, especially in younger birds, does not necessarily adhere to rigid cycles, as demonstrated by Pearson’s (1987) observations in Kenya. It is also known that Little Stints may suspend primary moult at any time (Prater and Marchant 1977) and the Australian records indicate that body moult can likewise be suspended. Moult often depends on environmental factors that affect physiology and ultimately the physical condition of a bird. It is often the stray bird that suspends a moult and, as the breeding and non-breeding ranges of Little and Red-necked Stints overlap (Hayman, Marchant and Prater 1986), it would,

Table 2: Plumage stages of Little Stint records, showing the number of times each plumage stage of Little Stint has been recorded each month in Australia. Long-staying birds are included in the months they were present. Shaded areas indicate known monthly plumage stages (Hayman, Marchant and Prater 1986; Pearson 1987; O’Brien, Crossley and Karlson 2006; Prater and Marchant 1977).

	J	F	M	A	M	J	J	A	S	O	N	D
Juvenile									1	1		2
Moult to 1st winter												
1st winter	2	3	2								1	4
Moult to 1st summer	3				1							
1st summer							1				1	
1st Post-breeding moult										1		
Adult non-breeding	5	2	1	1							1	6
Pre-breeding moult	1	2	1	5								
Adult breeding			4	3					1	1	2	
Post-breeding moult									1		2	1

for example, be easy to see how a Little Stint can become attached to a flock of Red-necked Stilts, travel further than normal to Australia and thereby delay its next moult.

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