

Initial findings from a study of Grey-tailed Tattlers in Port Stephens

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Past records of the Grey-tailed Tattler *Tringa brevipes* in the Hunter Region are reviewed. The largest numbers have been recorded in Port Stephens. The Hunter Estuary is another important site whereas only small numbers of birds have been recorded at other locations within the region. Regular surveys in Port Stephens in 2012-13 revealed the presence of up to 124 birds during the non-breeding period and up to 14 birds over-wintering. Port Stephens has been confirmed to be the most important area in New South Wales for Grey-tailed Tattler. Six locations were identified as the main high-tide roosting sites in the non-breeding period and one additional site for over-wintering birds. These sites are analysed for their common characteristics, which include mangroves *Aegiceras corniculatum* and *Avicennia marina* and proximal seagrasses *Zostera* sp. Some feeding and agonistic behavioural observations are also reported.

INTRODUCTION

The Grey-tailed Tattler *Tringa brevipes* is a medium-sized shorebird with shortish yellow legs, evenly shaded grey and white plumage, straight black-brown bill and a white eye-stripe extending beyond the eye. For a long time, it was considered to be conspecific with the Wandering Tattler *Tringa incana*. The difficulty in distinguishing the two species in the field was often mentioned (see Bunkport (1995) and Andrews (1995) for excellent discussions about the key field differentiators). Field identification problems contributed to the delay in achieving a full understanding of the global distribution and movements of the Grey-tailed Tattler¹.

Port Stephens is an important site for Grey-tailed Tattlers in NSW (Stuart 2011b) but very little is known about how they utilise the local ecosystem. Also, Port Stephens provides relatively accessible sites such that a long term behavioural study is feasible. In January 2012 we commenced such a study. This paper presents preliminary findings, to the end of the 2012-13 non-breeding period.

¹ Over time it has collected a host of common names: Eastern Grey Sandpiper; Grey-tailed Sandpiper; Short-legged Sandpiper; Grey-rumped Sandpiper; Ashen Tringine Sandpiper; Polynesian Tattler; Siberian Tattler; Eurasian Tattler; Asiatic or Asian Tattler; Grey-rumped Tattler; Grey-tailed Tattler. Those are only the English names. Previous scientific names used include *Totanus griseopygius*, *Totanus (Heteractitis) brevipes* and *Heteroscelis brevipes*.

Species Overview

The Grey-tailed Tattler is confined to the East Asian-Australasian Flyway, with an estimated population of 50,000 birds (Bamford *et al.* 2008). It breeds in north-eastern Siberia during May-September (Neufeldt *et al.* 1961). The northward and southward migrations are focussed through Japan and Taiwan (Bamford *et al.* 2008, Branson *et al.* 2010). For this reason, its numbers are less affected by the loss of habitat at migration staging grounds around the Yellow Sea, which has depleted the populations of many other shorebird species (Branson *et al.* 2010).

In the non-breeding period, the majority of important sites, and over 90% of the population, are in Australia. Lesser numbers of Grey-tailed Tattlers migrate to Indonesia, the Philippines and New Guinea (Bamford *et al.* 2008).

Although the Grey-tailed Tattler was long suspected to breed in north-eastern Siberia, the breeding grounds were not confirmed until 1930 when E.V. Koslova, of the Academy of Sciences in the Zoological Museum of Leningrad found “young ... with down on the head and neck and with half-grown wings” in the Verkoyansk Ranges (Mathews 1933). It was another 29 years before the first nest and eggs were located. The main breeding territory was identified to be the Putorana Plateau, a short distance north of the Verkoyansk Ranges (Neufeldt *et al.* 1961). Birds

arrived on the Plateau in late May / early June and departed early September (Neufeldt *et al.* 1961).

Australian Distribution

The presence of the Grey-tailed Tattler in Australia was first noted by Gould, who described the species in Volume 6 of *The Birds of Australia* (Gould 1840-1848). Initially its range was thought to be restricted to the northern parts of Australia. The 1912 Checklist noted some NSW records but described them as extra-limital (Campbell *et al.* 1913). The 1926 Checklist still gave the range as “northern Australia, south Queensland and Western Australia” (Bryant 1933, Keast 1949). However, by 1933 the species was recognised to be regularly in NSW (Bryant 1933). Hindwood (1942) noted some were usually present at Long Reef in Sydney including over-wintering birds. The first record for SW Australia was in 1931 and for Victoria 1933 (Jenkins 1931, Bryant 1933).

Although BirdLife Australia lists the conservation status of the Grey-tailed Tattler as “Secure”, it has been declared “Critically Endangered” in Victoria (Lyon & Dennett 2008). It is not listed as threatened in Tasmania or South Australia.

Despite southern records, northern Australia is the stronghold for the species. There are many sites in WA and Queensland with maximum counts of several thousand birds (Bamford *et al.* 2008). In NSW, no sites have recorded >250 birds. Smith (1991) reported 1970-90 peak counts to be: Clarence Estuary (205 birds, 1983), Richmond Estuary (160 birds, 1988). Port Stephens (235 birds, 1980), Hunter Estuary (100 birds, year not given) and Botany Bay (150 birds, 1979).

Prior Hunter Region Records

The two main locations for Grey-tailed Tattler are Port Stephens and the Hunter Estuary. From the Annual Bird Reports (Stuart 1994-2012), the maximum counts at any other locations in the Hunter Region have been 12 birds at Swansea in 1996 and 3 birds in the Manning Estuary in 1997. Records from either site are irregular and usually of <5 birds. There are no known records from any other areas in the region where shorebirds occur.

The first published record for the Hunter Estuary (and the region) was of up to 34 birds at Throsby Creek during 1943-44 (Keast 1949). Keast was advised of their presence by a local birdwatcher, A.J. Gwynne, who reported that he had found them “on certain Hunter River mudflats ... over a

number of years”. Keast made several important behavioural observations of the Throsby Creek birds, some of which are discussed later.

In the Hunter Estuary, Kendall and van Gessel (1972) had a maximum count of 19 birds over 1969-72, with birds present in 39% of their surveys. Gosper (1981) surveying monthly over 1970-73 had a peak count of 55 birds and noted they were recorded in all months. Stuart (unpublished), reviewing all available Hunter Estuary data, reported a peak count of 96 birds in February 1984, and 80 birds in both January 1992 and March 1997. Smith (1991) reported a peak of 100 birds over 1970-90 but gave no details. Since Hunter Bird Observers Club (HBOC) commenced regular monthly surveys (April 1999) the peak count is 52 birds in January 2008 (Stuart 2009). Only 7 of the >160 HBOC surveys have recorded >35 birds.

The first known record for Port Stephens remains the highest count for any site in NSW. Pegler (1984) reported 235 birds feeding and roosting around Pindimar Bay in January 1980 and also found 10 birds at Corrie Island 4 weeks earlier. Potentially at least 245 birds were present and Pegler did not visit all the roosting sites identified in the present work.

During 1982-84 a few Port Stephens locations (but not Pindimar Bay) were visited as part of the Australasian Wader Studies Group (AWSG) national summer and winter surveys. The peak counts were 50-80 birds (Stuart 2005b). HBOC members started monthly surveys of Gir-um-bit National Park / Swan Bay in September 2000, recording Grey-tailed Tattlers frequently at Swan Bay in counts of up to ~20 birds and peak count of 40 birds in September 2008. In 2004, one of us (AS) became aware of past Pindimar Bay counts and surveyed the western side in December, finding 75+ birds. Also in 2004, HBOC commenced boat-based surveys of Port Stephens in partnership with the National Parks and Wildlife Service. The surveys have had a peak count of 100 Grey-tailed Tattlers (February 2007) with summer and winter average counts of 39 birds and 8 birds respectively (Stuart 2011b). Grey-tailed Tattler numbers are under-estimated by the boat-based survey method, as boats cannot approach close enough to many of the potential roost sites for the birds to be seen amid rocks or in/under mangroves.

Over 2007-11, one of us (LW) identified all the potential shorebird roost sites in Port Stephens and then made monthly surveys of them. That resulted

in several counts of 40-50+ Grey-tailed Tattlers (Stuart 2008-2012) but with uncertainty about actual numbers. The site visits were spaced over 2-3 weeks and movement of birds between sites was a potential factor. The information gathered became the foundation for the present investigation.

METHODS

Our main counts were made approximately monthly at a mutually convenient day/time. We avoided weekends when human disturbance was more likely to affect the survey outcomes. Most of the counts were at high tide when birds were roosting. Roost sites with no public access or restricted high-tide access were surveyed ~2 hours after the high tide when birds had first started to forage. We partitioned the sites into southern-eastern and northern-western sectors taking one sector each (and for consistency, doing the same sector each time). This made it feasible to survey all identified sites in the same high-tide event. For some early surveys, we co-opted others to check a specific site. We later made adjustments to our routes/schedules so we could cover all the sites ourselves.

To make foraging and behavioural observations we also surveyed some sites at low tide or between tides. These were done opportunistically.

In all the surveys, birds were observed from land using binoculars and telescopes. Photographs were taken on

many occasions. Information on numbers, plumage, behaviour and the presence of other shorebirds was recorded, along with any disturbance due to raptors, human activity, or weather. Incidental sightings occurring between survey dates either by the authors or knowledgeable local residents were also noted.

RESULTS

We surveyed at 14 sites around Port Stephens, identifying seven of them as regular high-tide roost sites. The usual flock size per site is relatively small (5-20 birds). Occasionally, larger flocks are encountered, including some during the over-wintering period. The monthly counts are detailed in **Table 1**. Six main sites were used for roosting during the non-breeding period: Winda Woppa (south-west Hawks Nest); Pindimar; Carrington; Swan Bay; Lemon Tree Passage and Salamander Bay. At Pindimar, birds were mostly around the main village but sometimes were found at Upper Pindimar village. In winter, Tanilba Bay had 5-6 birds present but it was rarely used in the rest of the year. No Grey-tailed Tattlers were found at three sites for which there are past records: Cromarty Bay, Soldiers Point and Karuah. At three other sites, Oyster Cove, Little Swan Bay and Tilligerry Creek, we found birds on only 1-2 occasions and in low numbers.

Table 1. Results of monthly Grey-tailed Tattler counts in Port Stephens in 2012-13

| Year | Month | WW | Pindimar Bay | | Carr | Swan Bay | LTP | Tan Bay | Sal Bay | Other | Total | |
|------|-----------|----|--------------|---------|------|----------|-----|---------|---------|--------------------------------|----------------|----|
| | | | Pind | Upper P | | | | | | | | |
| 2012 | January | | | | 9 | 1 | 11 | 2 | 10 | 2 ¹ | 35 | |
| | February | 9 | 23 | | | 32 | 15 | | | | 79 | |
| | March | 7 | 26 | | | | 1 | | | | 34 | |
| | April | 16 | | | | 22 | 15 | | 10 | | 63 | |
| | May | 1 | | | | | | 6 | | | 7 | |
| | June | | | | | | | 5 | | | 5 | |
| | July | 1 | | | | 8 | | 5 | | | 14 | |
| | August | 1 | 3 | | | | 5 | 5 | | 1 ¹ | 15 | |
| | September | | | | | | 8 | 5 | | | 13 | |
| | October | 9 | 3 | 1 | | 4 | 2 | 13 | | 7 | 39 | |
| | November | 17 | | 7 | | | | 8 | | 7 | 3 ² | 42 |
| | December | 8 | 29 | | | 7 | 2 | 6 | | 8 | | 60 |
| 2013 | January | | | | 9 | 1 | 11 | 2 | 10 | 2 ¹ | 35 | |
| | February | | | | | | 21 | 18 | | 2 ¹ 15 ² | 56 | |
| | March | 18 | 34 | 7 | 8 | 19 | 14 | 3 | 12 | 5 ¹ 4 ² | 124 | |
| | April | 23 | 16 | 4 | 7 | 12 | 6 | 1 | 13 | 8 ³ | 90 | |

Note: ¹At Tilligerry Creek; ²At Little Swan Bay; ³At Oyster Cove

WW: Winda Woppa (Hawks Nest); Pind: Pindimar village; Upper P: Upper Pindimar; Carr: Carrington; LTP: Lemon Tree Passage; Tan Bay: Tanilba Bay; Sal Bay: Salamander Bay

DISCUSSION

Our maximum count for Grey-tailed Tattlers in Port Stephens was 124 birds, in March 2013. The most recent data available for all NSW sites are the 2010 counts (Scholten *et al.* 2012, Stuart 2011). Peak counts at the main Grey-tailed Tattler sites (excluding Port Stephens) were: Botany Bay 34 birds, Hunter Estuary 35 birds, Brunswick Estuary 13 birds. Port Stephens clearly is the most important site for Grey-tailed Tattler in NSW.

In the non-breeding period, there was month-to-month inconsistency in the counts at individual sites. This suggests that birds moved around in response to changing conditions. An alternative is that in unfavourable conditions (such as strong wind) they roosted in more sheltered places e.g. in mangroves, and thus escaped detection.

We found it unprofitable to attempt counts at low tide. Although Finn *et al.* (2002) found good correlation between high and low tide counts of Eastern Curlew *Numenius madagascariensis* in Moreton Bay, this was not the case with Grey-tailed Tattlers in Port Stephens. Although birds do not move great distances from the roost site, they are dispersed and very difficult to spot amidst the rocks and vegetation where they forage. Also, many potential foraging areas are not readily accessed. As an example of the difficulties, after finding 18 birds roosting at Hawks Nest we attempted to track the birds after they departed. Almost immediately, four birds disappeared and were not relocated. The others fed together amidst mangrove pneumatophores for 10-15 minutes, less than 50m from the roost site. Individuals often disappeared behind rocks or vegetation. It was not

easy to achieve a reproducible count even from ~20m. A disturbance then occurred and they flew a further 50-80m away, splitting into three smaller groups. After this, it would have been almost impossible to achieve an accurate count.

Characteristics of the Roost Sites

Figure 1 shows the locations of the main roosting sites. Creese *et al.* (2009) have mapped the marine and estuarine vegetation of Port Stephens. We note that all roost sites occur in areas where mangroves *Aegiceras corniculatum*, *Avicennia marina* are abundant. Also common to all sites is a muddy, substrate surface with proximal patches of seagrass *Zostera* sp.. The required presence of both mangroves and seagrass for Grey-tailed Tattlers in NSW has been briefly noted previously (Pegler 1981).

The width and length of exposed intertidal feeding zones vary. Most roost sites also offer alternative perches on rocky outcrops, rock retaining walls or rocky breakwaters. In good conditions Grey-tailed Tattlers prefer loafing on rock structures at high tide. During exceptionally high tides, inclement weather or periods of high disturbance, they retreat to the shelter of the mangroves. Some sites are subject to considerable human disturbance and all areas are regularly patrolled by raptors.

Our low-tide observations indicate that birds often feed reasonably close to their roosting sites. This corresponds with Pegler's observation that birds feeding in Pindimar only moved into the nearby mangroves to roost (Pegler 1984). Movement between roost sites and feeding grounds requires minimal expenditure of time and energy.

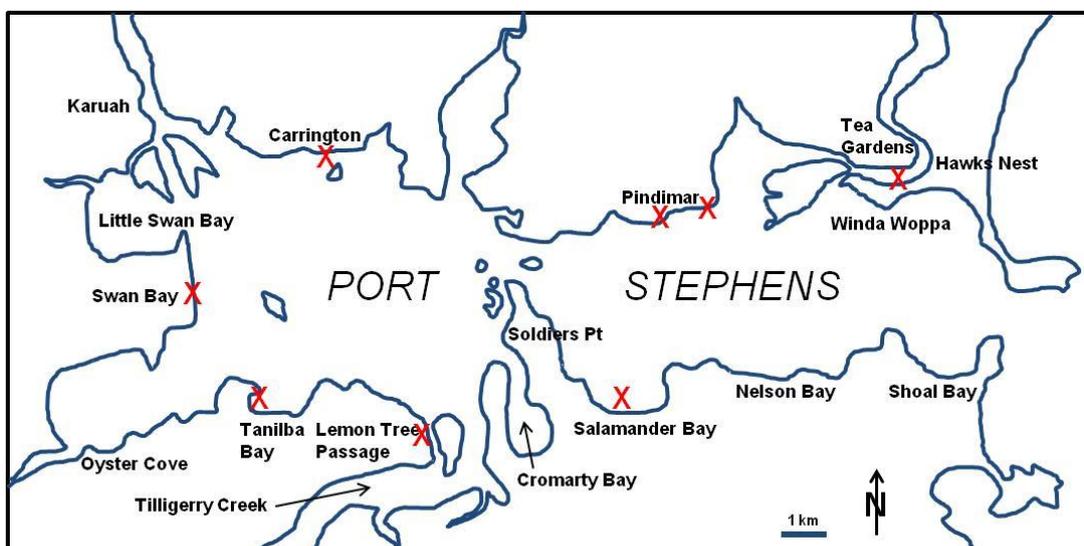


Figure 1. Main Grey-tailed Tattler roost sites in Port Stephens

Behavioural Observations

Flocks tended to disperse when feeding. Our observations agree with previous reports that foraging often occurs around small pools and channels or along the tidal edge (Domm & Recher 1973). When hunting, Grey-tailed Tattlers seem totally focused; they walk steadily, occasionally run and may then stand completely immobile and give the appearance of listening intently. Their tails bob constantly as they probe the mud in search of food.

Keast (1949) and Andrew (1962) noticed that in the lead-up to their northern migration, Grey-tailed Tattlers changed their diet from worms (Keast) and fish (Andrew) to crustaceans such as crabs. Both speculated that this might be a strategy to maximise fat intake to fuel their long migratory flight. Both Keast and Andrew detailed their method of catching, washing and removing the legs of larger crabs before eating them (smaller crabs were eaten whole). We have observed the same behaviour with both small and larger crabs. However, we have observed them eating crabs in mid-February i.e. considerably before the migration departure date. We intend to pursue observations about diet and dietary changes as part of our ongoing study.

There is little information available about social interactions or pre-breeding behaviour (Higgins & Davies 1996, P. Tomkovich private comm.). One of us has observed possible courtship or pair bonding behaviour in Port Stephens (Wooding 2013). We have also observed acts of aggression. When one bird intrudes too closely on the feeding space of another bird, aggression usually involves the bird in residence running at the intruder. At roost sites, we have sometimes observed birds adopt an erect stance and thrust forward their chest towards another bird which then backs away conceding the favoured roost position.

With care, Grey-tailed Tattlers can be approached quite closely. They seem confident in the camouflage provided by their small size and cryptic colouration. When flushed they usually fly out over the water in a wide arc before landing 100-200m further down the beach where they immediately resume feeding.

CONCLUSIONS

Port Stephens has been confirmed to be the most important site in NSW for Grey-tailed Tattler. We

consider that our present method involving land-based surveys at high tide generates more reliable counts of Grey-tailed Tattler numbers than boat-based surveys. The latter are appropriate for most shorebirds but the Grey-tailed Tattler's habit of roosting on rockwalls, on beaches near mangroves, or in mangroves, requires a different approach. The land-based surveys also allow more opportunity for behavioural observations. Birds roosting in mangroves can be over-looked by either method. All counts potentially under-estimate the Grey-tailed Tattler population.

We have not found Grey-tailed Tattlers in the high numbers of the 1980 survey of Port Stephens nor in the numbers at Pindimar Bay in 2004. Probably there has been a decline in numbers, and the decline may be substantial. However, the 2012-13 counts compare well with most others from the past decade. The current population may be stable. In the past decade Port Stephens has experienced substantial development and loss of habitat and increased amount of disturbance (Stuart 2011b). Therefore we plan a longer-term study of Grey-tailed Tattlers in Port Stephens in order to monitor population trends and the health of high-tide roosting sites and feeding areas and to make further behavioural observations.

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