SURVEY OF THE SHOREBIRDS OF PORT STEPHENS, FEBRUARY 2004

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Abstract

The population of migratory and resident shorebirds in Port Stephens in NSW was surveyed using boats at high tide on 8 February 2004. The total population was 2,053 shorebirds, with 13 species present. Two species, Eastern Curlew and Pied Oystercatcher, were present in numbers representing >1% of their total world population, 2% of the Australian population of Whimbrel were present, and around 0.5% of the Australian populations of Bar-tailed Godwit and Sooty Oystercatcher. The results, and the data available for Port Stephens between 1970 and 1990, demonstrate that Port Stephens has been an important shorebird habitat over the long term. The 2004 survey is the first complete survey of the area and it provides baseline data that can be used to manage shorebirds and their habitat in Port Stephens.

INTRODUCTION

Port Stephens in NSW, approximately 200km north of Sydney, is nowadays a popular tourist and recreational area. The south-eastern part of Port Stephens has undergone substantial development especially over the past 20 years or so and the north-eastern area has also seen considerable growth in holiday and retirement housing. Boating, swimming and other water-based activities are very popular particularly during weekends and school holidays.

The utilisation of Port Stephens by migratory and resident shorebirds is well known albeit not very systematically studied or documented. The key available information is reviewed below.

In 1980, consideration was being given to the establishment of a nature reserve (to be named Pipeclay Creek N.R.) encompassing large tracts of the western side of Port Stephens and several nearby islands (Bartram 1980). The importance to shorebirds was a factor in the deliberations. One area in particular was noted as being a prime roosting site for shorebirds with 13 species mentioned as occurring there (10 of these being migratory species). Especially noteworthy were counts of up to 400 Eastern Curlew in summer and up to 150 Double-banded Plover in winter. Although the Pipeclay Creek proposal did not proceed, the main roosting site has more recently been proclaimed as the Worimi Nature Reserve. This Nature Reserve continues to be important for roosting (and feeding) shorebirds, with 21 species (14 migratory) having been recorded there over 2000-2004 (Stuart 2004).

During the summer of 1979/1980, an ebb-tide survey of the northern side of Port Stephens identified nine distinct locations for feeding shorebirds (Pegler 1980). Sixteen species were recorded (13 migratory) in this survey, with a total count of at least 689 birds and potentially up to 978 birds (not all areas were able to be surveyed on the same day, thus allowing for the prospect of some double counting). Of particular interest was a count of 235 Grey-tailed Tattler around the shoreline of Pindimar Bay – this is substantially larger than any other known count for this species in the area.

Over 1982-1984, members of the Hunter Bird Observers Club (HBOC) participated in the twice yearly national shorebirds surveys conducted by the Australasian Wader Studies Group. Some locations around Port Stephens were visited in these surveys, thus giving a partial insight into the populations then present. The three summer surveys revealed 707-1700+ birds, and 339-450 birds in the winter surveys (Stuart 2004). The variability in the counts especially for the summer surveys is possibly due to the incompleteness of coverage of the full Port Stephens habitat. A total of 23 species (15 migratory) were recorded in the six surveys over 1982-1984.

Smith (1991) described Port Stephens as the most important site in NSW for Whimbrel and one of the two most important sites for Eastern Curlew. He noted that both these species and the Pacific Golden Plover had been recorded in Port Stephens in numbers above 1% of their national population. Smith nominated Port Stephens as a Priority 2 site for NSW – one of only 5 such sites in NSW (and with the only nominated Priority 1 site being the Hunter estuary).

Since the mid 1980s there has been no systematic surveying of Port Stephens for shorebirds, apart from monthly high tide visits to the Worimi Nature Reserve since September 2000 (Stuart 2004). To redress this and establish a current understanding of the relative importance of Port Stephens, a survey was undertaken at high tide on Sunday 8 February 2004. Several members of Hunter Bird Observers Club participated in the survey as did officers from NSW National Parks & Wildlife Service (NPWS) and NSW Waterways.

METHODS

The survey was done on 8 February 2004 by boat, with counting done from the boats using binoculars. Five boats were used, allowing five sub-areas of Port Stephens to be surveyed simultaneously. The five survey routes are indicated in Figure 1. The south-east was not surveyed, because on Sundays in summer this area is full of people and no shorebirds are present.

HBOC supplied 13 bird observers, with 2-4 people allocated to each boat. NPWS and NSW Waterways officers skippered each boat thus allowing the observers to concentrate on identification and counting. Weather conditions were warm, sunny and calm initially, with a gentle breeze building towards the end of the survey. Port Stephens is subject to strong north-easterly sea breezes, particularly in the afternoon, so an early high tide was chosen to take advantage of the morning calm. The survey boats departed from Nelson Bay Marina at 10 a.m. and returned 2½ to 3½ hours later, depending on the route required and how far away it was from the marina.

RESULTS

In total, 2,053 shorebirds were recorded, comprising 13 species as detailed in Table 1. Although the survey's main concern was shorebirds, all of the waterbirds that were seen were counted. An additional 2,417 waterbirds from 24 species were present giving a total of 4,470 birds from 37 species. Information about the non-shorebirds is presented elsewhere (Stuart 2004).

Main Roost Areas

There were 13 areas where shorebirds were roosting in numbers of >20 (considering all the shorebird species present). These areas are detailed in Table 2; generally the birds were at a single site within each area but on Corrie Island and along Tilligerry Creek the birds were spread over three to four places within a relatively short distance. The 13 areas altogether hosted 90% of the shorebirds found on the survey.

Most birds were roosting on land, but one factor identified by the survey was the importance of emergent posts as roost sites. Emergent posts were mainly but not exclusively associated with oyster leases. In addition to the shorebirds, many other waterbird species also roosted on emergent posts, in particular cormorants, pelicans, gulls and terns (Stuart 2004).

Distribution of Species

Distribution maps for most of the shorebird species recorded in the survey are presented in Figures 2 to 9. Most of the species that were present in at least moderate numbers overall, were found to be distributed over several roosting sites, indicating that it is Port Stephens overall that is their habitat and not just some parts of it. Several species were recorded at only one location (Oyster Cove) and

distribution maps for them have not been included. The species recorded solely at Oyster Cove were Terek Sandpiper, Common Sandpiper, Ruddy Turnstone, Red-necked Stint and Lesser Sand Plover.

Annotated Species List

Each of the shorebird species recorded in 2004 are discussed separately below.

Black-tailed Godwit. Smith (1991) recorded only a single record in Port Stephens over 1970-1990 for this species, which is listed as Vulnerable under the NSW Threatened Species Act. The count of 51 birds in February 2004 is easily the highest known record. However, the status for the species must be considered to be uncertain in Port Stephens. The February 2004 roost site on Corrie Island is one that is not readily accessible; also identification from Bar-tailed Godwit is not easy for inexperienced observers. More research into the status in Port Stephens is warranted (particularly given its Vulnerable status).

Bar-tailed Godwit. The count of 888 birds in the 2004 survey confirms the previously suspected belief that this species is a common and abundant shorebird of Port Stephens. The count is consistent with the count of 600+ birds by Hunter Bird Observers Club in a partial survey of Port Stephens for the Australasian Wader Studies Group in 1982 (Stuart 2004). The 2004 count represents >0.5% of the total population of the sub-species *baueri* that visits Australia each summer (Delany and Scott 2002). Counts of 1,000-1,200 birds also occur commonly in the Hunter estuary (Hunter Bird Observers Club, unpublished data). Since the two locations are less than 75 km apart, exchanges between them may well occur and this possibility should be investigated.

Whimbrel. The count of 218 birds is consistent with a record of 260 birds in Port Stephens in 1982 (Smith, 1991). The majority of other known records for the area are of <20 birds, but these are based on opportunistic observations (Stuart 2004). Most of the birds present in February 2004 were roosting in mangroves, in an area not usually visited by bird observers. It seems quite possible that 200+ birds are regularly present in Port Stephens in summer. These numbers represent more than 2% of the Australian migrating population (sub-species *variegatus*) and well over 30% of the estimated NSW population of 700 birds (Watkins 1993).

Eastern Curlew. Smith (1991) recorded a maximum count of 960 birds for Port Stephens over the period 1970-1990, compared with the Hunter Estuary maximum of 1000 birds, both representing >1% of the Australian population at that time and thus of International Importance (Watkins 1993). It is still a common and abundant shorebird of Port Stephens. The count of 649 birds on February 2004 represents 1.7% of the total world population for this species, thus Port Stephens continues to be an internationally significant location for it, particularly in the context of its declining world population (Smith 1991). The 2004 count is consistent with a record of 700 birds in Port Stephens area January 1993 (Stuart 2004). Also, in the February 2004 survey, 455 of the birds were in the Swan Bay area, which is consistent with the maximum counts at Worimi N.R. over 2000-2004 (Stuart 2004). It is also consistent with a record in the NSW Bird Report of 418 birds in February 1985 (thought to be from Swan Bay). Thus, it seems that at least 600 birds are regularly present in Port Stephens during summer.

Terek Sandpiper. Only six birds were recorded in 2004, which is consistent with all other known counts for this species in Port Stephens. Probably, the species is not abundant in Port Stephens. However, in view of its Vulnerable status in NSW, additional systematic surveys of Port Stephens are required so that local management plans properly reflect the needs of the Terek Sandpiper.

Common Sandpiper. Only one bird was recorded in 2004, which is consistent with the maximum recorded count of two birds over 1970-1990 (Smith 1991). The Common Sandpiper would seem to be an uncommon species in Port Stephens.

Grey-tailed Tattler. The count of 44 birds is consistent with many other recent summer records of 30-50 birds in Port Stephens and peak counts of 50-80 birds (Stuart 2004). Smith (1991) reported a maximum count of 245 birds over 1970-1990; this would seem to be based on the report by Pegler of 10 birds near Corrie island in December 1979 and 235 birds at Pindimar Bay in January 1980 (Pegler 1980). The latter birds were first seen feeding at low tide around Pindimar Bay and later were observed to fly into nearby mangroves to roost. It was not possible in the 2004 boat based survey to approach close enough to this particular area of mangroves to check for roosting Grey-tailed Tattler. It should be noted that most of the birds recorded in the 2004 high tide survey were roosting in mangroves along Tilligerry Creek – an area not readily accessible to bird observers. It is possible that the numbers of Grey-tailed Tattler in Port Stephens are greater than the recent data suggest.

Ruddy Turnstone. Only 8 birds were recorded in 2004, which is consistent with the maximum recorded count of four birds over 1970-1990 (Smith 1991). The Ruddy Turnstone would seem to be an uncommon species in Port Stephens in summer.

Red-necked Stint. Smith (1991) reported a maximum of 116 birds in 1970-1990 in Port Stephens, but 100-150 birds were recorded there in the summers of 1982-1984 (Stuart 2004). Since 1990, there are no known records of >100 birds and the peak count since 2000 is 53 birds in January 2002 (Stuart 2004). The 2004 count of only 20 birds suggests that the species continues to decline in Port Stephens.

Pied Oystercatcher. Port Stephens had the highest maximum count of the 21 northern NSW coastal wetlands reviewed by Smith (1991). He noted the maximum count was 63 birds. Thus, the 2004 count of 112 Pied Oystercatcher is a significant increase in the number. The count corresponds to just on 1% of the total world population of the species (Delany and Scott 2002), and to around 40% of the estimated NSW population (Watkins 1993). Possibly, the NSW population estimate may need to be reviewed.

Port Stephens clearly is a significant national location for Pied Oystercatcher. Also, the 2004 survey identified three very important roosting sites (Oyster Cove, Winda Woppa, oyster leases near Swan Bay) where larger parties of birds were congregated. It is probable that they mostly were immature birds, which are known to congregate into medium to large flocks. Thus, Port Stephens seems to have an important role in the survival of young NSW birds to maturity.

Additional knowledge about the feeding and roosting requirements of Pied Oystercatcher in Port Stephens is needed, so that management plans can be sure to be effective for this species, which is classified as Vulnerable in NSW.

Sooty Oystercatcher. The count of 18 birds in the 2004 survey represents an important increase in the known local population – Smith (1991) reported a maximum count over 1970-1990 of only four birds, and there is also a record of eight birds roosting at Worimi N.R. in August 2002 (Stuart 2004). The estimated population of the southern Australian sub-species of the Sooty Oystercatcher *(Haematopus fuliginosus fuliginosus)* is estimated at 4,000 birds (Delany and Scott 2002); hence around 0.5% of the total population of this species also were present and thus Port Stephens is an important location for it.

Sooty Oystercatcher, which is classified as Vulnerable in NSW, breed almost exclusively on off-shore rocks and islands and the birds occurring at Port Stephens were most probably immatures. The Port Stephens habitat therefore is important for ensuring the survival of these to maturity.

Lesser Sand Plover. Smith (1991) reported a maximum count of 101 birds over 1970-1990 in Port Stephens, but this probably links with a record of 100 birds at Swan Bay in May 1971 (NSW Bird Report). Fewer than 10 birds were recorded each year in the summer surveys of Port Stephens for AWSG over 1982-1984, although 22 birds were present in January 2001 (Stuart 2004). The 2004 count of only five birds suggests that the species continues to decline in Port Stephens.

Masked Lapwing. The count of 33 birds in 2004 is reasonably consistent with the maximum of 53 birds over 1970-1990 as reported by Smith (1991). This is a common resident of Port Stephens, although generally not recorded in large numbers.

DISCUSSION

It is firstly of interest is to compare the 2004 counts with the available data for 1982 – which are from an incomplete survey of Port Stephens as part of the AWSG survey for that year (Stuart 2004). The 1982 and 2004 data in Table 3 suggest that Port Stephens has hosted around 2000 shorebirds annually for a period spanning at least 20 years. This is of course a tentative conclusion since there are few records for the intervening years.

The 1982 summer survey for AWSG was not a systematic survey of all of Port Stephens but it provides the closest analogue available to the data that would be generated from such a survey. Therefore, some comparisons with the February 2004 survey are interesting. First, the counts of Bar-tailed Godwit and Eastern Curlew are similar in the two surveys despite a gap of 22 years. Overall, around 15% more shorebirds were recorded in 2004, which perhaps reflects that the coverage of areas was greater. For example, many more Whimbrel were recorded in 2004; these mainly were in an area less accessible to land-based surveys. Also, many more Grey-tailed Tattler were in this area and so the 2004 tally for these also was greater than in 1982 (but far less than the number recorded by Pegler in 1980). No Pied or Sooty Oystercatcher were recorded in 1982 but significant numbers of both species were present in 2004. Conversely, significant numbers of Red-necked Stint were in Port Stephens in 1982 and none recorded in 2004; similarly both Curlew Sandpiper and Sharp-tailed Sandpiper were absent in 2004.

Port Stephens is an important habitat for several species of migratory and breeding resident shorebirds, and has been for more than 20 years. A total of 2,053 shorebirds were recorded there in February 2004, a count that is comparable to one of 1,750 birds from a partial survey of the area in 1982. Port Stephens is a significant habitat for Eastern Curlew and Pied Oystercatcher (1-2% of the total populations of both species present there in February 2004) and Whimbrel (2% of the Australian population) and an important habitat for both Bar-tailed Godwit and Sooty Oystercatcher (0.5% of the Australian population of both species present in 2004).

ACKNOWLEDGEMENTS

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Table 1 Shorebirds Recorded at Port Stephens on 8 February 2004

Species	Total	Route A	Route B	Route C	Route D	Route E
Black-tailed Godwit *Limosa limosa*	51	50	-	-	-	1
Bar-tailed Godwit *Limosa lapponica*	888	410	53	105	289	31
Whimbrel *Numenius phaeopus*	218		25	1	33	159
Eastern Curlew *Numenius madagascariensis*	649	156	28	455	8	2
Terek Sandpiper *Xenus cinereus*	6	-	-	-	6	-
Common Sandpiper *Actitis hypoleucos*	1	-	-	-	1	-
Grey-tailed Tattler *Heteroscelus brevipes*	44	-	-	-	-	44
Ruddy Turnstone *Arenaria interpres*	8	-	-	-	8	-
Red-necked Stint *Calidris ruficollis*	20	-	-	-	20	-
Pied Oystercatcher *Haematopus longirostris*	112	57	18	27	2	8
Sooty Oystercatcher *Haematopus fuliginosus*	18	4	10	2	-	2
Lesser Sand Plover *Charadrius mongolus*	5	-	-	-	5	-
Masked Lapwing *Vanellus miles*	33	-	8	-	1	24
TOTAL	**2,053**	**677**	**142**	**590**	**373**	**271**

(See figure 1 for the survey routes A-E)

Table 2 Significant Locations in Port Stephens for Roosting Shorebirds

Location	Total Shorebirds	% of total	Shorebirds Present
Winda Woppa Point	121	5.9%	4 Sooty Oystercatcher, 55 Eastern Curlew, 52 Pied Oystercatcher, 10 Bar-tailed Godwit
Corrie Island (at 3 places)	~556	27.1%	101 Eastern Curlew, ~400 Bar-tailed Godwit, ~50 Black-tailed Godwit, 5 Pied Oystercatcher
E side of North Arm Cove	25	1.2%	25 Whimbrel
Oyster leases off Tahlee	53	2.6%	53 Bar-tailed Godwit
North of Swan Bay	~463	22.6%	10 Bar-tailed Godwit, 1 Whimbrel, ~450 Eastern Curlew, 2 Pied Oystercatcher,
Oyster leases off Swan Bay	104	5.1%	81 Bar-tailed Godwit, 23 Pied Oystercatcher
West of Tanilba Bay	80	3.9%	78 Bar-tailed Godwit, 2 Pied Oystercatcher
Oyster leases off Oyster Cove	55	2.7%	9 Whimbrel, 46 Bar-tailed Godwit
Oyster Cove village	117	5.7%	77 Bar-tailed Godwit, 1 Common Sandpiper, 6 Terek Sandpiper, 8 Ruddy Turnstone, 5 Lesser Sand Plover, 20+ Red-necked Stint
One Tree Island	43	2.1%	25 Eastern Curlew, 16 Pied Oystercatcher, 2 Sooty Oystercatcher
Cromartys Bay	49	2.4%	1 Black-tailed Godwit, 30 Bar-tailed Godwit, 17 Whimbrel, 1 Eastern Curlew
Dowardee Island	26	1.3%	26 Grey-tailed Tattler
Tilligerry Creek (at 4 places)	166	8.1%	1 Bar-tailed Godwit, 132 Whimbrel, 16 Grey-tailed Tattler, 17 Masked Lapwing
	1,858	90.0%	

Table 3 Comparison of 1982 and 2004 Summer Survey Results

	1982	2004
Black-tailed Godwit	0	51
Bar-tailed Godwit	600+	888
Whimbrel	27	218
Eastern Curlew	800+	649
Terek Sandpiper	0	6
Common Sandpiper	0	1
Grey-tailed Tattler	21	44
Ruddy Turnstone	0	8
Red-necked Stint	150+	20
Sharp-tailed Sandpiper	42	0
Curlew Sandpiper	30	0
Pied Oystercatcher	0	112
Sooty Oystercatcher	0	18
Black-winged Stilt	4	0
Red-capped Plover	70+	0
Lesser Sand Plover	0	5
Masked Lapwing	16	33
TOTAL	1,750+	2,043

Figure 1 Areas of Port Stephens Surveyed February 2004

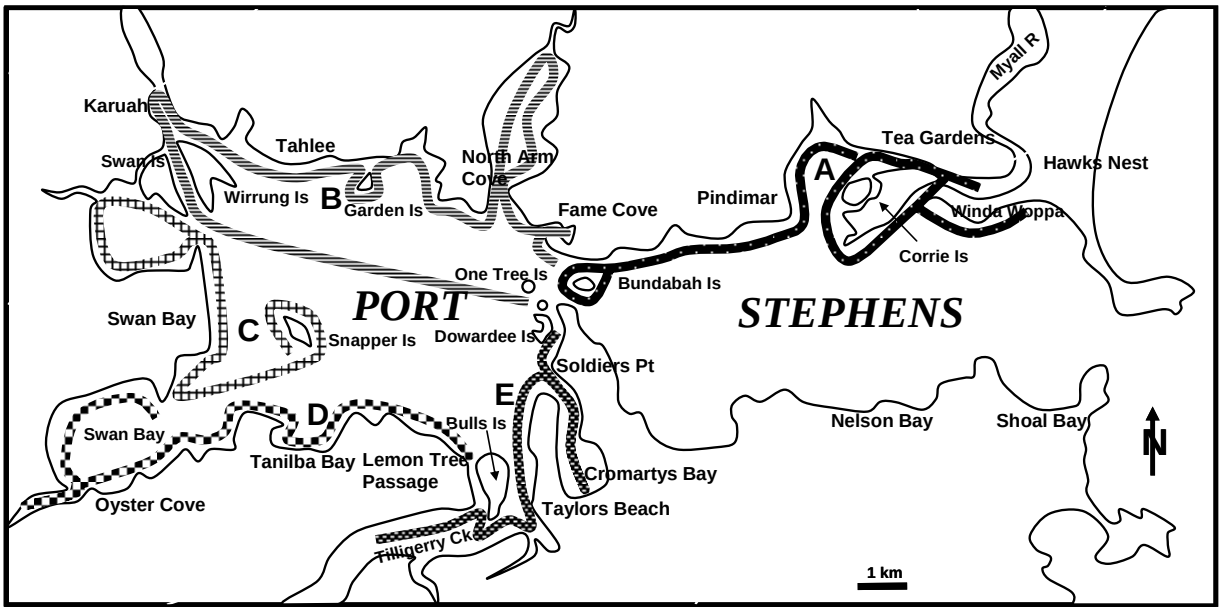

Figure 2 Distribution of Black-tailed Godwit

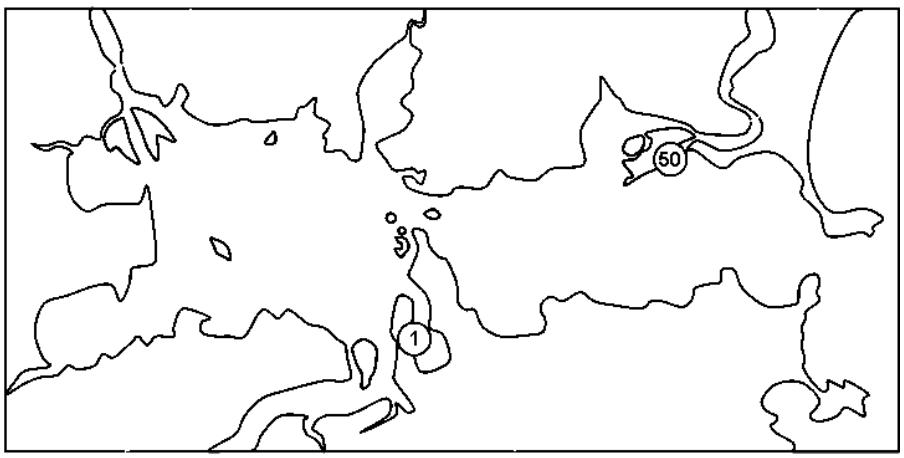

Figure 3 Distribution of Bar-tailed Godwit

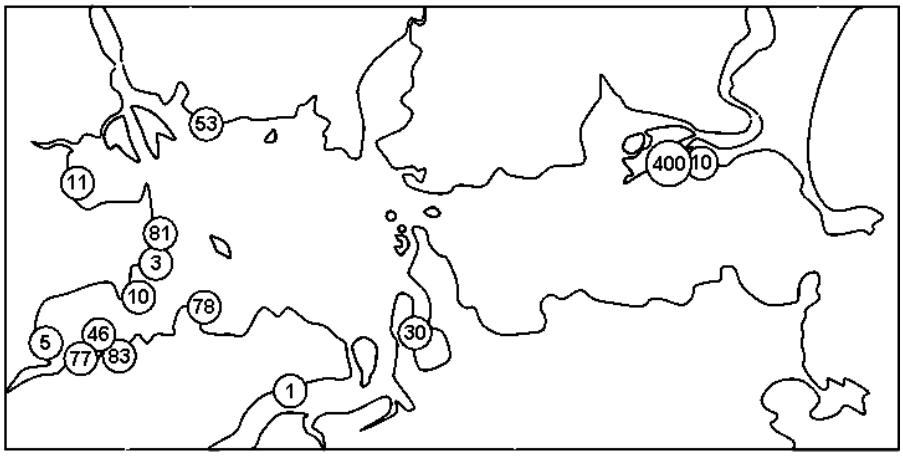

Figure 4 Distribution of Whimbrel

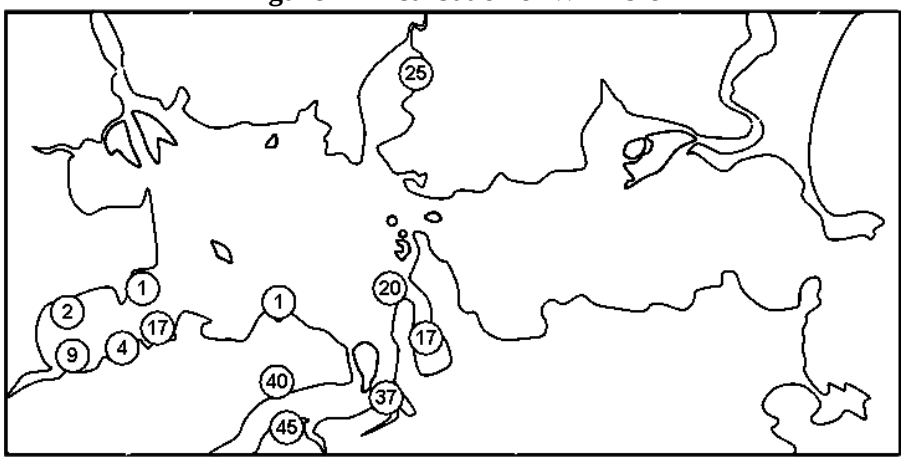

Figure 5 Distribution of Eastern Curlew

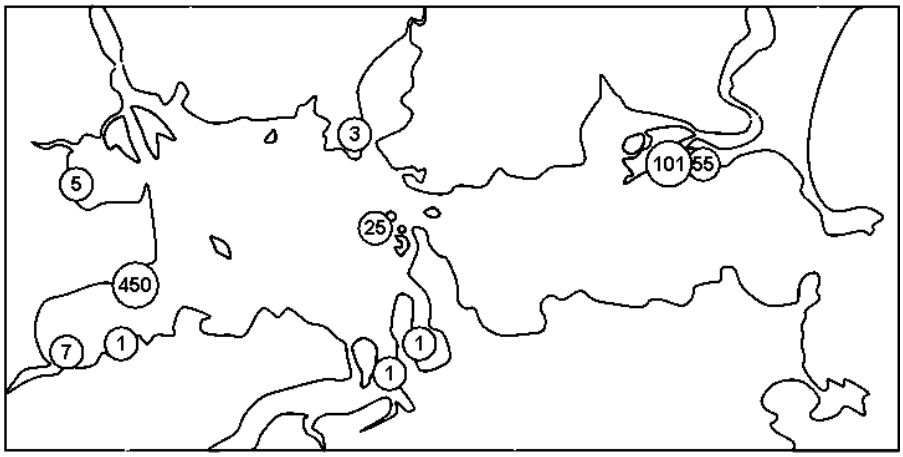

Figure 6 Distribution of Grey-tailed Tattler

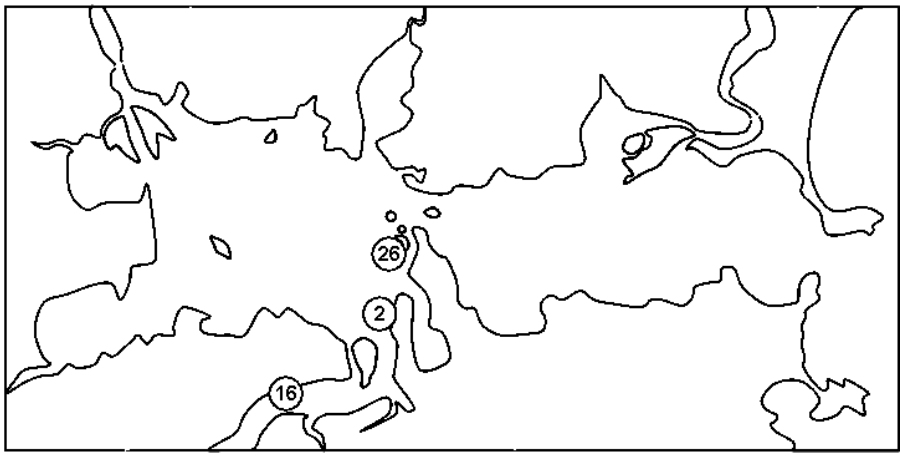

Figure 7 Distribution of Pied Oystercatcher

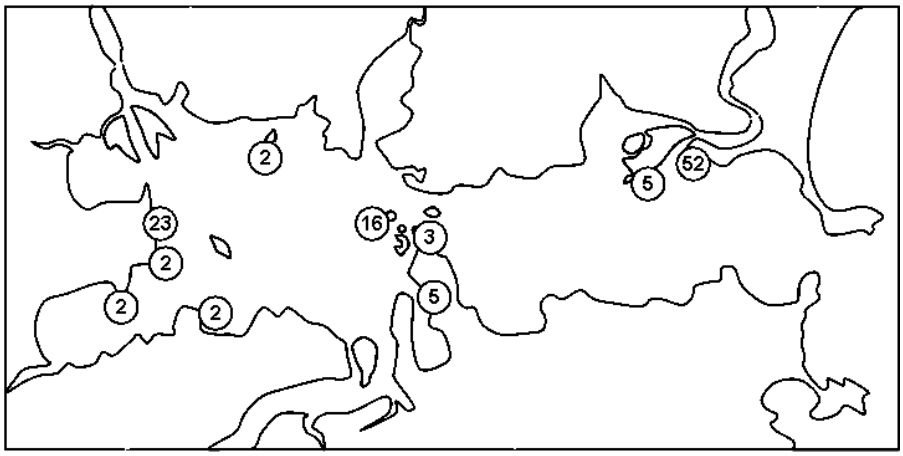

Figure 8 Distribution of Sooty Oystercatcher

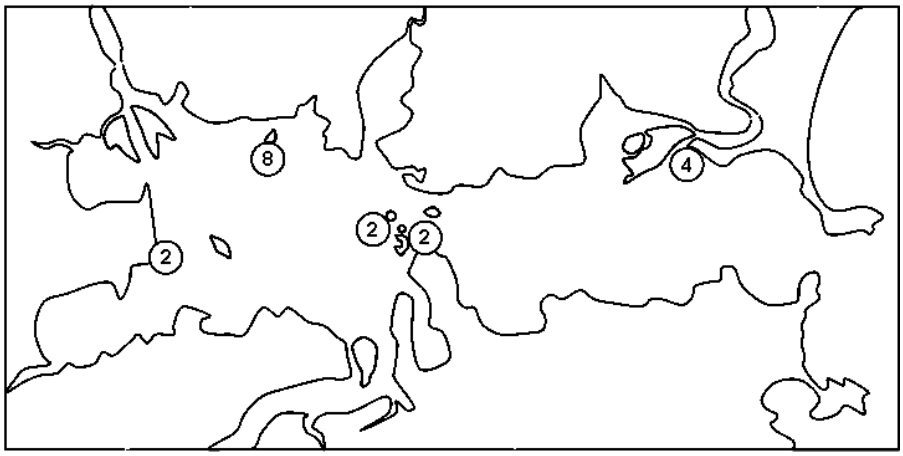

Figure 9 Distribution of Masked Lapwing