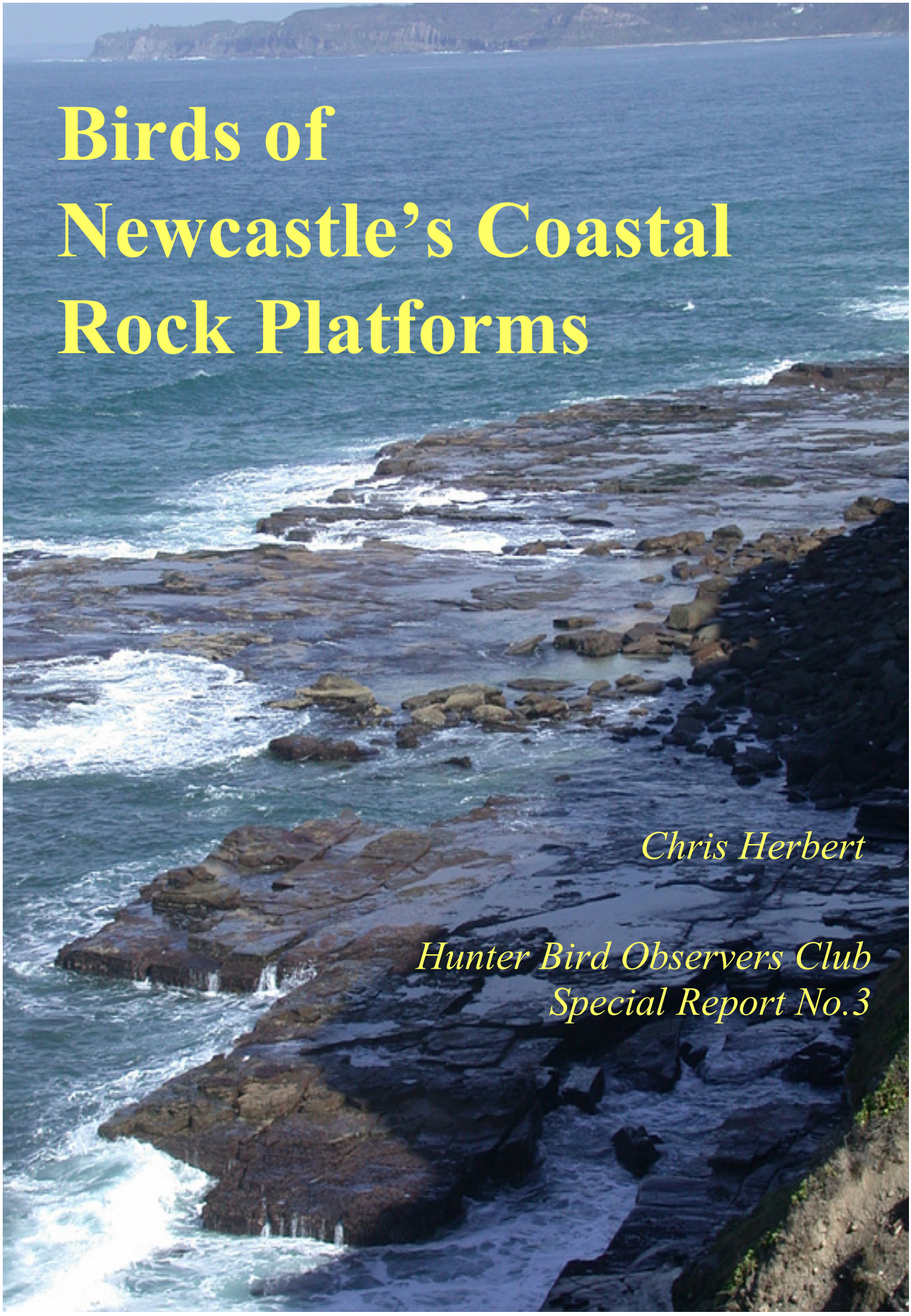

Birds of Newcastle's Coastal Rock Platforms

Chris Herbert

Hunter Bird Observers Club
Special Report No.3

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by

Chris Herbert

Hunter Bird Observers Club
Special Report No. 3

(Prepared for Newcastle City Council)

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1.0 INTRODUCTION

Newcastle City Council (NCC) manages 15km of rocky shoreline interspersed with sandy beaches and backed by a high-density urban environment. This area, at the northern limit of the Hawkesbury Marine Biodiversity Bioregion, is a known data-gap in regard to marine biodiversity assessment. To address this problem NCC sought to identify current biodiversity on the rock platforms so that preferred management options could be developed to maintain desired coastal values, as part of a broader plan for the management of natural resources within the Newcastle City landscape. NCC commissioned Newcastle University to identify the current marine biodiversity and the Hunter Bird Observers Club (HBOC) to explore present and past avian use of the rock platforms in the Newcastle Local Government Area.

The project specifications were to identify:

- Species richness and diversity at each location;
- Population status, numbers and breeding status (if known);
- Significance of each site and of all sites in terms of habitats and species present;
- Significant differences between sites;
- Threatening processes and/or causes of disturbances; and
- Management options and recommendations.

The study was commissioned during May 2005, after the majority of migratory shorebirds had departed for their northern hemisphere breeding grounds. Consequently field surveys carried out in July 2005 were restricted mainly to observations of endemic species and winter migrants. Summer migrants were observed during a second survey carried out in February 2006. Historical records were used to provide longer-term information on seasonal visitors and migratory shorebirds.

2.0 SURVEY AREA

All the rock platforms in the Newcastle City Council area are collectively referred to as the NCC rock platforms. For the purpose of this study three discrete rock platform areas are defined, stretching from Nobbys Beach in the north to Burwood Beach in the south (**Figure 2.1**). From north to south, these rock platforms are:

- **Newcastle Rock Platform**: extending from Nobbys Beach (Soldiers Baths), through the Cowrie Hole and Newcastle Ocean Baths to Newcastle Beach;
- **Shepherds Hill Rock Platform**: extending from the southern end of Newcastle Beach, through the Bogey Hole and Susan Gilmore Beach to Bar Beach; and
- **Merewether Rock Platform**: extending from the Ladies Pool through Merewether Ocean Baths to Burwood Beach.

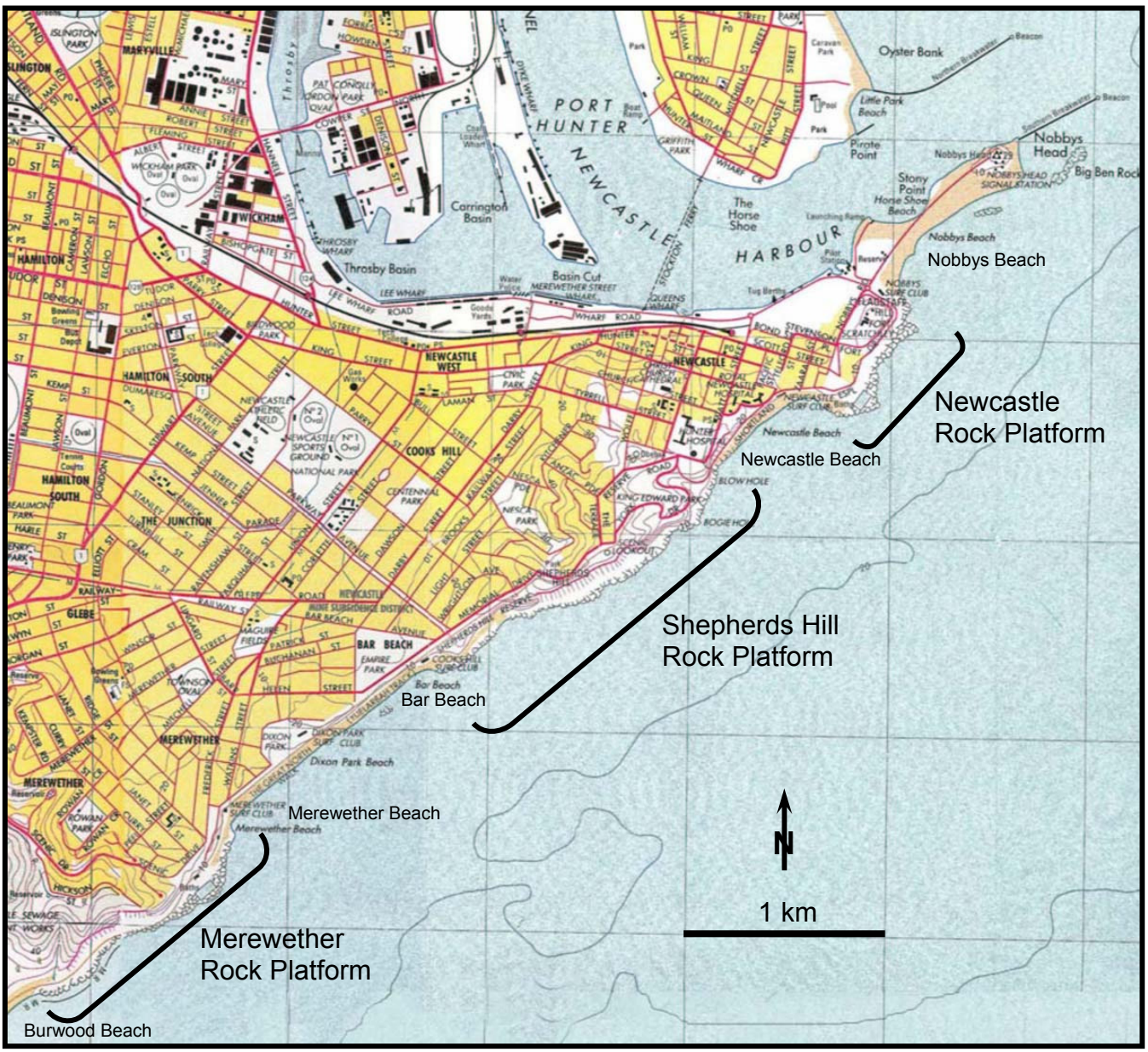


Figure 2.1 – Location of NCC Rock Platforms

3.0 SURVEY METHOD

Three days in winter and three days in summer were allocated for field checking rock-platform frequenting birds and available habitats. Two observers, Liz Crawford and Chris Herbert, carried out winter and summer observations and were assisted by Judith Thomas during summer observations. Binoculars and a spotting telescope were used to observe bird diversity, abundance and behaviour. Behaviours noted were:

- Roosting – extended periods of resting when foraging areas were covered by high tide;
- Loafing – short periods of resting between periods of foraging activity; and
- Foraging – active feeding periods.

To obtain a snapshot of all birds using the rock platforms during both high-tide and low-tide periods, surveys were carried out within as short a time interval as possible to eliminate double counting. Almost the entire extent of the rock platforms could be surveyed from vantage points and lookouts using binoculars and telescopes, without having to walk the platforms (**Figures 4.2, 4.3** & **4.5**). This rapid survey method allowed observers to cover the three major rock platforms in a short time frame so that significant movements of birds were readily observed. Rock platform inspections were also carried out on foot to observe behaviour and disturbances, especially at lower tides. Locations of birds were plotted on large-scale aerial photos supplied by NCC and then transferred to **Figures 4.1-4.6**.

Winter surveys were carried out on Monday 4 July, Friday 15 July and Thursday 21 July 2005. Summer surveys were carried out from Saturday 28 January to Monday 30 January 2006.

As this study concentrated on non-passerine rock-platform frequenting birds, the passerine birds were mostly ignored except for a few passing comments at particular locations.

4.0 SURVEY OBSERVATIONS

Common names are used for birds throughout this report. Scientific names are provided in **Appendix 1**. Details of bird observations on each rock platform, during field surveys for this project, are provided in **Appendix 2**. Summaries are provided below in Sections 4.1 to 4.6. **Figures 4.1** to **4.6** summarise winter and summer observations for all three rock platforms at both high and low tides. **Plate 4.1** illustrates some of the rock-platform frequenting birds observed during the field surveys. Great Cormorants, although listed in the following tables, mainly roost on power or light poles behind the rock platforms and are, therefore, not included as rock-platform frequenting birds unless actually observed on the rocks.

4.1 DAY 1 – MONDAY 4 JULY 2005

High tide 6.50am, 1.20m (Fort Denison)
Low tide 12.15pm, 0.58m (Fort Denison)
Weather – clear and sunny to overcast in afternoon, light southeasterly breeze, cool.

At high tide only six species were recorded on the NCC rock platforms: Sooty Oystercatcher (16), Silver Gull (313), Crested Tern (120), Little Pied Cormorant (1), White-faced Heron (1) and Australian Pelican (8); three species were recorded in the immediate vicinity: Willie Wagtail (1), Great Cormorant (6) and Nankeen Kestrel (1).

At about mid-tide it was evident that most of the rock-platform frequenting birds were switching from mainly roosting to a foraging/loafing cycle of activity. At low tide five

Sooty Oystercatcher feeding on a limpet, Newcastle Rock Platform

Great Cormorant roosting on a light pole near Merewether Ocean Baths

White-fronted Terns

Crested Terns

Ruddy Turnstone

Silver Gulls

Plate 4.1 – Birds of the rock platforms.

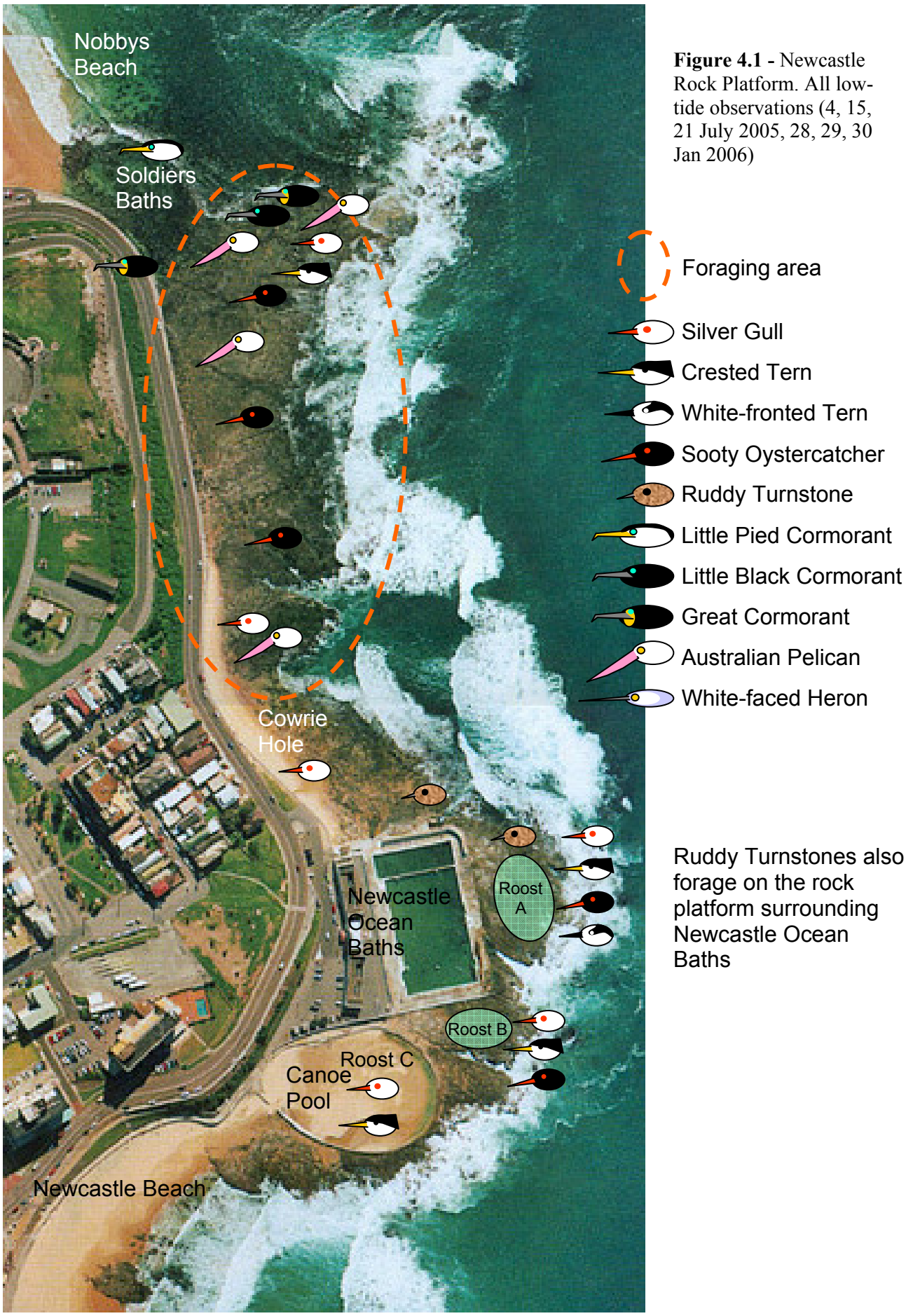


Figure 4.1 - Newcastle Rock Platform. All low-tide observations (4, 15, 21 July 2005, 28, 29, 30 Jan 2006)

Ruddy Turnstones also forage on the rock platform surrounding Newcastle Ocean Baths

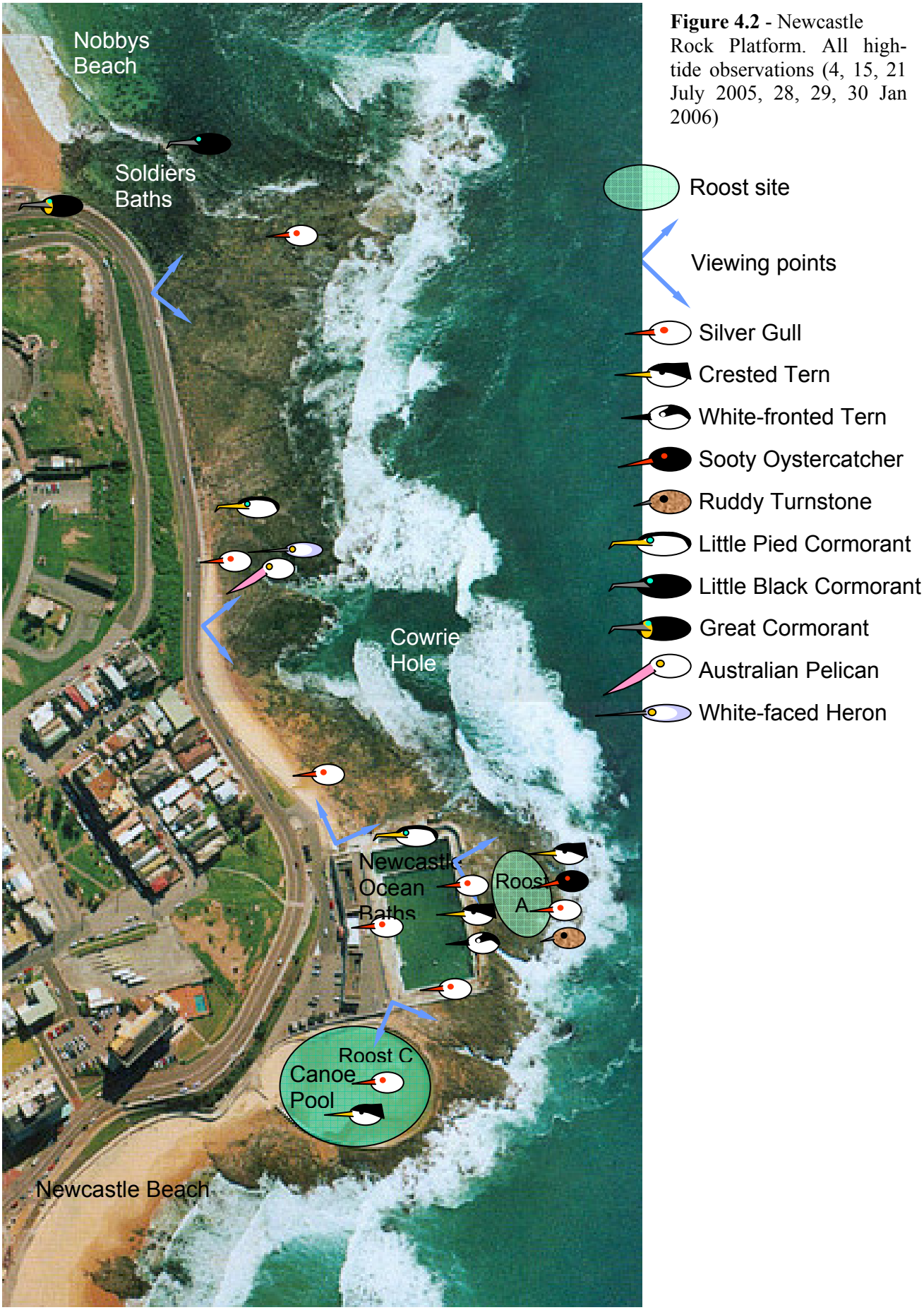


Figure 4.2 - Newcastle Rock Platform. All high-tide observations (4, 15, 21 July 2005, 28, 29, 30 Jan 2006)

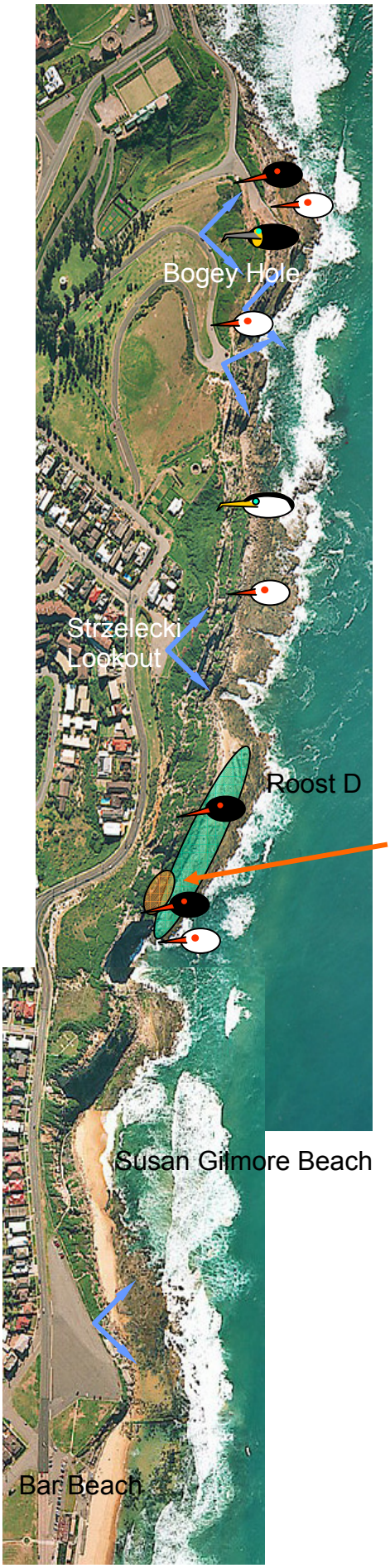
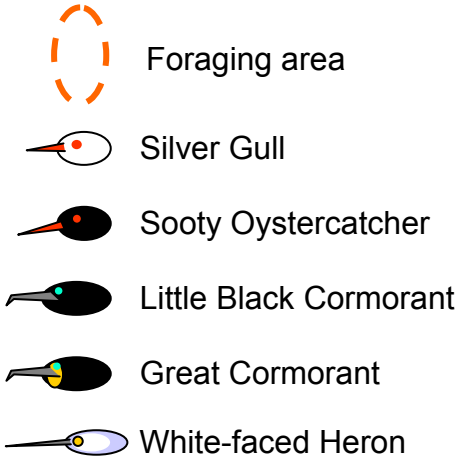


Figure 4.3 - Shepherds Hill Rock Platform. All high-tide observations (4, 15, 21 July 2005, 28, 29, 30 Jan 2006).

Figure 4.4 - Shepherds Hill Rock Platform. All low-tide observations (4, 15, 21 July 2005, 28, 29, 30 Jan 2006)



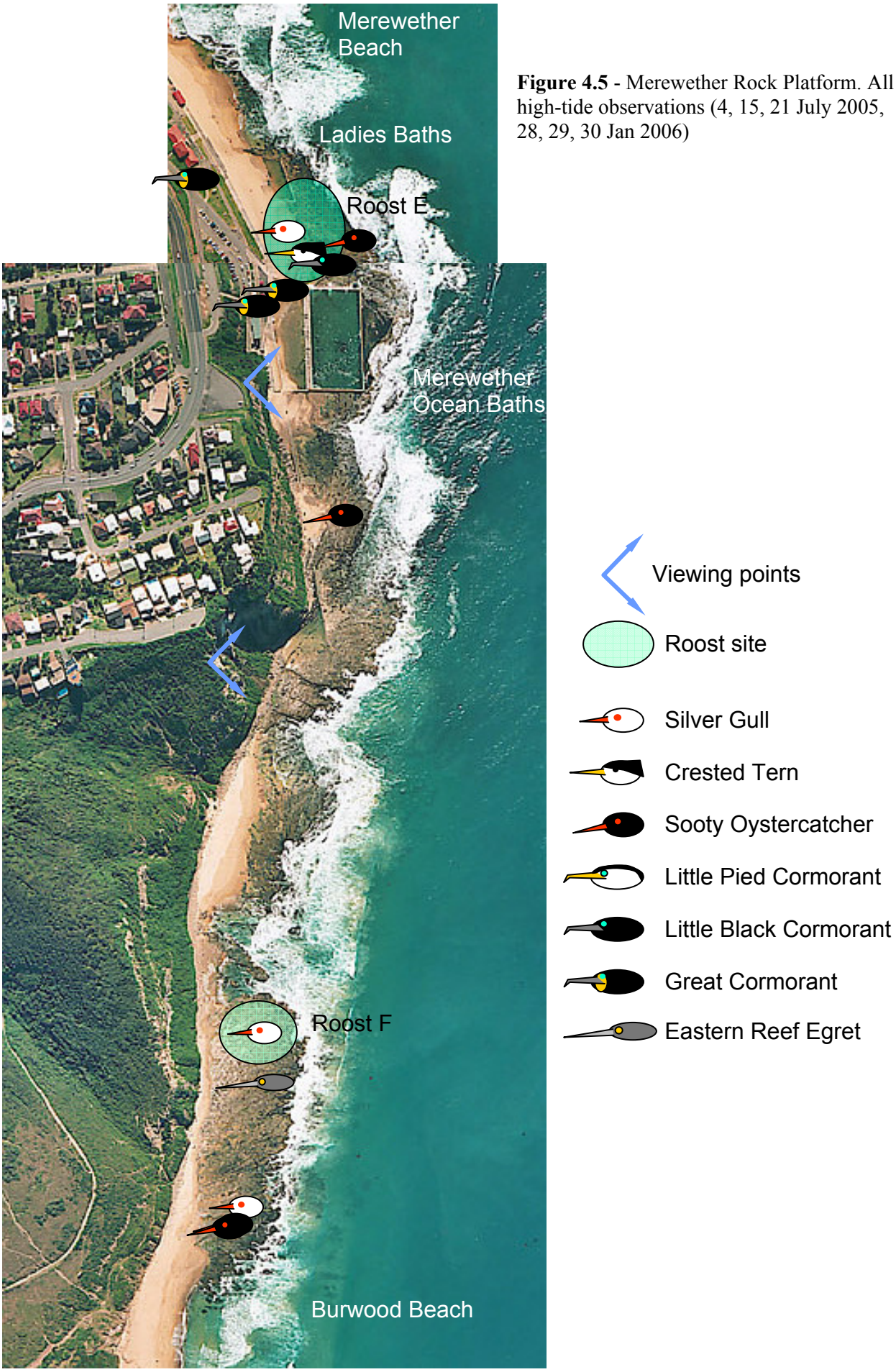


Figure 4.5 - Merewether Rock Platform. All high-tide observations (4, 15, 21 July 2005, 28, 29, 30 Jan 2006)

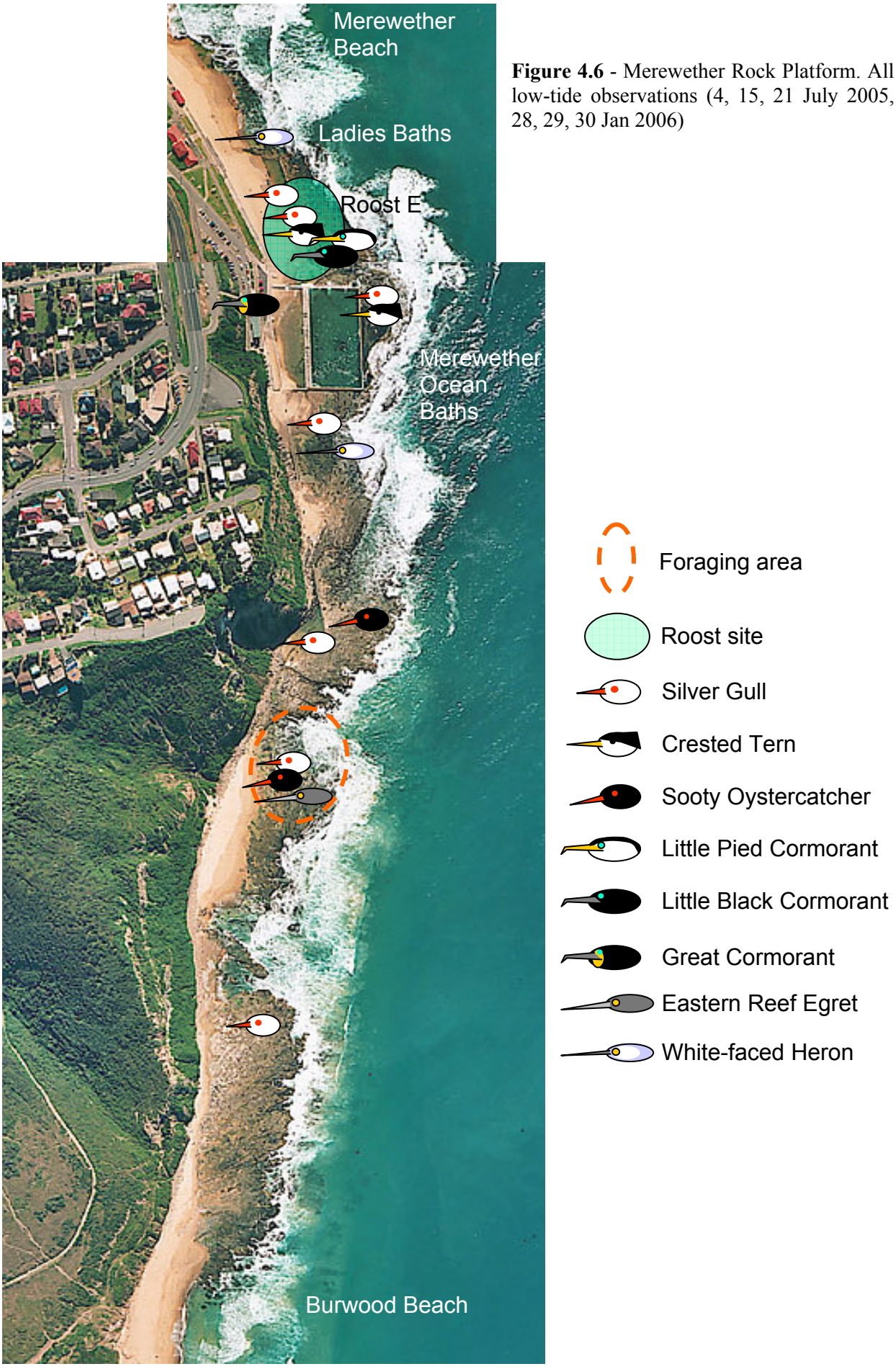


Figure 4.6 - Merewether Rock Platform. All low-tide observations (4, 15, 21 July 2005, 28, 29, 30 Jan 2006)

species were recorded on the NCC rock platforms: Sooty Oystercatcher (8 reducing to 0), Silver Gull (272), Crested Tern (138), Little Pied Cormorant (2) and Australian Pelican (4).

Table 4.1 shows the maximum number of birds observed during Day 1 at high and low tide.

TABLE 4.1 – Abundance and Diversity on NCC Rock Platforms - Day 1 (high & low tide)

Species	Newcastle Rock Platform high(low)	Shepherds Hill Rock Platform high(low)	Merewether Rock Platform high(low)
Australian Pelican	8(4)	0(0)	0(0)
Crested Tern	114(110)	0(0)	6(28)
Great Cormorant	0(0)	2 on poles(0)	4 on poles(0)
Little Pied Cormorant	1(1)	0(1)	0(0)
Silver Gull	162(225)	10(12)	141(35)
Sooty Oystercatcher	1(2)	9(6)	6(0)
White-faced Heron	1(0)	0(0)	0(0)
Total No. of Species	**6(5)**	**2(3)**	**3(2)**

Newcastle Rock Platform had a greater diversity of species than both the Shepherds Hill and Merewether Rock Platforms (**Table 4.1**) Newcastle Rock Platform also supported the greatest abundance of birds except for Sooty Oystercatchers, which were roosting and foraging in greater numbers on the other two rock platforms.

Of the 16 Sooty Oystercatchers observed during the morning high-tide period, only eight were observed on the NCC rock platforms during low tide. The oystercatchers were observed to move south along the rock platforms during the low-tide period and by late in the afternoon, on the rising tide, all oystercatchers had flown completely out of the study area to locations south of Burwood Beach into the Lake Macquarie City Council area. The last oystercatcher to leave persisted on the Newcastle Rock Platform until repeated disturbance by humans eventually caused it to depart and fly southwards.

4.2 DAY 2 – FRIDAY 15 JULY 2005

High tide 2.40pm, 1.40m (Fort Denison)
Low tide 8.00am, 0.5m (Fort Denison)
Weather – Clear and sunny, changing to overcast with showers in the afternoon, cool with a moderate westerly wind. This survey followed a period of very bad weather and high seas.

During the morning low tide, six species were recorded on the NCC rock platforms: Sooty Oystercatcher (2), Silver Gull (188), Crested Tern (149), Little Black Cormorant (3), Little Pied Cormorant (1) and Australian Pelican (3); 2 species were recorded in the immediate vicinity: Great Cormorant (6) and Nankeen Kestrel (1).

During high tide, most of the rock platforms were inundated and awash with waves and spray. Only a few Silver Gulls and Crested Terns were roosting on the seaward side of Newcastle Ocean Baths, "Roost A" (**Figure 4.2**), but were not counted.

Observations for Day 2 at high and low tide are summarized in **Table 4.2**.

TABLE 4.2 – Abundance and Diversity on NCC Rock Platforms - Day 2 (high & low tide)

Species	Newcastle Rock Platform (max. no.)	Shepherds Hill Rock Platform (max. no.)	Merewether Rock Platform (max. no.)
Australian Pelican	0(3)	0(0)	0(0)
Crested Tern	present(137)	0(0)	0(12)
Great Cormorant	0(0)	2 on poles(0)	1 on pole(0)
Little Black Cormorant	0(2)	0(0)	0(1)
Little Pied Cormorant	0(0)	0(0)	0(1)
Silver Gull	present(116)	1(7)	4(65)
Sooty Oystercatcher	0(0)	0(0)	2(2)
Total No. of Species	**2(4)**	**1(1)**	**2(5)**

At low tide, Newcastle and Merewether Rock Platforms had a similar diversity of species (4 and 5 respectively) compared to only one species at Shepherds Hill Rock Platform (**Table 4.2**). Great Cormorants were again perching on power poles, not inhabiting the rock platforms, and a Nankeen Kestrel was also perched on a power pole at Bar Beach. As on Day 1, the Newcastle Rock Platform supported a greater number of birds than the other platforms. Sooty Oystercatchers were present only at Merewether Rock Platform.

Compared to the 16 Sooty Oystercatchers present on Day 1, only two were observed on Day 2. Kooragang Dykes were inspected at high tide to determine if the oystercatchers had moved there from the rock platforms. Only four were observed roosting on the Dykes. Therefore, 10 birds were unaccounted for. It was possible that they had not returned from the Lake Macquarie rock platforms towards which they had flown during the latter part of "Day 1" observations.

4.3 DAY 3 – THURSDAY 21 JULY 2005

High tide 8.00am, 1.34m (Fort Denison)
Low tide 1.31pm, 0.37m (Fort Denison)
Weather – overcast and showers in the morning to clear and sunny, then overcast in late afternoon; light southeasterly breeze, cool to warm.

Five species were present during high tide. This increased to nine species at low tide for the total length of the NCC rock platforms. Also, the abundance of birds increased at low tide: Sooty Oystercatcher (0 to 3), Silver Gull (119 to 145), Crested Tern (44 to 232), Little Pied Cormorant (0 to 1), Little Black Cormorant (0 to 2), Great Cormorant (2 to 9), Australian Pelican (2 to 8) and decreased for White-fronted Tern (5 to 2; this decrease was possibly an observational problem as the birds were moving about owing to several disturbances). Overall, therefore, there was a considerable increase in diversity and abundance from high to low tide on the rock platforms.

Observations for Day 3 at high and low tide are summarized in **Table 4.3**.

TABLE 4.3 – Abundance and Diversity on NCC Rock Platforms - Day 3 (high & low tide)

Species	Newcastle Rock Platform high(low)	Shepherds Hill Rock Platform high(low)	Merewether Rock Platform high(low)
Australian Pelican	2(8)	0(0)	0(0)
Crested Tern	42(231)	0(0)	2(1)
Great Cormorant	0(3 on poles)	1(1) all on poles	1(5) all on poles
Little Black Cormorant	0(1)	0(1)	0(0)
Little Pied Cormorant	0(1)	0(0)	0(0)
Ruddy Turnstone	1(1)	0(0)	0(0)
Silver Gull	84(116)	0(0)	35(29)
Sooty Oystercatcher	0(3*)	0(3*)	0(0)
White-faced Heron	0(1)	0(0)	0(0)
White-fronted Tern	5 (2)	0(0)	0(0)
Total No. of Species	**5(9)**	**0(2)**	**2(2)**

* Three Sooty Oystercatchers moved from Shepherds Hill Rock Platform to Newcastle Rock Platform after repeated disturbance.

On Day 3 the Newcastle Rock Platform, again, had the highest diversity with nine species recorded. It also supported the greatest abundance of all the rock-platform frequenting birds (apart from the three Sooty Oystercatchers that foraged at both Newcastle and Shepherds Hill Rock Platforms).

4.4 DAY 4 – SATURDAY 28 JANUARY 2006

High tide 7.57am, 1.84m (Fort Denison)
Low tide 2.46pm, 0.21m (Fort Denison)
Weather – clear and sunny, strong northeasterly breeze, warm.

During the low tide period seven species were recorded on the NCC rock platforms - Sooty Oystercatchers (10), Silver Gulls (605), Crested Terns (51), Little Pied Cormorant (1), Little Black Cormorant (1), Australian Pelicans (6), Reef Egret (1). Great Cormorants (10), roosting on power poles, and a Nankeen Kestrel (1) were observed in the vicinity.

Observations for Day 4 were at low tide only and are summarized in **Table 4.4**.

TABLE 4.4 – Abundance and Diversity on NCC Rock Platforms - Day 4 (high & low tide)

Species	Newcastle Rock Platform high(low)	Shepherds Hill Rock Platform high(low)	Merewether Rock Platform high(low)
Australian Pelican	(6)	(0)	(0)
Crested Tern	(51)	(0)	(0)
Great Cormorant	(3 poles, 1 rocks)	(3 on poles)	(3 on poles)
Little Black Cormorant	(1)	(0)	(0)
Little Pied Cormorant	(1)	(0)	(0)
Silver Gull	(215)	(41)	(349)
Sooty Oystercatcher	(6)	(0)	(4)
Eastern Reef Egret	(0)	(0)	(1)
Total No. of Species	**(6)**	**(1)**	**(3)**

On Day 4 the Newcastle Rock Platform, again, had the highest diversity with six species recorded, several times the diversity at Shepherds Hill and Merewether Rock Platforms respectively). The greatest abundance occurred on Merewether Rock Platform although composed of mostly of only one species, Silver Gull.

4.5 DAY 5 – SUNDAY 29 JANUARY 2006

High tide 8.48am, 1.95m (Fort Denison)
Low tide 3.34pm, 0.12m (Fort Denison)
Weather – clear and sunny, gentle increasing to moderate northeasterly breeze, warm.

At high tide five species were recorded on the NCC rock platforms. At low tide the same five species were present, but numbers had considerably increased except for Sooty Oystercatchers and Ruddy Turnstones which decreased. Sooty Oystercatchers (21-16), Ruddy Turnstones (9-0), Silver Gulls (281-569), Crested Terns (23-38), Little Pied Cormorant (1-2), and Australian Pelican (0-1). Great Cormorants roosting, on power poles, also increased from six to 12. An additional Sooty Oystercatcher was observed roosting on the Kooragang Dykes in the Hunter Estuary upstream of Stockton Bridge at 11.00am.

On the falling tide five Sooty Oystercatchers and 17 Ruddy Turnstones were observed foraging from 12.25 to 1.05pm along the river shoreline at Stony Point, north of Horseshoe Beach. At 1.06pm a single Sooty Oystercatcher was observed to fly from the direction of the river shoreline over Nobbys Beach to the Newcastle Rock Platform.

Observations for Day 5 are summarized in **Table 4.5**.

TABLE 4.5 – Abundance & Diversity on NCC Rock Platforms - Day 5 (high & low tide)

Species	Newcastle Rock Platform high(low)	Shepherds Hill Rock Platform high(low)	Merewether Rock Platform high(low)
Australian Pelican	0(1)	0(0)	0(0)
Crested Tern	22(35)	0(0)	1(3)
Great Cormorant	0(2 on poles)	5(5) all on poles	1(5) all on poles
Little Pied Cormorant	1(2)	0(0)	0(0)
Ruddy Turnstone	9(0)	0(0)	0(0)
Silver Gull	79(231)	7(40)	195(298)
Sooty Oystercatcher	7(16)	14(0)	0(0)
Total No. of Species	**5(5)**	**2(1)**	**2(2)**

On Day 5 the Newcastle Rock Platform, again, had the highest diversity with five species recorded (i.e. more than two times the diversity at Shepherds Hill and Merewether Rock Platforms respectively). The greatest abundance of birds occurred on Merewether Rock Platform although composed mostly of one species, Silver Gull. Generally fewer birds were observed on the rock platforms at high tide than at low tide (probably because of the reduced exposure of the rock platforms during the very high spring-tide).

4.6 DAY 6 – MONDAY 30 JANUARY 2006

High tide 9.38am, 2.01m (Fort Denison)
Low tide 4.20pm, 0.07m (Fort Denison)
Weather – clear and sunny, gentle increasing to moderate northeasterly breeze, warm.

Diversity and abundance on the NCC rock platforms increased from high to low tide. Six species were recorded on the NCC rock platforms - Sooty Oystercatchers (11-19), Silver Gulls (63-344), Crested Terns (5-17), Little Pied Cormorant (0-2), White-faced Heron (0-3), Eastern Reef Egret (1-1). Great Cormorants (7-12) were again roosting on power poles.

At high tide an additional two Sooty Oystercatchers were observed roosting on the Kooragang Dykes in the Hunter Estuary upstream of Stockton Bridge at 11.40am. No Ruddy Turnstones were observed on the NCC rock platforms; however, 15 were observed roosting along the river shoreline at Stony Point, north of Horseshoe Beach.

During low tide, from 2.00 – 2.30pm, eight Sooty Oystercatchers and 16 Ruddy Turnstones were observed foraging at Stony Point. Soon thereafter eight Sooty Oystercatchers flew from the river to roost on the emerging rocks off Nobbys Head (Big Ben Rock).

Observations for Day 6 at high and low tide are summarized in **Table 4.6**.

TABLE 4.6 – Abundance & Diversity on NCC Rock Platforms - Day 6 (high & low tide)

Species	**Newcastle Rock Platform high(low)**	**Shepherds Hill Rock Platform high(low)**	**Merewether Rock Platform high(low)**
Crested Tern	5(14)	0(0)	0(3)
Great Cormorant	4(2) all on poles)	2(5) all on poles	1(5) all on poles
Little Pied Cormorant	0(2)	0(0)	0(0)
Silver Gull	17(231)	2(52)	44(61)
Sooty Oystercatcher	0(16)	8(0)	3(3)
Eastern Reef Egret	0(0)	0(0)	1(1)
White-faced Heron	0(0)	0(1)	0(2)
Total No. of Species	**2(5)**	**2(2)**	**3(5)**

On Day 6 the Newcastle Rock Platform shared the highest diversity with the Merewether Rock Platform. The greatest abundance of birds occurred on the Newcastle Rock Platform. Generally fewer birds were observed on the rock platforms at high tide than at low tide (probably because of the reduced exposure of the rock platforms during the very high spring-tide).

5.0 HISTORICAL DATA ACQUISITION

Historical data on bird diversity and abundance was obtained from several sources:

- Hunter Bird Observers Club (HBOC) data, HBOC Annual Bird Reports and individual member's observations (1985-2005) (**Appendices 3 & 4**);
- Birds Australia New Atlas data (1998-2005) (**Appendices 5 & 6**);
- Birds Australia Old Atlas data (1977-1981) (**Appendix 7**);
- New South Wales Bird Atlassers data (1972-1999) (**Appendix 8**);
- National Parks and Wildlife Service Wildlife Atlas Database (**Appendix 9**); and
- Data on Boat Harbour and Long Reef compiled from several sources by Phil Straw (**Appendices 10 and 11**).

All data was supplied either in Excel format or transcribed to Excel format for tabulation and interpretation. The most useful data was supplied by the Hunter Bird Observers Club, which provided both species abundance and reasonably precise location information - as might be expected with the benefit of local knowledge. Birds Australia Atlas data rarely provided data on abundance, but gave good location names and accurate latitude/longitude positions for the New Atlas data. However, the Old Atlas data was recorded in coarse 10-minute blocks and was not specific about locations. It was not possible to derive accurate locations for the data and, consequently, it was not used. However, this data is included as **Appendix 7**. Locations for the NSW Bird Atlassers data were generally not precise enough to use for distinguishing whether the birds were on rock platforms or in adjacent environments and there was no data on abundance. For example, there was only one record of a species precisely at "Newcastle Baths" (Silver Gull), but locations listed as "Newcastle City" and "Nobbys/Newcastle Beach" probably contained records of birds occurring on the adjacent rock platform. However, birds using rock platforms could not be identified with certainty.

6.0 RESULTS

6.1 BIRD DIVERSITY AND ABUNDANCE

Eighteen species of rock-platform frequenting birds have been recorded on NCC rock platforms since records began in 1972 (**Table 6.1**). Although listed in Table 6.1, Pacific Gull and White-winged Black Tern are not considered in the assessment of rock platform biodiversity as they were observed flying over but not on the rock platform. A maximum of 18 species that may be present during summer reduces to a maximum of 11 species during winter after most migratory birds have departed. White-fronted Tern, recorded during winter but not in summer, is regarded as an uncommon winter migrant. Conversely, Common Terns, present in summer, depart in autumn leaving Silver Gulls and Crested Terns as the most abundant species during winter. A few non-breeding Ruddy Turnstones over-winter in some years instead of departing for their northern hemisphere breeding grounds.

TABLE 6.1 - Seasonal Bird[1] Diversity and Abundance on NCC Rock Platforms

Species	Summer (Sept-Apr) Maximum No.	Winter (May-Aug) Maximum No.	Comments (from HBOC Annual Bird Report)	Protection/Status
Australian Pelican	6	8	Resident	
Caspian Tern	>30	0	Resident	
Common Tern	>250	0	Summer migrant	
Crested Tern	>200	232	Common resident	
Eastern Reef Egret	1	1	Rare	
Great Cormorant	1 (12 on poles)	(9 on poles)	Resident	
Grey-tailed Tattler	1	0	Summer migratory wader	JAMBA/CAMBA[3]
Kelp Gull	1	0	Accidental visitor	
Little Black Cormorant	4	3	Resident	
Little Pied Cormorant	2	2	Resident	
Little Tern	16	0	Summer migrant	Endangered - TSC Act[4]
Pacific Gull	0	1[2]	Accidental visitor	
Pied Cormorant	Recorded	Recorded	Resident	
Red-necked Stint	1-5 (21 Big Ben Rock)	0	Summer migratory wader	JAMBA/CAMBA
Ruddy Turnstone	>50	2 (7 Stony Point)	Uncommon summer migratory wader	JAMBA/CAMBA
Silver Gull	605	313	Common resident	
Sooty Oystercatcher	23	22	Resident	Vulnerable - TSC Act
White-faced Heron	3	1	Common resident	
White-fronted Tern	0	>17	Uncommon winter migrant	
White-winged Black Tern	1[2]	0	Summer migrant	

[1] Rock-platform frequenting birds only
[2] Flying
[3] Japan-Australia Migratory Birds Agreement/ / China-Australia Migratory Birds Agreement
[4] NSW Threatened Species Act

During the six days of observations, diversity of species on the entire NCC rock platforms ranged from three to six species at high tide increasing to five to nine species at low tide (**Figure 6.1**). In general there was little change in diversity between winter and summer observations. Newcastle Rock Platform had the highest diversity with from two to nine species present at times. Merewether Rock Platform was second in diversity (2-5 spp.) and Shepherds Hill Rock Platform had the least diversity (1-3 spp.).

It is evident that weather influences the diversity and abundance of birds using the rock platforms. For example, both diversity and abundance were considerably lower during high-tide observation on Day 2 following a period of strong winds and heavy seas that were still sweeping over the platforms.

Diversity and abundance is also influenced as birds move between adjacent habitats. It was observed that as many as eight Sooty Oystercatchers move off the rock platforms into the Hunter Estuary to roost on the Kooragang Dykes at high tide and at low tide a few forage on oyster-banks off the Stockton Sandspit, north of Stockton Bridge. Sooty Oystercatchers also forage at low tide along the river foreshore at Stony Point, northeast of Horseshoe Beach. In addition, on Day 6 of observations, eight Sooty Oystercatchers flew to emerging rocks off Nobbys Beach (Big Ben Rock) where it is quite likely they would forage as well as roost. Ruddy Turnstones have also been observed to roost on the Kooragang Dykes and the river shoreline near Stockton and Stony Point. They have also been observed on Big Ben Rock (**Appendix 5 & 6**).

The most abundant birds observed on the NCC rock platforms were Silver Gulls. Their numbers doubled from about 313 during the winter counts to about 605 during the summer counts (**Figure 6.2**). In contrast, Crested Terns, the second most abundant birds, decreased considerably in abundance from 232 during the winter observations to 51 during summer observations (**Figure 6.3**). Although more than 250 Common Terns and more than 30 Caspian Terns have been observed during summer their occurrence is sporadic. Although not present during summer, as many as 17 White-fronted Terns have been observed during winter.

More than 50 Ruddy Turnstones have been recorded in the past, making them the most abundant migratory wader using the NCC rock platforms during summer. Only one over-wintering Ruddy Turnstone was observed during Day 1-3 winter observations whereas 9 were recorded during Day 4-6 summer observations. Low numbers of infrequently recorded and cryptic migratory waders observed on the Newcastle Rock Platform, such as Red-necked Stints and Grey-tailed Tattlers, might be more commonly recorded if other parts of the rock platforms were monitored more regularly.

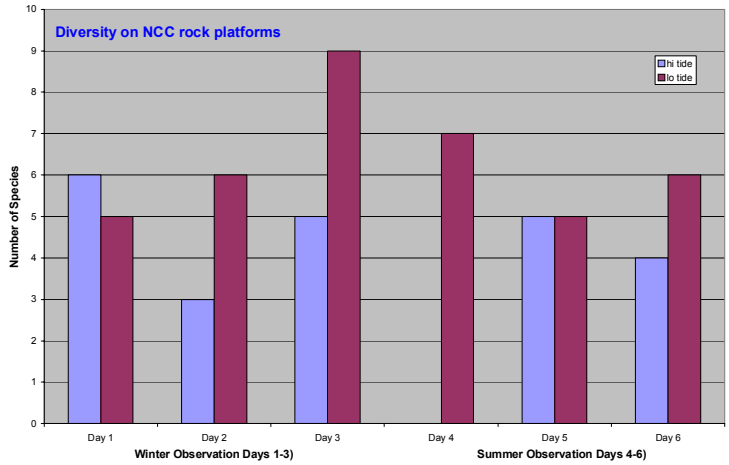
Sooty Oystercatchers increased from 6 during Day 1-3 winter counts to 21 during summer Day 4-6 counts (**Figure 6.4**). Additional observations indicate that a maximum of 22 were present during June 2005 and 23 were present during January 2006 (**Appendix 12**). Apart from Silver Gulls and Crested Terns, Sooty Oystercatchers were the most numerous of the consistently present rock-platform frequenting birds.

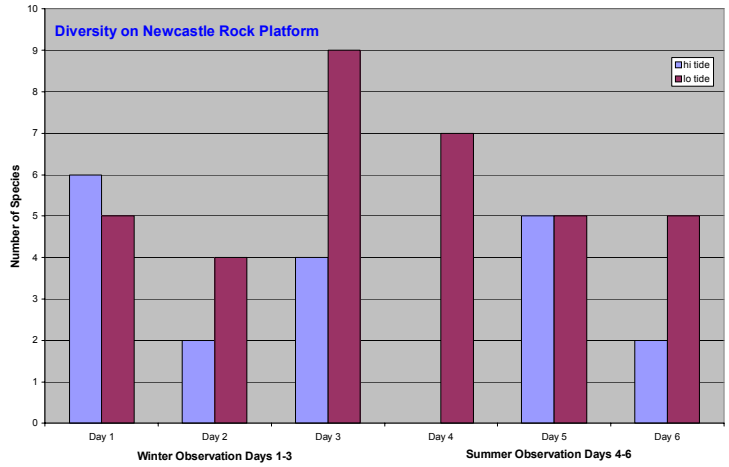
All of the other rock-platform frequenting birds, if present, number less than 10 of each species. No more than one Eastern Reef Egret nor more than three White-faced Herons have been seen on the entire NCC rock platforms at any one time.

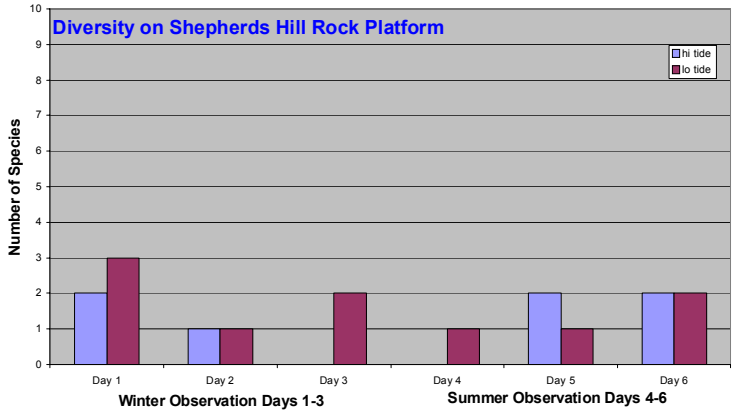
6.1.1 Birds on the Newcastle Rock Platform

Sixteen species of rock-platform frequenting birds have been recorded on the Newcastle Rock Platform (**Table 6.2**). The Kelp Gull is an accidental visitor and should not be regarded as a regular user of the Newcastle Rock Platform. The Pacific Gull and White-winged Black

Figure 6.1 – Diversity of bird species on NCC rock platforms.







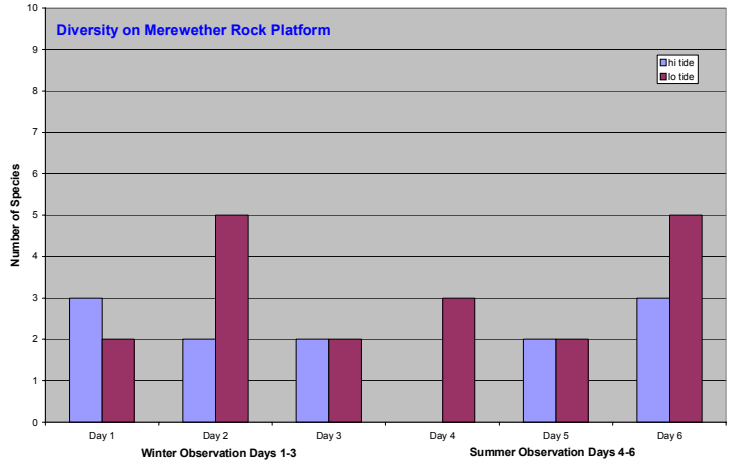
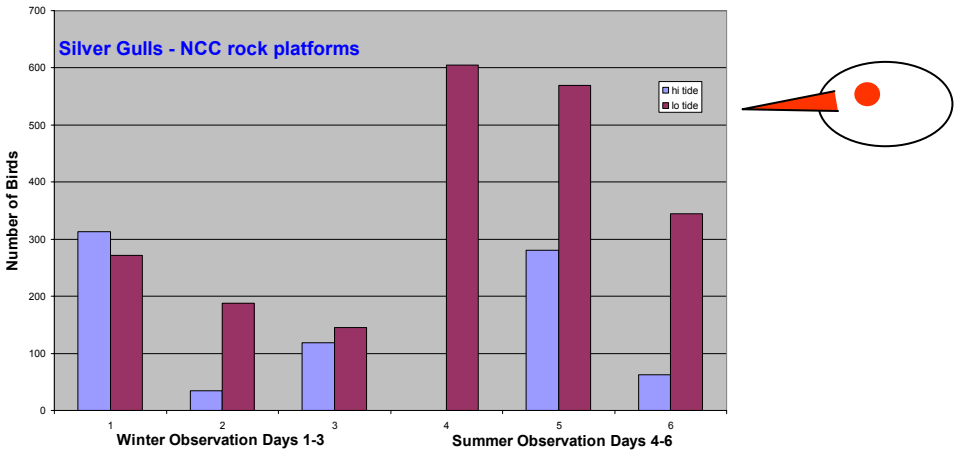
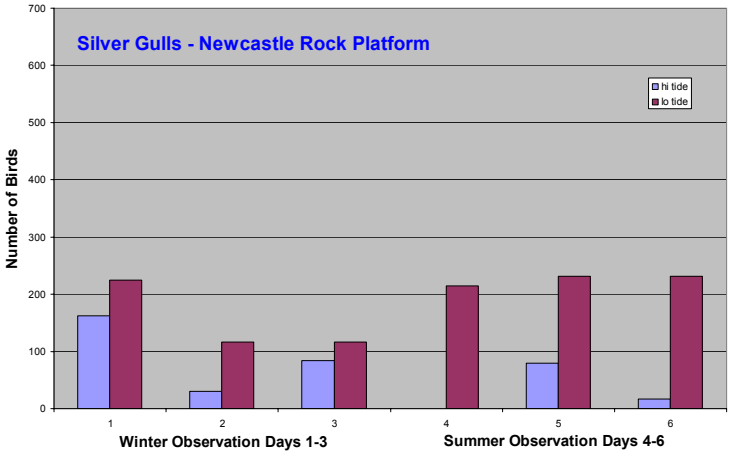
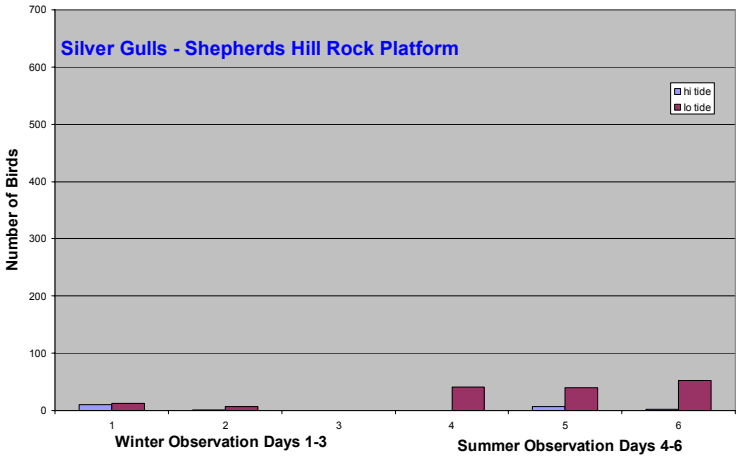


Figure 6.2 – Abundance of Silver Gulls on NCC rock platforms.







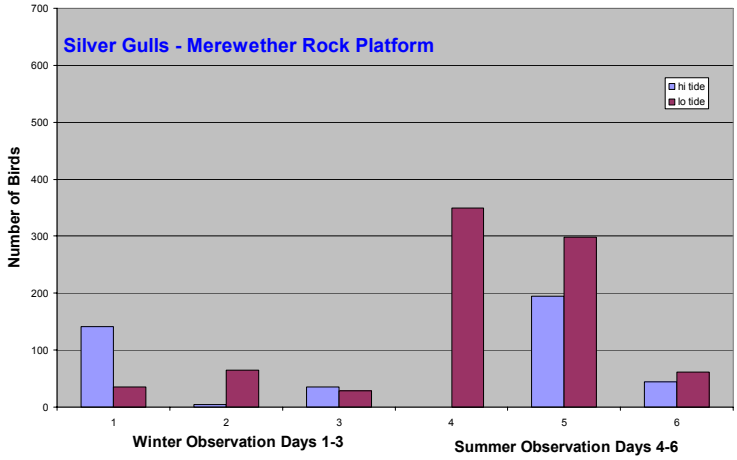
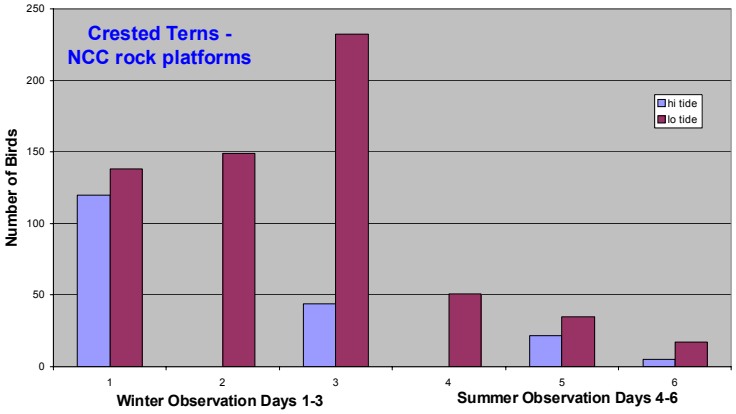
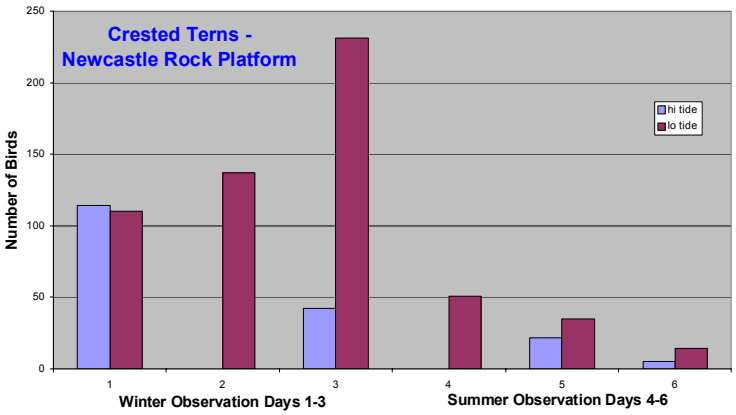
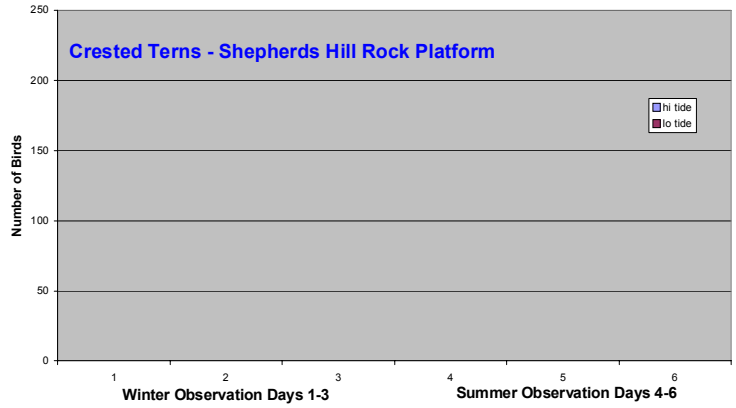


Figure 6.3 – Abundance of Crested Terns on NCC rock platforms.







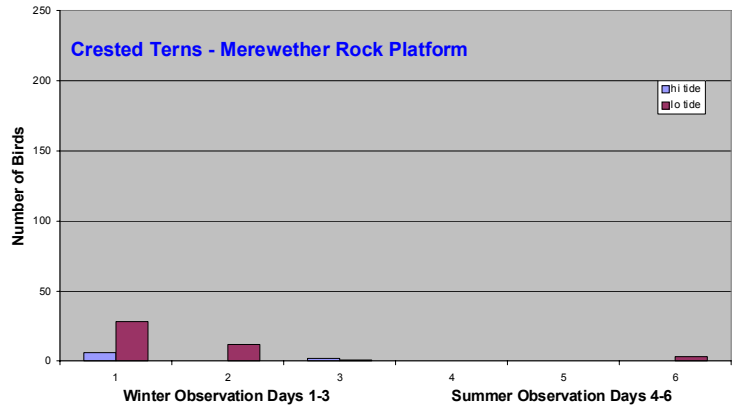
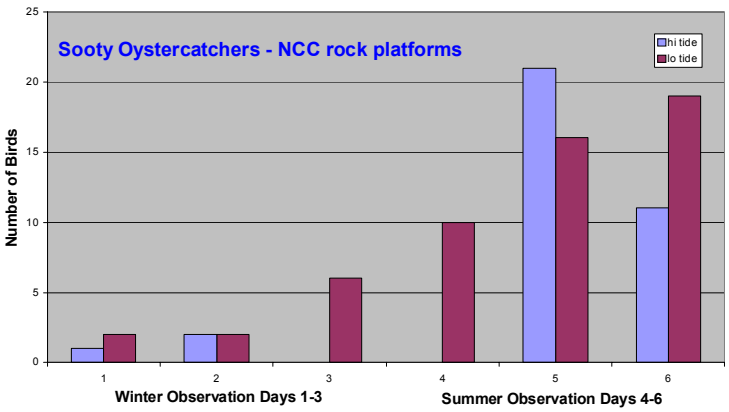
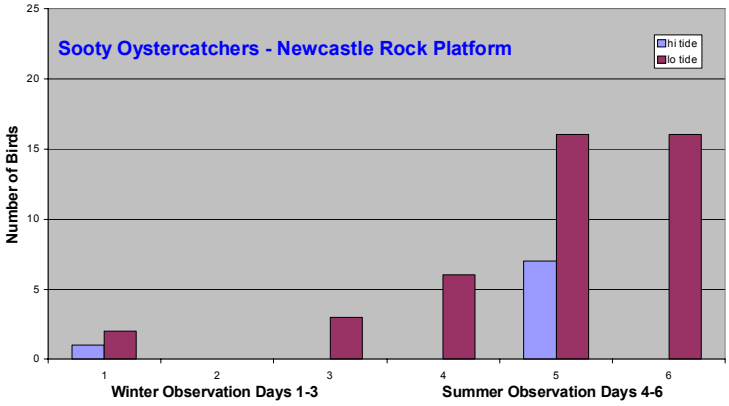
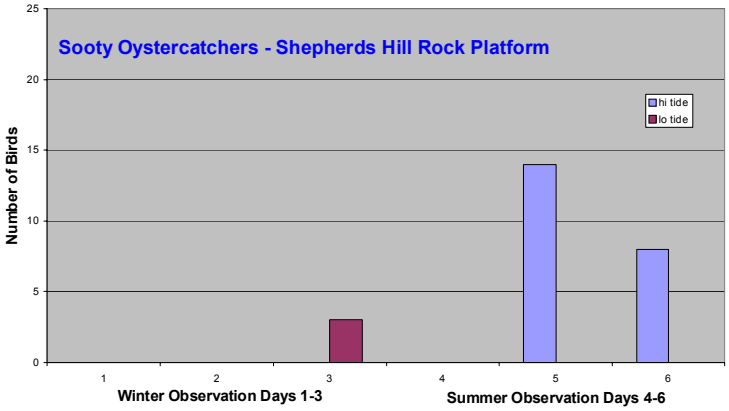
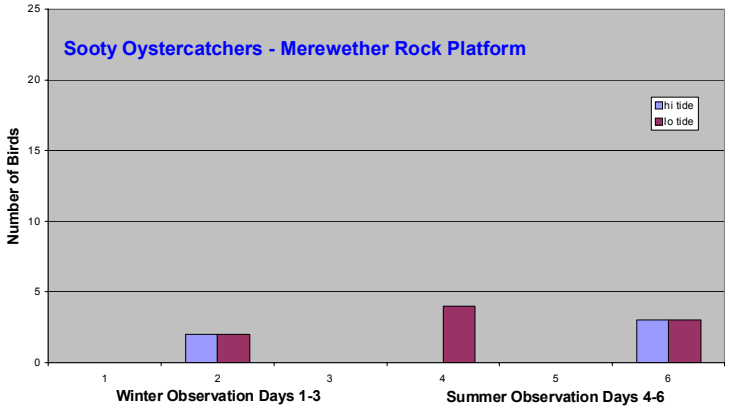


Figure 6.4 – Abundance of Sooty Oystercatchers on NCC rock platforms









Tern were observed flying over the rock platform and are, therefore, not included as rock-platform frequenters.

The most numerous birds are the gulls (231) and terns (232), which are an order of magnitude greater than the next most abundant birds, Sooty Oystercatchers (23) and Ruddy Turnstones (>50). All other species are represented by single birds or usually number less than ten.

The most important roost site on the entire NCC rock platforms system is located immediately seawards of Newcastle Ocean Baths (Roost A **Figures 4.1 & 4.2**). This is closely followed in importance by Roost B. These roosts consistently support hundreds of birds and, depending on the season, a variety of species. Most of the more numerous birds, including gulls, terns, oystercatchers and turnstones, roost here. As many as 22 Sooty Oystercatchers have been observed at Roost A (**Appendix 12**), almost the maximum number of Sooty Oystercatchers recorded for the entire NCC rock platform system. In addition, more than 50 Ruddy Turnstones roost here at times. In addition, gulls and terns use the calm water of Canoe Pool as a shallow-water roost and bathing spot (Roost C), often flying back and forth between Roost B and the pool.

TABLE 6.2 – Bird Diversity and Abundance on NCC Rock Platforms

Species	Newcastle Rock Platform (max. no.)	Shepherds Hill Rock Platform (max. no.)	Merewether Rock Platform (max. no.)
Australian Pelican	8		
Caspian Tern			>30
Common Tern	>250		
Crested Tern	232		28
Eastern Reef Egret	1		1
Great Cormorant	1 (4 *on poles)	(5 * on power poles)	(5 * on power poles)
Grey-tailed Tattler	1		
Kelp Gull	1		
Little Black Cormorant	4	1	
Little Pied Cormorant	2	1	
Little Tern	16		
Pacific Gull	1**		
Pied Cormorant			
Red-necked Stint	1-5		
Ruddy Turnstone	>50		
Silver Gull	231	52	349
Sooty Oystercatcher	23	20	6
White-faced Heron	1	1	2
White-fronted Tern	>17		1 (Merewether Beach)
White-winged Black Tern	1**		
Total no. of Species	**16**	**5**	**7**

* In vicinity of rock platform, potentially rock-platform frequenting
** Flying

Sooty Oystercatchers and Ruddy Turnstones forage on the rock platform north of the Newcastle Ocean Baths and on its seaward side. Oystercatchers were observed to forage and then loaf on the rock platform, sometimes flying to Roost A, behind the baths, between feeding sessions. A maximum of 23 Sooty Oystercatchers have been observed foraging on the Newcastle Rock Platform (**Appendix 12**). During January 2006 a maximum of nine

Ruddy Turnstones were observed at Newcastle Ocean Baths and in 2005 two Ruddy Turnstones were observed to over-winter on the rock platform.

Only small numbers of other species have been recorded using the Newcastle Rock Platform to forage and roost. Australian Pelicans favour the rock platform between the Cowrie Hole and Soldiers Baths where they often roost near, or follow, fishermen in the hope of obtaining fish scraps. Great Cormorants were observed mainly roosting on top of light poles and power poles along Shortland Esplanade and only once was one observed roosting on the rock platform (near Soldiers Baths). A single Pied Cormorant was observed flying over Nobbys Beach kiosk but this species has not been recorded using the rock platform. Of note are observations of a single Eastern Reef Egret, an uncommon to rare bird in southeastern Australia.

6.1.2 Birds on the Shepherds Hill Rock Platform

Only five species have been recorded using the Shepherds Hill Rock Platform (**Table 6.2**). One of the reasons for this may be that the rock platform is not as accessible as the other NCC rock platforms and, therefore, few observations have been submitted to any of the databases. However, the historically low species diversity and abundance are also reflected in recent observations for this project. For example, no Crested Terns were observed during the surveys (**Figure 6.3**). Although low in species diversity, the southern part of the Shepherds Hill Rock Platform has recently (12 May 2005) supported as many as 20 Sooty Oystercatchers roosting and foraging on the platform (W. Gladstone pers. comm.) A possibly semi-regular Sooty Oystercatcher roost site, Roost D, is located on the rock platform north of Susan Gilmore Beach (**Figure 4.3**).

Great Cormorants roost on power poles along Shortland Esplanade above the Bogey Hole. Nankeen Kestrels hunt along the coastline, often using updrafts to soar above the cliffs. They have been reported nesting on the cliff between Bar Beach and Susan Gilmore Beach (T. Clarke pers. comm.). During this study a regular roosting/possible nesting-site for a raptor, betrayed by copious white excrement, was observed on a cliff a few hundred metres north of Susan Gilmore Beach (**Figure 4.3**).

6.1.3 Birds on the Merewether Rock Platform

Seven species have been recorded on the Merewether Rock Platform (**Table 6.2**). Of note are observations of the Eastern Reef Egret which is regarded as an uncommon to rare bird in southeastern Australia. As many as six Sooty Oystercatchers were observed during the surveys for this project. All Sooty Oystercatchers were observed foraging and roosting south of the Merewether Ocean Baths except for one located immediately north of the baths (**Figures 4.5** & **4.6**). A large number of Silver Gulls and a lesser number of Crested Terns appear to use the rock platform immediately north of the baths as a regular roost (Roost E, **Figures 4.5** & **4.6**). An additional high tide roost for hundreds of gulls was observed during the summer surveys on the platform north of Burwood Beach (Roost F, **Figure 4.5**).

Great Cormorants were observed roosting on top of light poles and power poles around Merewether Ocean Baths and along Frederick Street. A single Willie Wagtail was seen perching on No. 1 starting block on the seaward side of Merewether Ocean Baths.

7.0 COMPARISON WITH OTHER ROCK PLATFORMS

In order to understand the significance of the diversity and abundance of birds using NCC rock platforms, the maximum number of each species is compared with data from Boat Harbour, near Kurnell, and Long Reef, on Sydney's Northern Beaches. These two locations have been monitored over several years (**Appendices 10** & **11**), and as they are in the same bioregion, they are excellent examples for comparison (**Table 7.1**).

TABLE 7.1 – Maximum numbers of species at Boat Harbour, Long Reef and NCC rock platforms.

Species	Boat Harbour 1995, 2001-2003	Long Reef 1995, 2001-2002	NCC rock platforms 1985-2005
Australian Pelican	2	9	8
Bar-tailed Godwit		1	
Caspian Tern		2	>30
Common Tern	122	68	>250
Crested Tern	100	110	232
Curlew Sandpiper	2	1	
Double-banded Plover	24	9	
Eastern Reef Egret	2	2	1
Great Cormorant	9	24	12
Grey-tailed Tattler	2	45	1
Intermediate Egret		2	
Kelp Gull	3	1	1
Large Sand Plover		1	
Lesser Sand Plover	13		
Little Black Cormorant	6	4	4
Little Pied Cormorant	26	6	2
Little Penguin			1*
Little Tern	72		16
Masked Lapwing		2	
Nankeen Kestrel	1		2**
Pacific Golden Plover	17	14	
Pacific Gull			1**
Pied Cormorant	14	6	1**
Pied Oystercatcher	5		12-14*
Red-necked Stint	143	108	21
Ruddy Turnstone	35	36	>50
Sanderling	1		
Sharp-tailed Sandpiper	110		
Silver Gull	100	300	605
Sooty Oystercatcher	14	21	23
Striated Heron	1		
Whimbrel	1	1	
Whiskered Tern	3		
White-bellied Sea-Eagle	2		1**
White-faced Heron	2	6	3
White-fronted Tern	5	30	>17
White-winged Black Tern	2		1**
Total species	**30**	**25**	**24**

* On beach
** Flying

7.1 BIRD DIVERSITY

It is likely that the birds listed at Boat Harbour and Long Reef include species from habitats adjacent to the rock platform, such as the surrounding bush and beaches, and probably also include over-flying species. If these birds are ignored the diversity of birds regarded as rock-platform frequenting species is very similar between all three areas.

Species seen at Boat Harbour and Long Reef, but not along the NCC rock platforms, such as Bar-tailed Godwit, Curlew Sandpiper, Intermediate Egret, Large Sand Plover, Sanderling, Sharp-tailed Sandpiper, Whimbrel, and Whiskered Tern are rare or incidental occurrences of birds, most of which are more common in estuaries and on beaches rather than on rock platforms.

Several species recorded at either Boat Harbour or Long Reef, that could visit NCC rock platforms but have not yet been recorded are:

- *Double-banded Plover* – has been absent from the Hunter Estuary for a number of years, but there are a few recent records. As many as 43 have been recorded along Newcastle Bight;
- *Lesser Sand Plover* – has been absent in the Hunter Estuary for a number of years, but there are occasional recent records;
- *Sanderling* – a beach frequenter rather than a rock-platform frequenter, but not likely on the heavily used Newcastle beaches. Occasional records along the nearby Newcastle Bight; and
- *Striated Heron* – probably would be only an occasional visitor

The only two species recorded at, or in the vicinity of, NCC rock platforms but not at either Boat Harbour or Long Reef are:

- *Little Penguin* – rarely seen onshore; one distressed bird found on Nobbys Beach, not on the rock platform; and
- *Pacific Gull* – an accidental bird this far north.

7.2 BIRD ABUNDANCE

More Sooty Oystercatchers have been recorded on NCC rock platforms (23) than at Boat Harbour (14), but a similar number have been recorded at Long Reef (21) (**Table 7.1**). A maximum of 23 Sooty Oystercatchers have been observed on rock platforms along the Central Coast (Central Coast Annual Bird Reports) and 18 have been recorded at Port Stephens (Stuart 2004).

The NCC rock platforms have supported a maximum of more than 50 Ruddy Turnstones (a migratory wader) whereas Long Reef and Boat Harbour have recorded a maximum of 35 each.

The 1-5 Red-necked Stints (a migratory wader) recorded on NCC rock platforms are well down on the maximum of 143 recorded at Boat Harbour and 108 at Long Reef. This small number has come from just one recorded observation at Newcastle Ocean Baths. However, 21 birds have been observed on offshore rocks, exposed at low tide, on Nobbys Island off Nobbys Head.

Recent observations for this study have recorded as many as 605 Silver Gulls on the NCC rock platforms. However, this is the sum of 215 gulls on the Newcastle Rock Platform, 41 on the Shepherds Hill Rock Platform and 349 gulls on the Merewether Rock Platforms. Thus

the numbers for the more comparable, individual Newcastle and Merewether Rock Platforms are similar to Long Reef and three times the number recorded at Boat Harbour.

Caspian Terns (>30), Common Terns (>250) and Crested Terns (>200) are in significantly higher numbers on NCC rock platforms compared to Boat Harbour and Long Reef. Many more Little Terns have been recorded at Boat Harbour than NCC rock platforms, but none have been recorded at Long Reef. The NCC rock platforms have greater numbers of White-winged Black Terns than Boat Harbour, but less than Long Reef.

Long Reef has recorded an exceptional number of 45 Grey-tailed Tattlers, compared to 2 at Boat Harbour and only 1 at Newcastle. As these are cryptic birds that will not often be observed on a casual basis, more tattlers may have been present on NCC rock platforms, especially on the less accessible parts of Shepherds Hill and Merewether Rock Platforms.

Double-banded Plovers and Pacific Golden Plovers are notably missing from NCC rock platforms, but can be expected to occur. Double-banded Plovers are often seen along Newcastle Bight but have rarely been seen in the nearby Hunter Estuary over the last 6 years of regular surveys. Pacific Golden Plovers are often seen in the estuary and along Newcastle Bight, north of the breakwater. They appear to prefer fairly secluded and undisturbed roost sites and probably would not often visit the NCC rock platforms.

All other birds recorded at Boat Harbour and Long Reef could potentially use the NCC rock platforms, but most of them are in small numbers.

8.0 DISCUSSION

8.1 POPULATION STATUS

8.1.1 Australian Pelican

Although regarded as a common resident in the Hunter Region, only 8 Australian Pelicans have been recorded on the NCC rock platforms, and then only on the Newcastle Rock Platform. Although it is a common bird there are limited foraging opportunities on the rock platforms for a large numbers. One pelican has been observed swimming along the seaward edge of the Newcastle Rock Platform during calm conditions. However, their main interest is waiting for fish scraps from fishermen (**Plate 8.5)**. The closest breeding areas are located at Pelican Island in Wallis Lake and in Brisbane Water.

8.1.2 Caspian Tern

Caspian Terns, regarded as residents, have been recorded only once from the Merewether Rock Platform where more than 30 were observed in 2001. Two other sightings were from Nobbys Beach, not the rock platforms. There are no breeding records for the Hunter Region.

8.1.3 Silver Gull and Crested Tern

Silver Gulls and Crested Terns are regarded as common residents (**Plate 4.1**). This is reflected by their presence in moderately large numbers on the NCC rock platforms (as many as 605 gulls and 232 terns). They are not known to breed along the NCC rock platforms, but do so in large numbers on Moon Island off the entrance to Lake Macquarie, and on Sandy Island, at the drop-off into Lake Macquarie. Moon Island supports as many as 1000 nesting pairs of Silver Gulls and 500 pairs of Crested Terns (Alan Morris pers. comm.).

8.1.4 Common Tern and Little Tern

More than 250 Common Terns and up to 16 Little Terns are summer migrants that are often observed roosting at the important Newcastle Ocean Baths roost (Roost A, **Figures 4.1** & **4.2**). Common Terns breed outside Australia, but Little Terns breed at Forster and The Entrance to the north and south of Newcastle respectively. Both breeding sites need active conservation management and intervention to maintain their viability. Little Terns have also bred historically at Dark Point and the Big Gibber north of Hawks Nest, and at Red Head. The most likely local area for them to breed in the future may be the rehabilitated Stockton Sandspit. Little Terns are listed as endangered under the NSW Threatened Species Conservation Act, 1995.

8.1.5 Kelp Gull and Pacific Gull

A single Kelp Gull has been reported on the Newcastle Rock Platform twice and a single Pacific Gull flying past has been reported only once. These should be regarded as rare, accidental visitors.

8.1.6 White-winged Black Tern

White-winged Black Terns are regarded as summer migrants. There is only one record of a bird on the rock platform, at Newcastle Ocean Baths, although as many as 30 have been observed flying around Newcastle Harbour. They should be regarded as accidental to the rock platform, being more likely to be observed roosting on navigation buoys and around the harbour foreshore or flying over the harbour. White-winged Black Terns normally breed in the northern hemisphere.

8.1.7 White-fronted Tern

White-fronted Terns are regarded as uncommon winter migrants (**Plate 4.1**). Most White-fronted Terns breed in New Zealand and migrate to southeastern Australia in winter. More than 17 have been observed roosting at Newcastle Ocean Baths, 20 on Stockton Breakwater and 40 on Stockton Beach.

8.1.8 Sooty Oystercatcher

Sooty Oystercatchers (**Plate 4.1**) are regarded as uncommon non-breeding residents in the Newcastle area and are listed as vulnerable under the NSW Threatened Species Conservation Act, 1995. A maximum of 23 have been observed on the NCC rock platforms during January 2006 (**Figures 8.1 & 8.2**). From the recent field observations it is likely that this population may have a home range extending southwards along the Lake Macquarie City Council rock platforms. Numbers tend to decline from July to October, during each year, before a gradual increase back to maximum numbers in January-February. Although this trend, shown on **Figure 8.1**, is supported by only a small amount of data, it is also evident for Boat Harbour, Long Reef and the Central Coast. This trend may indicate that the mature breeding birds leave the NCC rock platforms about August/September to breed on offshore islands (e.g. Moon Island). After breeding they return during late summer with their fledged offspring to join immature or non-breeding adults that have remained on mainland rock platforms during breeding activities. A similar movement trend has also been observed in Victoria where numbers increase from April to peak in July/August, and also in Tasmania where birds move to wintering mainland sites between March and September (Marchant and Higgins 1993). It is apparent that similar movements on the NCC rock platforms occur much earlier at Newcastle's warmer latitude (**Figure 8.1**).

A maximum of eight Sooty Oystercatchers was recorded during the 1990s (**Figure 8.2**), but from a low point of one in 2000 the number reported has increased each year to a maximum of 23 in 2006. Hopefully this indicates a real increase in breeding success in the region rather than simply an increase in the rate of observations (very slight). There may also be a similar increasing trend for the Central Coast (**Figure 8.2**).

Sometimes the total resident population of Sooty Oystercatchers can be observed foraging and roosting on the Newcastle Rock Platform. At other times they can be dispersed along the entire NCC rock platforms. At low tide they also forage along the Hunter River shoreline along Nobbys breakwall northeast of Horseshoe Beach, probably on Nobbys Island (where they were observed roosting at low tide after flying there), and on an oyster-bank off Stockton Sandspit. At high tide as many as eight roost on the Kooragang Dykes.

Sooty Oystercatchers generally breed on offshore islands or secluded headlands. However, offshore islands are absent from the Newcastle area. The nearest probable breeding site would be Moon Island, off Lake Macquarie where only one pair is reported to breed. Sooty Oystercatchers can, rarely, breed on sufficiently secluded headlands, but it is extremely unlikely that any of the shoreline between Nobbys Head and Burwood Beach would provide suitable conditions. A population of as many as 23 Sooty Oystercatchers has been recorded on the Central Coast (A. Morris pers. comm.). It is not known if this is an entirely separate population to the Newcastle/Lake Macquarie population, or if an interchange of individuals takes place. Again only one island is located off the Central Coast, Bird Island, which is known to support one breeding pair at any one time. Three islands off Port Stephens are about twice the distance from Newcastle as Moon Island and are separated by the continuous beach of Newcastle Bight that would provide no intervening foraging opportunities for Sooty Oystercatchers. Although interchange with the Port Stephens population is possible, it is more likely that the resident Port Stephens population of 18 Sooty Oystercatchers (Stuart 2004) would have priority use of these offshore islands (a breeding pair on each of the three islands is reported, Alan Morris pers. comm.). Broughton Island, even further north, supports at least two breeding pairs (pers. obs.).

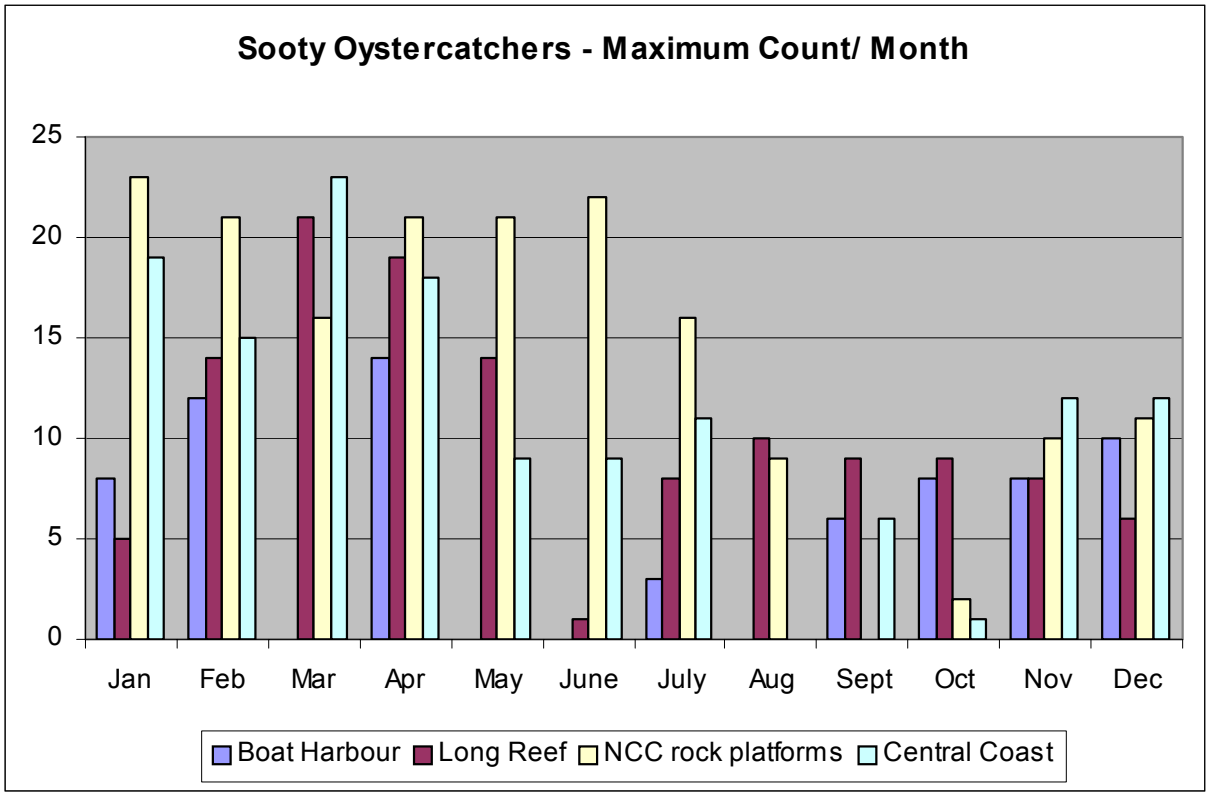


Figure 8.1 – Maximum Monthly Counts of Sooty Oystercatchers.

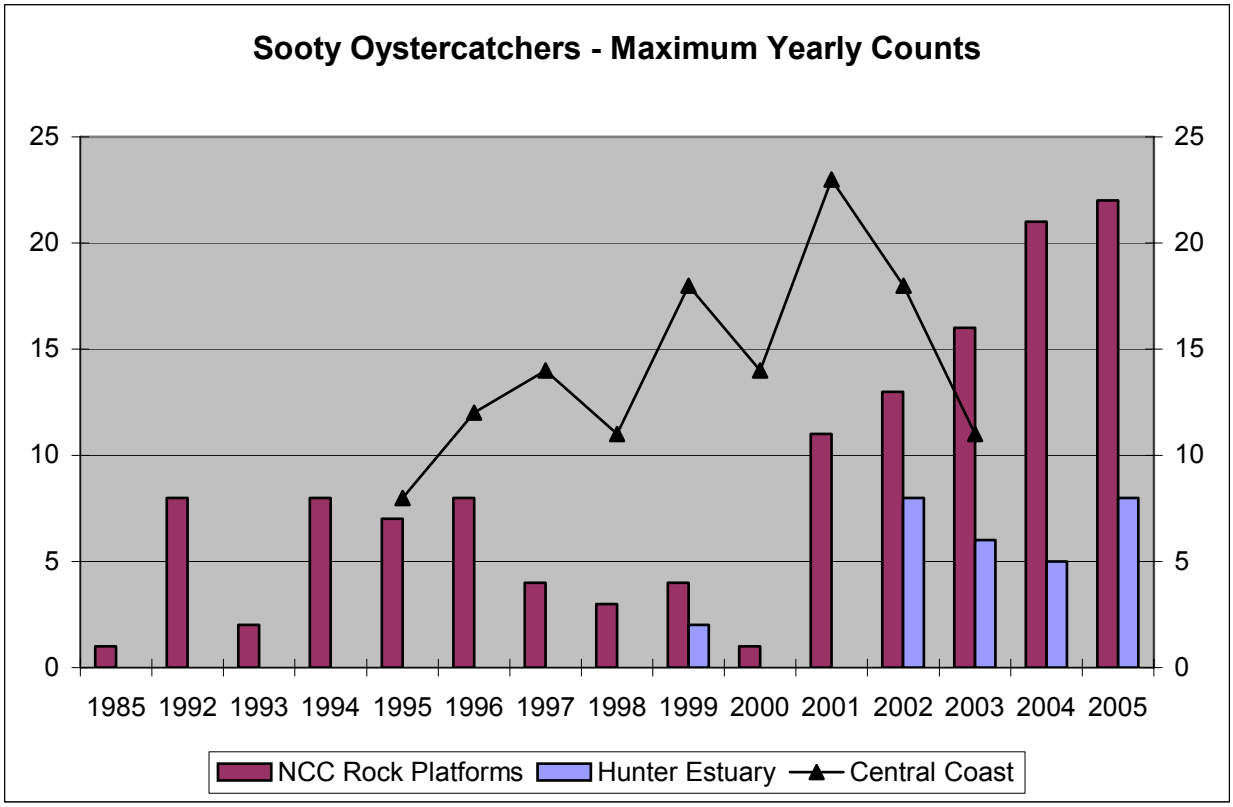


Figure 8.2 – Maximum Yearly Counts of Sooty Oystercatchers.

8.1.9 Grey-tailed Tattler and Red-necked Stint

Grey-tailed Tattler and Red-necked Stint are summer migratory waders and both breed in the northern hemisphere. One tattler and one to five stints have been recorded only a few times on the NCC rock platforms. However, because tattlers are cryptic and stints are both small and cryptic, they may have been under-reported, especially for the less observed Shepherds Hill Rock Platform and the southern part of the Merewether Rock Platform. As many as 21 Red-necked Stints were observed on Nobbys Island, an outcrop of rocks exposed at low tide off Nobbys Head. These shorebirds are protected under the Bonn Convention and international agreements with the governments of Japan (JAMBA) and China (CAMBA).

8.1.10 Ruddy Turnstone

The Ruddy Turnstone is regarded as an uncommon summer migrant as it breeds in the northern hemisphere (**Plate 4.1**). In some years as many as seven turnstones have been recorded over-wintering on the Newcastle Rock Platform. Turnstones are regularly recorded during summer with as many as 40 to 50 Ruddy Turnstones observed on the Newcastle Rock Platform and more than 20 observed on the adjacent Newcastle and Nobbys Beaches. A relatively large number of more than 50 turnstones, reported at Newcastle Ocean Baths in April 1994 (**Appendix 3**), were probably on-passage to their northern hemisphere breeding grounds as March/April is the usual departure period for migratory waders from the Hunter Estuary. This emphasizes the importance of Newcastle Ocean Baths Roost A as a stopover for the smaller migratory waders travelling northwards from Victoria. The Ruddy Turnstone is protected under the Bonn Convention and international agreements with the governments of Japan (JAMBA) and China (CAMBA).

8.1.11 Little Pied, Little Black and Great Cormorants

Little Pied, Little Black and Great Cormorants are regarded as common residents. They are reported in maximum numbers of only 2, 4 and 12 respectively. They breed away from the coast in a number of the Lower Hunter Region wetlands. They use the rock platforms as temporary roosts to dry their feathers and rest between fishing dives off the shoreline. Great Cormorants were observed roosting on power poles and light poles immediately above and behind the rock platforms and beaches (**Plate 4.1**). Only one Great Cormorant was observed, during the surveys, to roost directly on the rock platform.

8.1.12 Pied Cormorant

Pied Cormorants are regarded as usual residents in the Hunter Region. Between 6 and 20 birds have been recorded, mainly on surrounding beaches rather than on the rock platforms. Like other cormorants they nest in wetlands behind the coastline.

8.1.13 Eastern Reef Egret

A single dark phase Eastern Reef Egret has been recorded only a few times on the NCC rock platforms. Eastern Reef Egrets are regarded as rare in southeastern Australia. This species is not known to breed in the Newcastle area, but has been reported to breed on Moon Island to the south. Thus the NCC rock platforms may be at the northern end of the local reef egrets' foraging range.

8.1.14 White-faced Heron

White-faced Herons are common residents in the Hunter Region, but are not often recorded on the rock platforms. Only three birds have been observed foraging at any one time on NCC rock platforms. They nest away from the immediate coast.

8.1.15 Nankeen Kestrel

Nankeen Kestrels are regarded as usual residents in the Hunter Region and, although not a rock-platform frequenting bird, they are the only birds that have been noted to breed in the vicinity of the rock platform, specifically on cliffs immediately above the rock platform. T. Clarke (pers. comm. 2005) observed a pair of Nankeen Kestrels nesting on cliffs between Bar Beach and Susan Gilmore Beach a few years ago. Evidence for roosting and a possible nest site was identified during this study, about 200m north of Susan Gilmore Beach (**Figure 4.3**). As this is within half a kilometre of the previous nesting location, it indicates a degree of site faithfulness.

8.2 SIGNIFICANCE OF SITES

Most birds use the rock platforms for roosting. There are, in fact, few species in significant numbers that actually rely on the rock platforms for food. The main foraging species all year round is the Sooty Oystercatcher. Ruddy Turnstones are summer migrants that also forage on the rock platforms. Although large numbers of Silver Gulls are present, only a few forage specifically on the rock platform. Australian Pelicans forage on scraps from fishermen, not directly from the rock platform. Other foraging species, such as Eastern Reef Egret and White-faced Heron, are usually recorded as single birds.

The NCC rock platform system is a highly significant area for the Sooty Oystercatcher to forage and roost (**Figures 4.1** to **4.6**). Sooty Oystercatchers are listed as "Vulnerable" under the NSW Threatened Species Act, 1995. The NCC rock platforms support a maximum-recorded number of 23, comparable to other monitored oystercatcher locations at Boat Harbour, Long Reef, Central Coast and Port Stephens. These birds roost and forage in variable numbers at all three NCC rock platform systems studied (Newcastle, Shepherds Hill and Merewether Rock Platforms). NCC rock platforms are also significant for the migratory Ruddy Turnstone, having almost twice the number of turnstones recorded at either Boat Harbour or Long Reef.

The most significant and regularly used roost site is located on the Newcastle Rock Platform on the seaward side of Newcastle Ocean Baths, Roost A (**Figure 8.3, Plate 8.5**). In addition to the hundreds of Silver Gulls and Crested Terns, significant birds that roost there include Sooty Oystercatcher, Ruddy Turnstone, Red-necked Stint, Grey-tailed Tattler, Little Tern, Common Tern and White-fronted Tern. Other significant roosting areas are located south of Newcastle Baths, Roost B and Canoe Pool, Roost C (**Figure 8.3**). Another regularly used roost site for gulls and a few terns is located on the Merewether Rock Platform immediately north of the baths and the rock platform immediately north of Burwood Beach (Roost E & F, **Figures 4.5** & **4.6**). A significant roost site, just for Sooty Oystercatchers, is located on the Shepherds Hill Rock Platform, north of Susan Gilmore Beach (Roost D, **Figure 4.3**), where as many as 20 Sooty Oystercatchers have been observed (**Appendix 12**).

During surveys for this study, the most consistently utilized low-tide foraging area for all birds, particularly Sooty Oystercatchers, was located on the Newcastle Rock Platform between the Cowrie Hole and Soldiers Baths (**Figure 4.1**). In addition, previous observations and observations during this study indicate that Ruddy Turnstones forage consistently along the seaward edge of the rock platform adjacent to the Newcastle Ocean Baths. During this study, specific areas of the Shepherds Hill and Merewether Rock Platforms were observed as important low-tide foraging areas, but only for Sooty Oystercatchers. During low tide, Sooty Oystercatchers consistently used the area immediately north of Bar Beach on the Shepherds Hill Rock Platform for foraging (**Figure 4.4**). The area south of Merewether Ocean Baths was also used as a low-tide foraging area (**Figure 4.6**). All the favoured foraging sites were generally low-lying rock platforms that sloped gently seawards with complex indented shorefaces that lacked abrupt vertical seaward faces.

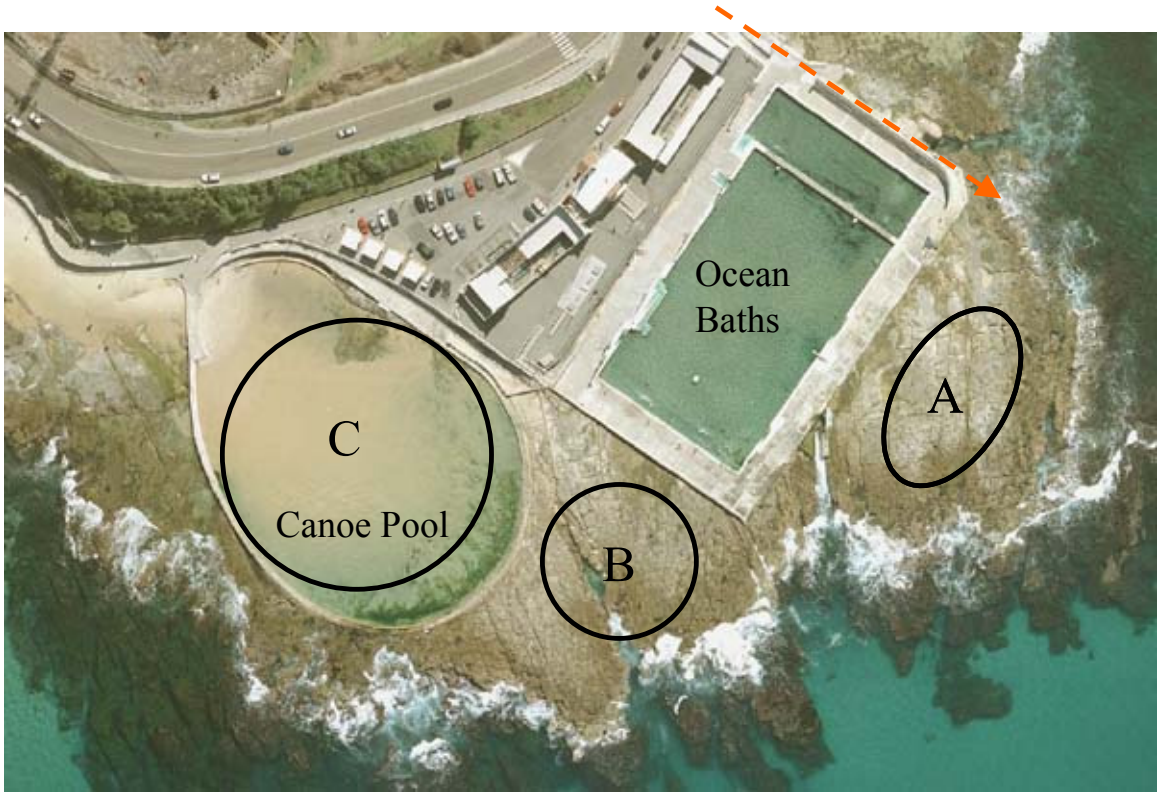


Figure 8.3 - Newcastle Ocean Baths roost sites.

A — Newcastle Ocean Baths Roost A

B — Roost when birds disturbed from Roost A

C — Roost for Gulls & Terns

Recommended rock platform access for surfers

In terms of overall bird species diversity and abundance, the Newcastle Rock Platform appears to be the most significant area. Merewether Rock Platform ranks second in importance and Shepherds Hill Rock Platform is least significant. Although the Shepherds Hill Rock Platform is generally low in overall bird diversity, the southern part is an important site for roosting and foraging Sooty Oystercatchers (**Figure 4.4**).

8.3 DIFFERENCES BETWEEN SITES

There appear to be significant differences in the diversity and abundance of birds using different parts of the NCC rock platforms. The Newcastle Rock Platform supports a considerably greater diversity of species and a greater abundance of birds of each species than Shepherds Hill or Merewether Rock Platforms (see **Sections 4.0** & **8.2**). Shepherds Hill Rock Platform, although the most extensive, the most inaccessible and the least disturbed of the three rock platforms, supports the least diversity and numbers of birds. This apparent paradox may be explained by both geographical and geological factors:

- The Newcastle Rock Platform is the closest part of the NCC rock platform system to the entrance of the Hunter Estuary. Therefore, it is in a prime position for birds moving between these habitats during tidal changes. The estuary also serves as a heavy weather and high-tide refuge for birds to move into from the coast, and provides a reservoir of birds that could move from the estuary to the coast during suitable conditions.
- The Newcastle Rock Platform is a low-lying peninsular backed by a relatively low-level hinterland. Roosting birds, therefore, have a relatively clear line-of-sight to their surroundings allowing early detection of approaching predators. A clear line-of-sight is an important factor for birds to feel secure. Removal of fringing mangroves from Stockton Sandspit re-established a clear line-of-sight to the river, encouraging the return of migratory waders to this roost.
- The area immediately around Merewether Baths is somewhat similar to the Newcastle Rock Platform and it ranks second in diversity and abundance for roosting birds. The remaining southern part of the Merewether Rock Platform is backed by high cliffs that obscure predator approach from the landward direction. Shepherds Hill Rock Platform is also backed by even higher, and more vertical, cliffs and correspondingly has the least diversity and abundance of birds.
- The Newcastle Rock Platform, north of the Cowrie Hole, is composed of thin-bedded, fine-grained sandstone that dips slightly seawards (**Plate 8.1**). This provides an extensive, gently seawards-sloping rock platform that supports a diverse and abundant invertebrate community, an ideal foraging habitat for rock-platform frequenting birds. A similar, low-lying but less extensive flat expanse of rock platform occurs on the Shepherds Hill Rock Platform, immediately north of the pipeline at the northern end of Bar Beach (**Plate 8.3**). In addition, a low area exists between the most southern rock platform segments on the Merewether Rock Platform (**Plate 8.4**). These low-lying areas supported most of the observed foraging activity.

  The Shepherds Hill Rock Platform from just south of Susan Gilmore Beach to north of Bogey Hole is generally slightly more elevated than most of the Newcastle Rock Platform and presents a blocky, vertically jointed sandstone edge to the sea with very little intertidal habitat for invertebrate biota (**Plate 8.2**). A large part of the Merewether Rock Platform south of Merewether Ocean Baths is somewhat similar. These geological conditions appear to provide limited foraging habitat for rock-platform frequenting birds.

Plate 8.1 – Newcastle Rock Platform between Cowrie Hole and Soldiers Baths, showing a gently seaward-sloping rock platform with a gradational shoreface.

Plate 8.2 – Shepherds Hill Rock Platform below Strzelecki Lookout, showing an elevated rock platform with an abrupt, vertically jointed shoreface.

Plate 8.3 – The Shepherds Hill Rock Platform, north of Merewether Beach, showing a low-lying area of the rock platform where foraging Sooty Oystercatchers have been observed.

Plate 8.4 – The Merewether Rock Platform, south of Merewether Ocean Baths, where foraging Sooty Oystercatchers have been observed.

- Sooty Oystercatchers appear to favour the lower, flatter, more extensive parts of the rock platforms, as outlined above, for foraging. However, they favour the higher parts of the rock platforms for roosting, which accounts for the high numbers of oystercatchers that have been observed around the Newcastle Ocean Baths (**Figure 4.2**) and on the Shepherds Hill Rock Platform immediately north of Susan Gilmore Beach (**Figure 4.3**).

8.4 THREATENING PROCESSES AND DISTURBANCES

8.4.1 People

People walking quietly past, rather than through, roosting birds generally produced very little direct disturbance. However, pairs and groups of people traversing the main roosting area on the seaward side of the Newcastle Ocean Baths, Roost A (**Figure 8.3**), repeatedly put birds to flight. People entered the roost area via the baths and also along the rock platform immediately south of the baths. During our observations a group of six young men deliberately ran through a flock of roosting gulls, terns and an oystercatcher putting them to flight. After repeated human disturbances the oystercatcher departed the Newcastle Rock Platform area completely and the gulls moved to the alternative Roosts B and C (**Figure 8.3**). The main problems are boisterous behaviour and either unthinkingly or sometimes deliberately walking or running (children and adults) straight through roosting or foraging birds instead of recognizing them and skirting around them.

8.4.2 Surfers

Surfboard riders not only surf off Newcastle beaches but also catch waves offshore from rock platforms. To launch their boards, they often traverse the rock platform itself, sometimes disturbing the birds (**Plate 8.5**). There are a number of launching spots along the rock platform.

A well-used launching spot exists on the Newcastle Rock Platform on the seaward side of Newcastle Ocean Baths. Surfers walk and run from the baths or along the edge of the rock platform behind the seating area along the northern end of the baths. They cross the platform to the seaward edge and wait for the right conditions before diving into the sea. In doing so they pass within a few metres of the most significant roost site along the entire NCC rock platform and often put the birds to flight (Roost A, **Figure 8.3, Plate 8.5**). This represents a recurring disturbance that is dependant on the level of boisterousness and the number of surfers at any one time. It is particularly a problem during school holidays and the warmer months when surfing activity increases. Other launching spots exist at the southern end of Nobbys Beach where surfers run out along the rocks at Soldiers Baths to launch into the surf at the seaward limit of the platform. Repeated disturbances such as this render the area difficult for birds to roost or forage with any continuity. Similarly, surfers launch off rocks adjacent to the Canoe Pool at the northern end of Newcastle Beach. However, in this case, there appears to be no significant disturbance to birds roosting in the pool or on the adjacent rock platform, probably because the surfers enter the water where they are partially obscured by the Canoe Pool retaining wall (Roosts B & C, **Figure 8.3**).

No specific observations of disturbances to birds were undertaken during HBOCs summer surveys.

8.4.3 Rock fishermen

During surveys for this study, rock fishermen were observed displacing three foraging Sooty Oystercatchers from the northern end of Bar Beach by walking towards and past them. When

Dog on Newcastle Rock Platform near Cowrie Hole.

Pelicans waiting for scraps from fishermen on Newcastle Rock Platform near Cowrie

Observing roosting birds at Roost A on the seaward side of Newcastle Ocean Baths.

Surfers disturbing birds at Roost A on Newcastle Rock Platform.

Plate 8.5 - Aspects of the Newcastle Rock Platform

several fishermen occupied a length of the rock platform shoreline simultaneously, oystercatchers were often displaced and departed that area. However, in other areas oystercatchers were seen to roost and forage within 20m of individual fishermen who were quietly fishing or not moving directly towards the birds. In contrast, pelicans deliberately wait close to rock fishermen in the hope of obtaining fish scraps (**Plate 8.5**).

8.4.4 Dogs

Dog prints on sand on the rock platforms were observed at the northern end of Bar Beach, on Susan Gilmore Beach and on the rock platform south of Merewether Baths. Dogs were observed at Cowrie Hole (**Plate 8.5**) and Bar Beach and have been observed chasing birds. All these areas were sign-posted as banning dogs.

8.4.5 Natural predators

Only one instance of disturbance by a natural predator was observed during the field study (Day 3, **Appendix 2**), when a White-bellied Sea-Eagle flew high over the Newcastle Rock Platform. It came over the Newcastle central business district from the direction of the Hunter Estuary, which is only about 500m to the west. Roosting gulls and terns took to the air in panic; many seconds before the eagle was detected by us as the cause of the disturbance. After the eagle passed out to sea the birds congregated in greater numbers at a few roost sites, notably Roost A beside Newcastle Ocean Baths.

8.4.6 High tides and heavy weather

During periods of high and, especially, very high tides and heavy wave action most of the rock platforms are inundated and may become untenable for any birds to roost or forage. During the Hunter Bird Observers Club monthly wader counts, as many as eight Sooty Oystercatchers have been observed roosting on the Kooragang Dykes at high tide. As this number of birds is similar to the number sometimes observed on the rock platforms, it is probable that the oystercatchers fly up the Hunter Estuary to roost on the Dykes when the rock platforms are untenable. During high tide and moderate seas, on Day 2 of observations, four Sooty Oystercatchers were observed roosting on the Kooragang Dykes while there were only two oystercatchers on the entire NCC rock platform (**Appendix 2**).

During the Day 1 survey, we observed all 16 oystercatchers flying south, away from the NCC rock platforms towards rock platforms south of Burwood Beach. Only six birds were observed on Day 2. Therefore, it is likely that the other 10 birds may have been on the rock platforms in the Little Redhead or in the Dudley to Redhead areas, even as far south as Moon Island and Swansea Heads. It is possible that the Lake Macquarie City Council rock platforms may also be hosts to the Sooty Oystercatchers that inhabit the NCC rock platforms.

8.4.7 Human foraging

Because rock platforms in the Sydney region are in close proximity to a large human population they are being denuded of invertebrate biota by the indiscriminate removal of shellfish, crabs and sea urchins for human consumption, regardless of bag limits. Harvesting this biota is vital for the survival of foraging rock platform species such as Sooty Oystercatchers but is not vital for the survival of humans in this area and at this time in Australia. This activity is really a cultural phenomenon generally restricted to a few ethnic groups. The author is not aware of similar problems in the Newcastle area. However, if this does occur, or is allowed to happen, it would be of serious concern for the survival of rock-platform foraging birds.

9.0 CONCLUSIONS

9.1 MANAGEMENT OPTIONS AND RECOMMENDATIONS

The NCC rock platforms are heavily used by humans. This is especially the case for the entire Newcastle Rock Platform; for parts of the Shepherds Hill Rock Platform, between Bar Beach and Susan Gilmore Beach; and the Merewether Rock Platform, north of Merewether Ocean Baths. However, despite the high level of human use, these areas support a significant diversity of species and abundance of birds.

- Consideration should be given to providing protection for the vulnerable Roosts A and B (**Figure 8.3**) on the seaward side of Newcastle Ocean Baths to prevent repeated disturbance by people walking or running through the roosting birds. Facilities to allow viewing without disturbing the birds could also be considered. At the very least it is recommended that interpretive information signs be erected at that location. These roost sites offer a spectacular display of biodiversity that is of significant educational and aesthetic value. It is a well-known bird watching site not only for local birdwatchers but also for birdwatchers from Sydney and interstate. The lack of signage about birds at Newcastle Rock Platform is in contrast to Cairns City, which has constructed an extensive esplanade boardwalk, supported by a plethora of interpretive signs, to direct tourists to view bird life along the shoreline mudflats. This feature attracts thousands of Australian and international tourists each year. During the compilation of this report the author had the opportunity to visit the Cairns Esplanade during July. Dozens of people were using the esplanade and, at this time of the year, there were less than a hundred birds of about half a dozen species. In comparison the Newcastle Rock Platform, visible from the Shortland Esplanade and the Ocean Baths, often had many hundreds of birds totaling as many as 10 species. Displays of biodiversity and abundance such as this, in addition to the recently rehabilitated Stockton Sandspit, are spectacular, but unrealized, avian assets for ecotourism that are virtually ignored in the Hunter Region.

- There is a need to educate surfers that cross rock platforms, to launch into the surf, to avoid running through roosting and foraging birds, and to skirt around them without disturbing them. The most significant area of disturbance by surfers, noted during surveys for this report, occurs at the Newcastle Ocean Baths (**Plate 8.5**). Consideration should be given to preventing surfers from crossing the rock platform directly from the baths and then through the important Roost A. This can be achieved by encouraging access, from the parking area at the northern end of the baths' pavilion, through a properly constructed opening in the fence (**Figure 8.3**). Suitable signs should guide surfers along the edge of the rock platform behind the baths seating area so that they do not need to access the rock platform directly from the baths.

- Fishermen should be educated to regard oystercatchers as they would fellow fishermen, by respecting their space, by not approaching within 25m and by walking around, not through, roosting and foraging birds. Fishermen could be recruited by informing them of the birds' vulnerable status and encouraging them to adopt the birds as a symbol of the health of the rock platform. They may adopt a sense of protection and ownership of the birds' welfare, and even discourage other people from disturbing them. Sooty Oystercatchers could be promoted as a readily recognized symbol of the health of the NCC rock platforms.

- Consideration should be given to banning the collection of shellfish, crabs and sea urchins etc. from the entire area of the Newcastle Rock Platform and from the favoured foraging areas of the Sooty Oystercatchers on the Shepherds Hill and Merewether Rock Platforms (see Plates 8.3 & 8.4).

- Even though there are adequate signs banning dogs from entry onto beaches, evidence of dogs on some beaches and rock platforms was noted (**Plate 8.5**). This indicates that more policing of the regulations banning dogs should be undertaken and that perhaps signs are needed that specifically ban dogs from the rock platforms in addition to the beaches.

- It is recommended that an education/information campaign be instigated so that the public can more fully understand the ecology of the rock platform environment, including both invertebrate and avian biota. This could be achieved through published articles, guided rock platform walks and interpretive signage in appropriate locations.

Signs should be erected informing people of the presence of vulnerable and migratory birds, the importance of avoiding disturbance to roosting and foraging birds, especially (Sooty Oystercatchers), and to avoid collecting invertebrate biota. They could be placed at entries to the rock platforms and where people congregate, as suggested below:

- Shortland Esplanade - at entry points to the Newcastle Rock Platform north of Newcastle Ocean Baths;
- At Newcastle Ocean Baths to encourage people to avoid disturbing roosting birds at Roosts A and B;
- At base of entry steps to Bogey Hole for fishermen and platform strollers;
- Northern end of Susan Gilmore Beach, at start of rock platform, which is used by roosting Sooty Oystercatchers;
- Northern end of Bar Beach, at start of rock platform;
- At entry to Merewether Ocean Baths; and
- Immediately south of Merewether Ocean Baths at start of southern part of rock platform.

In summary, it is recommended that the following be considered:

- specific protection of the Newcastle Ocean Baths roost sites;

- possible facilities for viewing roost sites;

- banning the harvesting of benthic biota from the entire Newcastle Rock Platform and certain sections of the other rock platforms;

- a public education campaign about rock-platform frequenting birds; and

- erection of interpretive signs about birds to make people aware that they are not the only ones using the rock platforms.

Meaningful decisions concerning the management of birds cannot be made without reliable data. This report has attempted to pull together historical information and generate new information. However, the total of six days of winter and summer observations provided only enough data for tentative conclusions concerning avian and human behaviour. On the other hand, it provided interesting numerical information regarding use of the rock platforms, particularly for the resident wader, the Sooty Oystercatcher. Historical records for individual species have been sporadic and, except for HBOC observations, abundances have rarely been recorded. It is obvious, especially for the Shepherds Hill and Merewether Rock Platforms, that birds frequenting the rock platforms have been under reported. It is strongly suggested that regular surveys of birds using the rock platforms, in association with monitoring threats and disturbances at various times of the year, are required for an adequate understanding for ongoing management decisions.

10.0 ACKNOWLEDGEMENTS

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APPENDICES

Appendix 1 – Scientific Names

Common name	Scientific name
Australian Pelican	*Pelecanus conspicillatus*
Bar-tailed Godwit	*Limosa lapponica*
Caspian Tern	*Sterna caspia*
Common Tern	*Sterna hirundo*
Crested Tern	*Sterna bergii*
Curlew Sandpiper	*Calidris ferruginea*
Double-banded Plover	*Charadrius bicinctus*
Eastern Reef Egret	*Ardea sacra*
Great Cormorant	*Phalacrocorax carbo*
Grey-tailed Tattler	*Heteroscelus brevipes*
Intermediate Egret	*Ardea intermedia*
Kelp Gull	*Larus dominicanus*
Large Sand Plover	*Charadrius leschenaultii*
Lesser Sand Plover	*Charadrius mongolus*
Little Black Cormorant	*Phalacrocorax sulcirostris*
Little Pied Cormorant	*Phalacrocorax melanoleucos*
Little Penguin	*Eudyptula minor*
Little Tern	*Sterna albifrons*
Masked Lapwing	*Vanellus miles*
Nankeen Kestrel	*Falco cenchroides*
Pacific Golden Plover	*Pluvialis fulva*
Pacific Gull	*Larus pacificus*
Pied Cormorant	*Phalacrocorax varius*
Pied Oystercatcher	*Haematopus longirostris*
Red-necked Stint	*Calidris ruficollis*
Ruddy Turnstone	*Arenaria interpres*
Sanderling	*Calidris alba*
Sharp-tailed Sandpiper	*Calidris acuminata*
Silver Gull	*Larus novaehollandiae*
Sooty Oystercatcher	*Haematopus fuliginosus*
Striated Heron	*Butorides striatus*
Whimbrel	*Numenius phaeopus*
Whiskered Tern	*Chlidonias hybridus*
White-bellied Sea-Eagle	*Haliaeetus leucogaster*
White-faced Heron	*Ardea novaehollandiae*
White-fronted Tern	*Sterna striata*
White-winged Black Tern	*Chlidonias leucopterus*

Appendix 2 - Hunter Bird Observers Club Observations for this Study

Day 1 – Monday 4 July 2005

High tide 6.50am, 1.20m (Fort Denison)
Low tide 12.15pm, 0.58m (Fort Denison)
Weather – clear and sunny to over cast in afternoon, light southeasterly breeze, cool.

High-tide Observations (8.15am – 10.10am)

Only 6 species were recorded on the rock platforms - Sooty Oystercatchers (16), Silver Gulls (323), Crested Terns (120), Little Pied Cormorant (1), White-faced Heron (1), Australian Pelicans (8); and 3 species were recorded in the immediate vicinity - Willie Wagtail (1), Great Cormorants (6), Nankeen Kestrel (1).

Newcastle Rock Platform (9.15-9.30am)

Sooty Oystercatchers (1):
1 at Ocean Baths, roosting
Silver Gulls (162):
14 at Cowrie Hole, roosting and some drinking from storm-water outlet on beach
103 at Ocean Baths, roosting
55 in Canoe Pool, roosting in shallow water
Crested Terns (114):
111 at Ocean Baths, roosting
3 in Canoe Pool, roosting in shallow water
Little Pied Cormorant (1):
1 north of Cowrie Hole, roosting
Australian Pelicans (8):
8 north of Cowrie Hole, roosting and watching rock fisherman
White Faced Heron (1):
1 north of Cowrie Hole, foraging

Shepherds Hill Rock Platform (10.00-10.10am)

Sooty Oystercatchers (9):
1 immediately north of Bogey Hole, roosting
8 north of Susan Gilmore Beach, 5 roosting, 3 foraging
Silver Gulls (10):
1 below Shepherds Hill, roosting
4 north of Bogey Hole, roosting
2 south of Bogey Hole, roosting on cliff
3 north of Susan Gilmore Beach, roosting
Great Cormorants (2):
2 at Bogey Hole, roosting on power poles on the edge of the road above the Bogey Hole
Nankeen Kestrel (1):
1 at Bogey Hole, perched on power line along road

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Merewether Rock Platform (8.30am)

Sooty Oystercatchers (6):
1 Merewether Baths, foraging
5 at north end of Burwood Beach, all foraging
Silver Gulls (141):
139 Merewether Baths, roosting
2 at northern end Burwood Beach, roosting
Crested Terns (6):
6 at Merewether Baths, roosting
Willie Wagtail (1):
1 at Merewether Baths, perching on No.1 starting block, seaward side
Great Cormorants (4):
3 at Merewether Baths, roosting on power poles
1 north of Merewether Baths, roosting on power pole on Frederick Street

Low-Tide Observations (10.10am-3.30pm)

To observe low-tide activities the rock platforms were examined on foot. At about mid-tide it was evident that most of the rock-platform-frequenting birds were switching from mainly roosting to a foraging/loafing cycle of activity.

Five species were recorded on the rock platforms - Sooty Oystercatchers (7 reducing to 0), Silver Gulls (264), Crested Terns (135), Little Pied Cormorant (2), and Australian Pelicans (4).
Sooty Oystercatchers had a tendency to move south along the rock platforms during the low-tide period and by late in the afternoon, on the rising tide, all Oystercatchers had flown completely out of the study area to places south of Burwood Beach.

Newcastle Rock Platform (2.10pm, 3.05pm)

Sooty Oystercatchers (2):
1 at Soldiers Baths, loafing, flew to roost at Newcastle Baths at 2.11pm.
1 at Ocean Baths, roosting, departed and flew south after repeated disturbance.
Silver Gulls (225):
8 near Soldiers Baths (2.10pm), roosting
217 at Ocean Baths ("roost b" and Canoe Pool), roosting
Crested Terns (110):
107 at Ocean Baths, ("roost b" and Canoe Poll. roosting
3 near Soldiers Baths, roosting
Little Pied Cormorant (1):
1 near Soldiers Baths, roosting
Australian Pelicans (4):
4 near Cowrie Hole, watching 2 rock fishermen

Shepherds Hill Rock Platform (11.00am, 12.00-12.20pm)

Sooty Oystercatchers (6):
6 at northern end of Bar Beach, 5 foraging, 1 roosting
2 later at northern end of Bar Beach, foraging
Silver Gulls (12):
12 at northern end Bar Beach, roosting
Little Pied Cormorant (1):
1 below Shepherds Hill, roosting

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Merewether Rock Platform (12.35pm)

Silver Gulls (35):
35 at Merewether Baths, roosting
Crested Terns (28):
28 at Merewether Baths, roosting

Observed movements: Of the 6 Sooty Oystercatchers observed at the northern end of Bar Beach at 11.00am only 2 remained at 12.20pm. Therefore, 4 birds must have departed to the south as they were not observed flying past the observers located to the north of them. One Sooty Oystercatcher flew south past Merewether Baths at 12.30pm (probably from the Bogey Hole) and another two Sooty Oystercatchers flew south of Merewether Baths at 12.37pm (probably from the northern end of Bar Beach). Examination of the rock platforms south of Merewether Baths after 12.37pm revealed no Sooty Oystercatchers (12.37-1.35pm). After this time only one Sooty Oystercatcher remained in the study area at Newcastle Baths. This bird departed at 3.05pm after repeated disturbance by humans and flew south. Its destination was not determined.

Day 2 – Friday 15 July 2005

High tide 2.40pm, 1.40m (Fort Denison)
Low tide 8.00am, 0.5m (Fort Denison)
Weather – Clear and sunny changing to overcast and showers in afternoon, cool with a moderate westerly wind. After a period of very bad weather and high seas.

Low-tide Observations (9.20-10.30am)

Six species were recorded on the rock platforms - Sooty Oystercatchers (2), Silver Gulls (188), Crested Terns (149), Little Black Cormorant (2), Little Pied Cormorant (1), Australian Pelican (3); and 2 species in the immediate vicinity - Great Cormorants (6), Nankeen Kestrel (1).

Newcastle Rock Platform (10.00-10.10am)

Silver Gulls (116):
35 east of baths, roosting
12 on landward rim of baths, roosting
9 north of baths, foraging
18 in wading pool, bathing and roosting
42 between baths and Canoe Pool, roosting
Crested Tern (137):
45 east of baths roosting
2 bathing in Canoe Pool
90 between baths and Canoe Pool, roosting
Little Black Cormorant (2):
2 north of baths, roosting
Australian Pelican (3):
3 north of baths, roosting

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Shepherds Hill Rock Platform (9.50-10.00am, 10.25-10.30am)

Silver Gulls (7):
2 south of Bogey Hole (9.50am), foraging
7 south of Bogey Hole (10.29), foraging
Great Cormorants (2):
2 roosting on power poles along Shortland Esplanade above Bogey Hole (10.29am)

Merewether Rock Platform (9.20-9.30am)

Sooty Oystercatchers (2):
2 foraging on southern platforms, foraging
Silver Gulls (65):
6 at southern platforms, foraging
52 north of baths, roosting
7 south of baths, roosting
Crested Terns (12):
12 north of baths, roosting
Little Black Cormorant (1):
1 north of baths, roosting
Little Pied Cormorant (1):
1 north of baths, roosting

High-tide Observations (2.00pm-2.40pm)

Newcastle Rock Platform (2.06pm)

Most of the rock platform north of the baths was awash. Only Silver Gulls and Crested Terns were roosting on seaward side of the baths, "roost a" Figure X. Not counted.

Shepherds Hill Rock Platform (2.16-2.25pm)

Most of rock platform was awash.
Silver Gull (1):
1 roosting at Bogey Hole.
Nankeen Kestrel:
1 perched on power pole at Bar Beach

Merewether Rock Platform (2.28-2.40pm)

Most of rock platform awash except for area immediately south of baths.
Sooty Oystercatchers:
2 immediately south of baths, 1 roosting, 1 foraging
Silver Gulls:
4 on southernmost platform
Great Cormorant:
1 on power pole at baths

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Day 3 – Thursday 21 July 2005

High tide 8.00am, 1.34m (Fort Denison)
Low tide 1.31pm, 0.37m (Fort Denison)
Weather – over-cast and showers in morning to clear and sunny, then over-cast in late afternoon, light southeasterly breeze, cool to warm.

High-tide Observations (9.09am – 10.22am)

As most of the rock platforms were inundated by high tide and wave-swept to varying degrees there were only 4 species recorded, and these were all on the Newcastle Rock Platform - Silver Gulls (119), Crested Terns (44), White-fronted Terns (5), Ruddy Turnstone (1), and 2 species in the immediate vicinity - Great Cormorants (1), and Australian Pelicans (2).

Newcastle Rock Platform (9.49-10.22am)

Silver Gulls (84):
10 at Cowrie Hole, roosting and some drinking from stormwater outlet on beach
14 at Ocean Baths, roosting on concrete margin of pool
14 on seaward side of Ocean Baths ("roost a"), roosting
14 on terrace between pool and building, prospecting for food from people.
32 on margin of Canoe Pool, roosting
Crested Terns (42):
40 at Ocean Baths ("roost a"and margin of baths), roosting
2 at Canoe Pool, bathing
White-fronted Terns (5):
5 at Ocean Baths ("roost a and margin of baths), roosting
Ruddy Turnstone (1):
1 on seaward side of the Ocean Baths, foraging
Pelicans (2):
2 near stormwater drain onto beach between Cowrie Hole and Ocean Baths

Shepherds Hill Rock Platform (9.29-9.42am, 10.29-11.00am)
No birds on rock platform, most of platform inundated or swept by spray.

Great Cormorants (1):
1 at Bogey Hole, roosting on power poles at northern end of Bogey Hole

Merewether Rock Platform (9.09-9.22am)
Rock platform largely inundated.

Silver Gulls (35):
35 at Merewether Baths, roosting on beach immediately north of baths
Crested Terns (2):
2 at Merewether Baths, roosting with gulls
Great Cormorants (1):
1 at northern end of Merewether Baths, roosting on power pole

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Low-Tide Observations (11.53am-3.50pm)

Nine species were recorded at low tide. The majority of these were on the Newcastle Rock Platform – Sooty Oystercatchers (3), Silver Gulls (145), Crested Terns (232), White-fronted Terns (2), Ruddy Turnstone (1), Little Pied Cormorant (1), Little Black Cormorant (2), Australian Pelicans (8), White-faced Heron (1), and 1 species in the immediate vicinity, Great Cormorants (9).

Newcastle Rock Platform (12.07pm-1.10pm, 2.20-2.57pm)
A large degree of bird movements caused by change to foraging locations, people disturbance and natural predator disturbance (White-bellied Sea Eagle).

Sooty Oystercatchers (3):
3 at Soldiers Baths, foraging (2 adults and 1 juvenile arrived late afternoon after being disturbed by people from foraging at Shepherds Hill Rock Platform at 2.30pm).
Silver Gulls (116):
30 at Ocean Baths ("roost a"), roosting
40 at Canoe Pool, roosting on sand and in water
46 on rock platform between Ocean Baths and Soldiers Baths
Crested Terns (231):
114 at Ocean Baths ("roost a"), roosting
2 at Canoe Pool, bathing
115 at Soldiers Baths end of rock platform, roosting
White-fronted Terns (2):
2 at Ocean Baths ("roost a"), roosting
Ruddy Turnstone (1):
1 at the northern end and seaward side of the Ocean Baths, foraging
Little Pied Cormorant (1):
1 at the Soldiers Baths end of the platform, roosting
Little Black Cormorant (1):
1 at the Soldiers Baths end of the platform, roosting
Great Cormorant (3):
3 at the Soldiers Baths end of the rock platform, roosting
Pelicans (8):
8 near Cowrie Hole, watching 3 rock fishermen
White-faced Heron (1):
1 at the Soldiers Baths end of the platform, foraging

Shepherds Hill Rock Platform (2.25-3.00pm)

Sooty Oystercatchers (3):
3 between Bar Beach and Susan Gilmore Beach, foraging, 2 adults and 1 juvenile, disturbed by 3 people at 2.30pm, all 3 flew north to the northern end of the Newcastle Rock Platform
Little Black Cormorant (1):
1 on pole at southern end of rock platform, roosting
Great Cormorant (1):
1 on power pole behind beach near shelter shed, roosting

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Merewether Rock Platform (3.30-3.50pm)

Silver Gulls (29):
11 in shallow water at edge of The Ladies Baths, loafing
17 on platform immediately north of Merewether Baths, roosting
1 on platform south of baths near pipeline, loafing
Crested Terns (1):
1 on platform immediately north of Merewether Baths, roosting
Great Cormorant (5):
5 on power poles, 2 per pole at either end of shed and 1 at northern end of baths, roosting

Day 4 – Saturday 28 January 2006

High tide 7.57am, 1.84m (Fort Denison)
Low tide 2.46pm, 0.21m (Fort Denison)
Weather – clear and sunny, strong northeasterly breeze, warm.

Low-Tide Observations (1.25pm - 3.30pm)

Eight species were recorded on the rock platforms - Sooty Oystercatchers (10), Silver Gulls (605), Crested Terns (51), Little Pied Cormorant (1), Little Black Cormorant (1), Great Cormorant (1, 9 on poles), Australian Pelicans (6), Eastern Reef Egret (1). The Nankeen Kestrel is not included as a rock platform bird.

Newcastle Rock Platform (1.25pm, 3.05pm)

Sooty Oystercatchers (6):
All 6 foraging at Soldiers Baths end of rock platform.
Silver Gulls (215):
111 Cowrie Hole to Soldiers Baths, roosting and foraging
101 at Ocean Baths (Roost A), roosting
3 at Ocean Baths (Roost B), roosting
Crested Terns (51):
31 at Ocean Baths, (Roost A), roosting
20 Cowrie Hole to Soldiers Baths, roosting
Little Pied Cormorant (1):
1 near Soldiers Baths, roosting and later fishing at platform margin
Little Black Cormorant (1)
1 at Soldiers Baths, roosting
Great Cormorant (4)
3 along Shortland Esplanade, roosting on light poles
1 Soldiers Baths, roosting on platform
Australian Pelicans (6):
5 Cowrie Hole to Soldiers Baths roosting, 1 foraging in seaside margin of rock platform

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Shepherds Hill Rock Platform (2.00pm – 2.20pm)

Silver Gulls (41):
1 Between Bogey Hole and Susan Gilmore Beach
40 at northern end Bar Beach, mainly roosting, some foraging
Great Cormorant (3):
3 Bogey Hole, roosting on power poles
Nankeen Kestrel (1)
1 hunting on slopes above Bogey Hole

Merewether Rock Platform (2.25 – 3.15pm)

Sooty Oystercatchers (4)
4 in usual foraging area (see Plate 8.4)
Silver Gulls (349):
49 at Merewether Baths, roosting
300 on platform immediately north of Burwood Beach
Great Cormorant (3):
3 Merewether Baths, roosting on power poles
Eastern Reef Egret (dark phase, 1)
1 on platform immediately north of Burwood Beach

Day 5 – Sunday 29 January 2006

High tide 8.48am, 1.95m (Fort Denison)
Low tide 3.34pm, 0.12m (Fort Denison)
Weather – clear and sunny, gentle increasing to moderate northeasterly breeze, warm.

High-tide Observations (8.30am – 11.00am)

Only 6 species were recorded on the rock platforms - Sooty Oystercatchers (21), Ruddy Turnstones (9), Silver Gulls (281), Crested Terns (22), Little Pied Cormorant (1), and Great Cormorants (1). An additional Sooty Oystercatcher was observed roosting on the Kooragang Dykes in the Hunter Estuary upstream of Stockton Bridge at 11.00am.

Newcastle Rock Platform (8.30 – 8.45am)

Sooty Oystercatchers (7):
7 at Ocean Baths, Roost B – disturbed by little boy and flew to Roost A
Ruddy Turnstones (9):
9 at Roost A
Silver Gulls (79):
15 at Roost A
64 at Roost B
Crested Terns (22):
22 at Roost A
Little Pied Cormorant (1):
1 roosting on Ocean Baths seating steps

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Shepherds Hill Rock Platform (8.57am – 9.35am)

Sooty Oystercatchers (14):
14 about half way between Bogey Hole and Susan Gilmore Beach, roosting
Silver Gulls (7):
1 Bogey Hole, roosting
6 platform between Susan Gilmore and Bar Beaches, roosting
Great Cormorants (5):
2 at Bogey Hole, roosting on power poles on the road above the Bogey Hole
3 at Bar Beach on power poles

Merewether Rock Platform (9.45am – 9.50am)

Silver Gulls (195):
195 platform immediately north of Burwood Beach, roosting
16 on sand north of baths, roosting
Crested Terns (1):
1 platform immediately north of Burwood Beach, roosting
Great Cormorants (1):
1 at Merewether Baths, roosting on light pole

Low-Tide Observations (1.14pm – 2.55pm)

Six species were recorded on the rock platforms - Sooty Oystercatchers (16), Silver Gulls (569), Crested Terns (38), Little Pied Cormorant (1), Great Cormorants (12) and Australian Pelican (1). Five Sooty Oystercatchers and 17 Ruddy Turnstones were observed foraging from 12.25 to 1.05pm along the river shoreline and Nobbys seawall north of Horseshoe Beach. At 1.06pm a single Sooty Oystercatcher was observed to fly from the direction of the river shoreline along Nobbys over the beach to the Newcastle Rock Platform.

Newcastle Rock Platform (1.14pm – 1.45pm)

Sooty Oystercatchers (16):
16 foraging between Cowrie Hole and Soldiers Baths
Silver Gulls (231):
211 Cowrie Hole to Soldiers Baths, roosting and foraging
12 at Ocean Baths, roosting on concrete around pool
8 at Ocean Baths (Roost B), roosting
Crested Terns (35):
35 Cowrie Hole to Soldiers Baths, roosting
Little Pied Cormorant (2):
2 Cowrie Hole to Soldiers Baths, roosting
Great Cormorant (2)
2 along Shortland Esplanade, roosting on light poles
Australian Pelicans (1):
1 Cowrie Hole to Soldiers Baths roosting

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Shepherds Hill Rock Platform (2.05pm – 2.25pm)

Silver Gulls (40):
5 between Bogey Hole and Susan Gilmore Beach
35 at northern end Bar Beach, mainly roosting, some foraging
Great Cormorant (5):
3 Bogey Hole, roosting on power poles
3 Bar Beach, roosting on power poles

Merewether Rock Platform (2.31pm – 3.55pm)

Silver Gulls (298):
47 at Merewether Baths, roosting
251 on platform immediately north of Burwood Beach
Crested Terns (3):
2 at Merewether Baths, roosting
1 on platform immediately north of Burwood Beach
Great Cormorant (5):
5 Merewether Baths, roosting on power poles

Day 6 – Monday 30 January 2006

High tide 9.38am, 2.01m (Fort Denison)
Low tide 4.20pm, 0.07m (Fort Denison)
Weather – clear and sunny, gentle increasing to moderate northeasterly breeze, warm.

High-tide Observations (9.30am – 11.50am)

Only 5 species were recorded on the rock platforms - Sooty Oystercatchers (11), Silver Gulls (67), Crested Terns (5), Great Cormorants (7) and Eastern Reef Egret (1). An additional 2 Sooty Oystercatchers were observed roosting on the Kooragang Dykes in the Hunter Estuary upstream of Stockton Bridge at 11.40am. A total of 15 Ruddy Turnstones were observed roosting along the river shoreline and Nobbys seawall north of Horseshoe Beach.

Newcastle Rock Platform (10.18am – 10.23am)

Silver Gulls (17):
10 at Roost A
4 at Roost B
3 at Canoe Pool
Crested Terns (5):
2 at Roost A
3 at Roost B
Great Cormorants (4):
4 Shortland Esplanade on power poles

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Shepherds Hill Rock Platform (10.05am – 10.15am)

Sooty Oystercatchers (8):
8 about half way between Bogey Hole and Susan Gilmore Beach, roosting and foraging
Silver Gulls (2):
2 platform between Susan Gilmore and Bar Beaches, roosting
Great Cormorants (2):
2 at Bar Beach on power poles

Merewether Rock Platform (9.30am – 10.00am)

Sooty Oystercatchers (3):
3 on platform immediately north of Burwood Beach, roosting and foraging
Silver Gulls (44):
42 platform immediately north of Burwood Beach, roosting
2 around baths, roosting
Great Cormorants (1):
1 at Merewether Baths, roosting on light pole
Eastern Reef Egret (1):
1 on platform immediately north of Burwood Beach, roosting

Low-Tide Observations (1.14pm – 2.55pm)

Seven species were recorded on the rock platforms - Sooty Oystercatchers (5), Silver Gulls (361), Crested Terns (17), Little Pied Cormorant (2), Great Cormorants (12), White-faced Herons (3) and Eastern Reef Egret (1). On the falling tide two Sooty Oystercatchers were observed flying up the North Arm of the Hunter Estuary at 1.30pm. They landed on the exposed oyster bank at Stockton Sandspit where one remained while the other flew further upstream. During this time, as no oystercatchers were observed to fly downstream, the two oystercatchers previously observed on the high tide at 11.40am on Kooragang dykes were presumed to also remain upstream of Stockton Bridge. From 2.00 – 2.30pm 8 Sooty Oystercatchers and 16 Ruddy Turnstones were observed foraging along the river shoreline and Nobbys seawall north of Horseshoe Beach. At 2.55pm 8 Sooty Oystercatchers flew from that area to roost on the emerging rocks off Nobbys Head, Nobbys Island.

Newcastle Rock Platform (2.44pm – 1.45pm)

Sooty Oystercatchers (2):
2 foraging on platform seawards of Soldiers Baths
Silver Gulls (309):
211 Cowrie Hole to Soldiers Baths, roosting and foraging
79 at Ocean Baths (Roost A), roosting
2 at Ocean Baths (Roost B), roosting
12 at Ocean Baths, roosting on parapet around pool
Crested Terns (14):
9 between Cowrie Hole and Soldiers Baths, roosting
5 at Ocean Baths (Roost A), roosting
Little Pied Cormorant (2):
2 Cowrie Hole to Soldiers Baths, roosting
Great Cormorant (2)
2 along Shortland Esplanade, roosting on light poles

Appendix 2 - Hunter Bird Observers Club Observations (cont.)

Shepherds Hill Rock Platform (3.12pm – 3.30pm)

Silver Gulls (52):
2 between Bogey Hole and Susan Gilmore Beach
50 at northern end Bar Beach, mainly roosting, some foraging
Great Cormorant (5):
3 Bogey Hole, roosting on power poles
3 Bar Beach, roosting on power poles
White-faced Heron (1):
1 foraging south of Bogey Hole
Nankeen Kestrel (2):
2 on slopes above Bogey Hole and on Shepherds Hill

Merewether Rock Platform (3.35pm – 4.00pm)

Sooty Oystercatchers (3):
3 roosting then foraging on usual foraging area (see plate 8.4)
Silver Gulls (61):
56 at Merewether Baths, roosting
2 south of baths
3 on platform immediately north of Burwood Beach
Crested Terns (3):
3 at Merewether Baths, roosting
Great Cormorant (5):
5 Merewether Baths, roosting on power poles
White-faced Heron (2):
1 north of Ladies Baths
1 south of Ocean Baths
Reef Egret (1):
Flew in to roost with Sooty Oystercatchers at foraging area on Plate 8.4

Appendix 3 – Hunter Bird Observers Club Data - Species

***HBOC Category 1 - All records generally accepted**
***HBOC Category 2 - Records usually accepted, but supporting information may be required**
***HBOC Category 3 - Supporting information required before acceptance in Annual Report**
****Reference: ABR = Hunter Region of NSW Annual Bird Report**
****Reference: HBOC = Hunter Bird Observers Club data base**

Species	Location	Date	No.	Comment	Status	Breeding	HBOC Category*	Ref**
Bar-tailed Godwit	Stockton Beach	10/08/1999	12		Common summer migrant	No	1	ABR 7
Caspian Tern	Merewether Baths	4/01/2001	>30		Resident	No	1	
	Nobbys Beach	1/04/2003	1-5					ABR 11
		16/09/1994	1-5					ABR 2
Common Tern	Newcastle Area	2/12/1997	6-20		Summer migrant	No	2	ABR 5
	Newcastle Baths	5/10/1999	25					ABR 7
		8/11/1999	4					ABR 7
		5/12/1997	1-5					ABR 5
		15/01/1996	100	Moderately often recorded around Newcastle Harbour and on nearby beaches around Jan - Mar and from 10 Nov 1996				ABR 4
		11/01/1995	>30					HBOC
		27/12/1994	>250					ABR 2
	Newcastle Beach	22/12/2003	>100					ABR 11
	Newcastle Harbour	22/01/2001	>180	and on nearby beaches				ABR 9
		5/03/2001	>50	and on nearby beaches				ABR 9

		11/03/2001	>30	and on nearby beaches				ABR 9
		22/03/2001	80	and on nearby beaches				ABR 9
		4/12/2001	>20	and on nearby beaches				ABR 9
		5/03/2000	>100					ABR 8
		11/01/2000	<10					ABR 8
		22/02/2000	<10					ABR 8
		19/03/2000	<10					ABR 8
		28/01/1999	40					ABR 7
		23/03/1996	100	and on nearby beaches				ABR 4
		4/12/1996	>250	and on nearby beaches				ABR 4
		5/12/1996	>250	and on nearby beaches				ABR 4
	Newcastle Heads	11/03/1998	170					ABR 6
	Newcastle Heads	1/12/1998	100	Present from 23 October through to 11 April				ABR 6
	Nobbys Beach	14/10/2002	21-50					ABR 10
		2/04/2001	1-5					ABR 9
		12/03/2000	>55					ABR 8
	Nobbys Rock Shelf	11/01/1995	>50					HBOC
	Stockton Beach	19/01/2002	6-20					ABR 10
		11/01/1999	>100					ABR 7
Crested Tern	Horseshoe Beach	8/08/1998	>100		Common Resident	Yes	1	ABR 6
	Merewether Beach	31/07/1994	21-50					ABR 2
	Newcastle Baths	13/07/2001	>100					ABR 9
		5/10/1999	>200					ABR 7
		4/01/1998	10	Feeding young				ABR 6
		23/01/1998		Feeding young				ABR 6
	Newcastle Beach	30/12/2003	>200	Some dependent fledged birds				ABR 11
		22/12/2003	>50					ABR 11
	Nobbys Beach	14/10/2002	51-100					ABR 10
		9/04/1997	>20					ABR 5

		during 1995		Nest on Moon Island				ABR 3
Double-banded Plover	Stockton Beach	16/07/2002	6		Winter migrant	No	2	ABR 10
		May-01	28					ABR 9
		6/05/2000	11	June-July 20 to 30 birds				ABR 8
		3/08/2000	43					ABR 8
Gull-billed Tern	Nobbys Beach	Aug-97	1		Resident	No	1	ABR 5
Kelp Gull	Newcastle Baths	19/12/1998	1		Accidental	No	3	ABR 6
Little Penguin	Nobbys Beach	6/04/1996	1-3	Breeds on islands	Local Resident	Yes	1	ABR 4
		9/02/1994	1	Distressed bird found on beach during rough seas.				ABR 2
	Off Stockton Beach	9/11/1997	5					ABR 5
	Stockton Breakwater	4/02/1996	1-3					ABR 4
Little Tern	Near Newcastle Harbour	14/03/2003	1	Probably Stockton Foreshore	Summer migrant	Yes	1	ABR 11
		17/07/2003	1					ABR 11
		25/03/2002	21-50					ABR 10
		23/01/1999	82					ABR 7
	Newcastle Baths	23/01/1998	16					HBOC
	Newcastle Harbour	Jan-Mar 1996	<20	and nearby beaches				ABR 4
		Nov-Dec 1996	<20	and nearby beaches				ABR 4
Oriental Plover	Stockton Beach	10/11/2002	8	4km south of Anna Bay. Record accepted by the Birds Aust Rarities Committee. All birds remained until 16 Nov and 1 until 17 Nov.	Accidental	No	3	ABR 10
Pacific Golden Plover	Stockton Beach	13/08/2000	6		Summer migrant	No	1	ABR 8
		19/08/2000	6					ABR 8
Pacific Gull	Off Newcastle Baths	2/06/1997	1		Accidental	No	3	ABR 5

Pied Cormorant	Stockton Beach	19/01/2002	6-20		Usual coastal resident	Yes	1	ABR 10
Pied Oystercatcher	Horseshoe Beach	8/08/1998	8		Resident	Yes	1	ABR 6
	Newcastle Beach	3/12/2003	12-14					ABR 11
	Stockton Beach	16/07/2002	22					ABR 10
		11/11/2000	2	Nesting				ABR 8
		25/11/1999	7					ABR 7
		5/12/1998	13					ABR 6
	Stockton Bight	3/12/2001	11					ABR 9
Red-capped Plover	Stockton Beach	2/07/2002	>20		Usual resident	Yes	1	ABR 10
		30/06/2000	30					ABR 8
		19/08/2000	15					ABR 8
		10/08/1999	36					ABR 7
Red-necked Stint	Newcastle Baths	16/03/2001	1-5		Summer migrant	No	1	ABR 9
Reef Egret	Cabbage Tree Is	2/04/2003	1		Rare	Yes	2	ABR 11
	Merewether Baths	1/05/2005	1	Dark Phase				Colin Goodenough
	Merewether Baths	5/02/1997	1					ABR 5
	Merewether Baths	12/07/1995	1	Dark Phase. Alan Morris reported birds breed every year on Moon Island				ABR 3
Ruddy Turnstone	Horseshoe Beach	8/08/1998	7		Uncommon summer migrant	No	1	ABR 6
	Newcastle Baths	9/01/2004	27					HBOC
		3/04/2004	6					HBOC
		29/08/2004	1					HBOC
		20/09/2003	15	None over-wintered at Baths in 2003.				ABR 11
		25/03/2002	20					ABR 10
		16/03/2001	28					ABR 9
		2/04/2001	29					ABR 9

		13/07/2001	2					ABR 9
		2/11/1999	1-5					ABR 7
		4/01/1998	>25					ABR 6
		12/04/1998	20-25					ABR 6
		23/11/1998	31					HBOC
		1/12/1998	20-25					ABR 6
		15/02/1997	20-30					HBOC
		23/04/1997	10	Peak count of 30 birds, date unknown.				ABR 5
		28/11/1997	40					HBOC
		15/01/1996	50					HBOC
		Jan-Mar 1996	40-50					ABR 4
		6/04/1996	9	Only 9 birds remained by 6 April 1996				ABR 4
		8/09/1996	2					HBOC
		9/09/1996	2	First recorded return; both in breeding plumage				ABR 4
		28/11/1996	40					ABR 4
		17/12/1995	6					ABR 3
		8/04/1994	>50					ABR 2
		13/10/1993	8					ABR 1
		9/01/2004	27					HBOC
		3/04/2004	6					HBOC
	Newcastle Beach	22/12/2003	>20					ABR 11
	Nobbys Beach	14/10/2002	>10					ABR 10
	Nobbys Head	19/03/2000	4					ABR 8
Sanderling	Stockton Beach	13/08/2000	1		Rare	No	3	ABR 8
		25/11/2000	1					ABR 8
Silver Gull	Newcastle Baths	8/11/1999	2	Young bird being fed.	Common resident	Yes	1	ABR 7
	Stockton Beach	1/07/2001	>300					ABR 9

Sooty Oystercatcher	Bogey Hole	26/02/1985	2		Uncommon Resident	Yes	1	HBOC
	Cowrie Hole	6/02/1995	6					HBOC
	Merewether Baths	15/04/2004	5					HBOC
		4/01/2001	1					HBOC
		Jun-92	4					HBOC
	Near Newcastle Heads	17/01/1998	1-5					ABR 6
	Near Newcastle Heads	12/04/1998	1-5					ABR 6
		13/04/1998	1-5					ABR 6
		18/08/1998	1-5					ABR 6
		1/12/1998	1-5					ABR 6
	Newcastle Baths	9/01/2004	14					HBOC
		10/02/2004	21					HBOC
		3/04/2004	21					HBOC
		19/06/2003	6					ABR 11
		25/03/2003	16					ABR 11
		24/11/2003	6					HBOC
		22/02/2002	6-12					ABR 10
		25/03/2002	6-13					ABR 10
		14/07/2002	1-5					ABR 10
		28/08/2002	4					ABR 10
		16/03/2001	8					ABR 9
		22/03/2001	8					ABR 9
		13/07/2001	7					ABR 9
		1/12/2001	11					ABR 9
		1/12/2000	1					HBOC
		26/02/2000	1					ABR 8
		3/02/1999	4					ABR 7
		8/11/1999	1-2					ABR 7
		4/01/1998	3					HBOC
		17/03/1997	4					ABR 5

		23/04/1997	1-5					ABR 5
		15/01/1996	6					HBOC
		during 1996	5-8	Often seen roosting				ABR 4
		17/12/1995	1-5					ABR 3
		5/01/1995	5					HBOC
		6/03/1995	7					ABR 3
		8/04/1994	8					ABR 2
		13/10/1993	2					ABR 1
		24/02/1992	8					HBOC
		Jan-85	1					HBOC
	Newcastle Beach	12/11/2003	10	Previously greatest count was 11 birds in 2001				ABR 11
		22/12/2003	1-4					ABR 11
		5/01/1995	5					HBOC
	Nobbys Beach	1/04/2003	13					ABR 11
		14/10/2002	1-5					ABR 10
	Nobbys Head	21/04/2001	5					ABR 9
	Platform north of Susan Gilmore Beach	12/05/2005	20					Bill Gladstone
	Stockton	7/04/2002	1-5					ABR 10
	Stockton Beach	9/08/1997	6					ABR 5
White- fronted Tern	Horseshoe Beach	8/08/1998	1		Uncommon winter migrant	No	2	ABR 6
	Merewether Beach	31/07/1994	1					ABR 2
	Newcastle Baths	29/08/2004	1					HBOC
		16/08/2003	7					HBOC
		14/07/2002	14	14 birds between 14 and 28 July 2002.				HBOC
		28/07/2002	1					HBOC
		28/08/2002	>17					ABR 10
		21/07/2001	2					ABR 9
	Nobbys Beach	19/05/1997	6					ABR 5

	Stockton Beach	19/08/2001	40					ABR 9
		1/07/2001	1					ABR 9
		7/07/2000	2					ABR 8
		15/07/2000	4					ABR 8
	Stockton Breakwater	2/04/2003	20					ABR 11
White-winged Black Tern	Newcastle Baths	15/04/2003	1	Probably just flying past.	Summer migrant	No	2	HBOC
		15/04/2003	1	Probably just flying past.				HBOC
	Newcastle Harbour	15/02/2003	Some					ABR 11
	Newcastle Harbour	12/04/2003	Some					ABR 11
		15/03/2003	13					ABR 11
		30/01/2002	6	Birds recorded until 16 Feb				ABR 10
		26/02/2002	1					ABR 10
		9/11/2002	1					ABR 10
		11/03/2001	6	and nearby beaches				ABR 9
		16/03/2001	6	and nearby beaches				ABR 9
		22/03/2001	12	and nearby beaches				ABR 9
		Mar-00	>10					ABR 8
		19/03/2000	38	No records after 9 April 2000				ABR 8
		21/03/1996	>30	Adults and immatures				ABR 4
		6/04/1996		near entrance; some in breeding plumage				ABR 4
		7/04/1996		near entrance; some in breeding plumage				ABR 4
		15/02/2003	Some					ABR 11
		12/04/2003	Some					ABR 11
		15/03/2003	13					ABR 11
		30/01/2002	6	Birds recorded until 16 Feb				ABR 10
		26/02/2002	1					ABR 10
		9/11/2002	1					ABR 10
		11/03/2001	6	and nearby beaches				ABR 9
		16/03/2001	6	and nearby beaches				ABR 9

		22/03/2001	12	and nearby beaches				ABR 9
		Mar-00	>10					ABR 8
		19/03/2000	38	No records after 9 April 2000				ABR 8
		21/03/1996	>30	Adults and immature birds				ABR 4
		6/04/1996		near entrance; some in breeding plumage				ABR 4
		7/04/1996		near entrance; some in breeding plumage				ABR 4
	Newcastle Heads	5/04/1998	40	Many birds recorded between 28 February and 11 April 1998				ABR 6
		5/04/1998	40	Many birds recorded between 28 February and 11 April 1998				ABR 6

Appendix 4 – Hunter Bird Observers Club Data - Location

***Reference: ABR = Hunter Region of NSW Annual Bird Report**
***Reference: HBOC = Hunter Bird Observers Club data base**

Location	Species	Date	No.	Comment	Reference*
Bogey Hole	Sooty Oystercatcher	26/02/1985	2		HBOC
Cabbage Tree Is	Reef Egret	2/04/2003	1		ABR 11
Cowrie Hole	Sooty Oystercatcher	6/02/1995	6		HBOC
Horseshoe Beach	Crested Tern	8/08/1998	>100		ABR 6
	Pied Oystercatcher	8/08/1998	8		ABR 6
	Ruddy Turnstone	8/08/1998	7		ABR 6
	White- fronted Tern	8/08/1998	1		ABR 6
Merewether Baths	Caspian Tern	4/01/2001	>30		
	Reef Egret	1/05/2005	1	Dark Phase	Colin Goodenough
		5/02/1997	1		ABR 5
		12/07/1995	1	Dark Phase. Alan Morris reported birds breed every year on Moon Island	ABR 3
	Sooty Oystercatcher	15/04/2004	5		HBOC
		4/01/2001	1		HBOC
		Jun-92	4		HBOC
Merewether Beach	Crested Tern	31/07/1994	21-50		ABR 2
	White- fronted Tern	31/07/1994	1		ABR 2
Near Newcastle Harbour	Little Tern	14/03/2003	1	Probably Stockton Foreshore	ABR 11
		17/07/2003	1		ABR 11

Near Newcastle Heads	Sooty Oystercatcher	17/01/1998	1-5		ABR 6
		12/04/1998	1-5		ABR 6
		13/04/1998	1-5		ABR 6
		18/08/1998	1-5		ABR 6
		1/12/1998	1-5		ABR 6
Newcastle Area	Common Tern	2/12/1997	6-20		ABR 5
Newcastle Baths		5/10/1999	25		ABR 7
		8/11/1999	4		ABR 7
		5/12/1997	1-5		ABR 5
		15/01/1996	100	Moderately often recorded around Newcastle Harbour and nearby beaches around Jan - Mar and from 10 Nov 1996	ABR 4
		11/01/1995	>30		HBOC
		27/12/1994	>250		ABR 2
	Crested Tern	13/07/2001	>100		ABR 9
		5/10/1999	>200		ABR 7
		4/01/1998	10	Feeding young	ABR 6
		23/01/1998		Feeding young	ABR 6
	Kelp Gull	19/12/1998	1		ABR 6
	Little Tern	25/03/2002	21-50		ABR 10
		23/01/1999	82		ABR 7
		23/01/1998	16		HBOC
	Red-necked Stint	16/03/2001	1-5		ABR 9
	Ruddy Turnstone	9/01/2004	27		HBOC
		3/04/2004	6		HBOC
		29/08/2004	1		HBOC
		20/09/2003	15	None over-wintered at Baths in 2003.	ABR 11
		25/03/2002	20		ABR 10
		16/03/2001	28		ABR 9
		2/04/2001	29		ABR 9
		13/07/2001	2		ABR 9

Newcastle Baths	Ruddy Turnstone	2/11/1999	1-5		ABR 7
		4/01/1998	>25		ABR 6
		12/04/1998	20-25		ABR 6
		23/11/1998	31		HBOC
		1/12/1998	20-25		ABR 6
		15/02/1997	20-30		HBOC
		23/04/1997	10	Peak count of 30 birds, date unknown.	ABR 5
		28/11/1997	40		HBOC
		15/01/1996	50		HBOC
		Jan-Mar 1996	40-50		ABR 4
		6/04/1996	9	Only 9 birds remained by 6 April 1996	ABR 4
		8/09/1996	2		HBOC
		9/09/1996	2	First recorded return; both in breeding plumage	ABR 4
		28/11/1996	40		ABR 4
		17/12/1995	6		ABR 3
		8/04/1994	>50		ABR 2
		13/10/1993	8		ABR 1
		9/01/2004	27		HBOC
		3/04/2004	6		HBOC
	Silver Gull	8/11/1999	2	Young bird being fed.	ABR 7
	Sooty Oystercatcher	9/01/2004	14		HBOC
		10/02/2004	21		HBOC
		3/04/2004	21		HBOC
		19/06/2003	6		ABR 11
		25/03/2003	16		ABR 11
		24/11/2003	6		HBOC
		22/02/2002	6-12		ABR 10
		25/03/2002	6-13		ABR 10
		14/07/2002	1-5		ABR 10
		28/08/2002	4		ABR 10

		16/03/2001	8		ABR 9
		22/03/2001	8		ABR 9
		13/07/2001	7		ABR 9
		1/12/2001	11		ABR 9
		1/12/2000	1		HBOC
		26/02/2000	1		ABR 8
		3/02/1999	4		ABR 7
		8/11/1999	1-2		ABR 7
		4/01/1998	3		HBOC
		17/03/1997	4		ABR 5
		23/04/1997	1-5		ABR 5
		15/01/1996	6		HBOC
		during 1996	5-8	Often seen roosting	ABR 4
		17/12/1995	1-5		ABR 3
		5/01/1995	5		HBOC
		6/03/1995	7		ABR 3
		8/04/1994	8		ABR 2
		13/10/1993	2		ABR 1
		24/02/1992	8		HBOC
		Jan-85	1		HBOC
	White- fronted Tern	29/08/2004	1		HBOC
		16/08/2003	7		HBOC
		14/07/2002	14	14 birds between 14 and 28 July 2002.	HBOC
		28/07/2002	1		HBOC
		28/08/2002	>17		ABR 10
		21/07/2001	2		ABR 9
Newcastle Baths	White-winged Black Tern	15/04/2003	1	Probably just flying past.	HBOC
		15/04/2003	1	Probably just flying past.	HBOC
Newcastle Beach	Common Tern	22/12/2003	>100		ABR 11
	Crested Tern	30/12/2003	>200	Some dependent fledged birds	ABR 11
		22/12/2003	>50		ABR 11

	Pied Oystercatcher	3/12/2003	12-14		ABR 11
	Ruddy Turnstone	22/12/2003	>20		ABR 11
	Sooty Oystercatcher	12/11/2003	10	Previously greatest count was 11 birds in 2001	ABR 11
		22/12/2003	1-4		ABR 11
		5/01/1995	5		HBOC
Newcastle Harbour	Common Tern	22/01/2001	>180	and nearby beaches	ABR 9
		5/03/2001	>50	and nearby beaches	ABR 9
		11/03/2001	>30	and nearby beaches	ABR 9
		22/03/2001	80	and nearby beaches	ABR 9
		4/12/2001	>20	and nearby beaches	ABR 9
		5/03/2000	>100		ABR 8
		11/01/2000	<10		ABR 8
		22/02/2000	<10		ABR 8
		19/03/2000	<10		ABR 8
		28/01/1999	40		ABR 7
		23/03/1996	100	and nearby beaches	ABR 4
		4/12/1996	>250	and nearby beaches	ABR 4
		5/12/1996	>250	and nearby beaches	ABR 4
	Little Tern	Jan-Mar 1996	<20	and nearby beaches	ABR 4
		Nov-Dec 1996	<20	and nearby beaches	ABR 4
	White-winged Black Tern	15/02/2003	Some		ABR 11
		12/04/2003	Some		ABR 11
		15/03/2003	13		ABR 11
		30/01/2002	6	Birds recorded until 16 Feb	ABR 10
		26/02/2002	1		ABR 10
		9/11/2002	1		ABR 10
		11/03/2001	6	and nearby beaches	ABR 9
		16/03/2001	6	and nearby beaches	ABR 9
		22/03/2001	12	and nearby beaches	ABR 9
		Mar-00	>10		ABR 8

		19/03/2000	38	No records after 9 April 2000	ABR 8
		21/03/1996	>30	Adults and immatures	ABR 4
		6/04/1996		near entrance; some in breeding plumage	ABR 4
		7/04/1996		near entrance; some in breeding plumage	ABR 4
		15/02/2003	Some		ABR 11
		12/04/2003	Some		ABR 11
		15/03/2003	13		ABR 11
		30/01/2002	6	Birds recorded until 16 Feb	ABR 10
		26/02/2002	1		ABR 10
		9/11/2002	1		ABR 10
		11/03/2001	6	and nearby beaches	ABR 9
		16/03/2001	6	and nearby beaches	ABR 9
		22/03/2001	12	and nearby beaches	ABR 9
		Mar-00	>10		ABR 8
		19/03/2000	38	No records after 9 April 2000	ABR 8
		21/03/1996	>30	Adults and immatures	ABR 4
		6/04/1996		near entrance; some in breeding plumage	ABR 4
Newcastle Harbour	White-winged Black Tern	7/04/1996		near entrance; some in breeding plumage	ABR 4
Newcastle Heads	White-winged Black Tern	5/04/1998	40	Many birds recorded between 28 February and 11 April 1998	ABR 6
		5/04/1998	40	Many birds recorded between 28 February and 11 April 1998	ABR 6
	Common Tern	11/03/1998	170		ABR 6
		1/12/1998	100	Present from 23 October through to 11 April	ABR 6
Nobbys Beach	Caspian Tern	1/04/2003	1-5		ABR 11
		16/09/1994	1-5		ABR 2

	Common Tern	14/10/2002	21-50		ABR 10
		2/04/2001	1-5		ABR 9
		12/03/2000	>55		ABR 8
	Crested Tern	14/10/2002	51-100		ABR 10
		9/04/1997	>20		ABR 5
	Gull-billed Tern	Aug-97	1		ABR 5
	Little Penguin	6/04/1996	1-3		ABR 4
		9/02/1994	1	Distressed bird found on beach during rough seas.	ABR 2
	Ruddy Turnstone	14/10/2002	>10		ABR 10
	Sooty Oystercatcher	1/04/2003	13		ABR 11
		14/10/2002	1-5		ABR 10
	White- fronted Tern	19/05/1997	6		ABR 5
Nobbys Head	Ruddy Turnstone	19/03/2000	4		ABR 8
	Sooty Oystercatcher	21/04/2001	5		ABR 9
Nobbys Rock Shelf	Common Tern	11/01/1995	>50		HBOC
Off Newcastle Baths	Pacific Gull	2/06/1997	1		ABR 5
Off Stockton Beach	Little Penguin	9/11/1997	5		ABR 5
Platform North of Susan Gilmore Beach	Sooty Oystercatcher	12/05/2005	20		Bill Gladstone
Stockton	Sooty Oystercatcher	7/04/2002	1-5		ABR 10
Stockton Beach	Bar-tailed Godwit	10/08/1999	12		ABR 7
	Common Tern	19/01/2002	6-20		ABR 10
		11/01/1999	>100		ABR 7
	Double-banded Plover	16/07/2002	6		ABR 10
		May-01	28		ABR 9
		6/05/2000	11	June-July 20 to 30 birds	ABR 8
		3/08/2000	43		ABR 8
	Oriental Plover	10/11/2002	8	4km south of Anna Bay. Record accepted by the Birds Aust Rarities Committee. All birds remained until 16 Nov and 1 until 17 Nov.	ABR 10

	Pacific Golden Plover	13/08/2000	6		ABR 8
		19/08/2000	6		ABR 8
	Pied Cormorant	19/01/2002	6-20		ABR 10
	Pied Oystercatcher	16/07/2002	22		ABR 10
		11/11/2000	2	Nesting	ABR 8
		25/11/1999	7		ABR 7
		5/12/1998	13		ABR 6
	Red-capped Plover	2/07/2002	>20		ABR 10
		30/06/2000	30		ABR 8
		19/08/2000	15		ABR 8
		10/08/1999	36		ABR 7
	Sanderling	13/08/2000	1		ABR 8
		25/11/2000	1		ABR 8
Stockton Beach	Silver Gull	1/07/2001	>300		ABR 9
	Sooty Oystercatcher	9/08/1997	6		ABR 5
	White- fronted Tern	19/08/2001	40		ABR 9
		1/07/2001	1		ABR 9
		7/07/2000	2		ABR 8
		15/07/2000	4		ABR 8
Stockton Bight	Pied Oystercatcher	3/12/2001	11		ABR 9
Stockton Breakwater	Little Penguin	4/02/1996	1-3		ABR 4
	White- fronted Tern	2/04/2003	20		ABR 11
	Crested Tern	during 1995		Nest on Moon Island	ABR 3

Appendix 5 - Birds Australia New Atlas Data – Species

Species	No.	Location	Latitude			Longitude			Date
Australian Pelican		Newcastle Baths	32	55	56	151	47	28	8/11/1999
		Newcastle Beach pools	32	55	45	151	47	30	24/10/1999
		Newcastle foreshore	32	55	32	151	47	23	15/03/1999
		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Nobbys Head, Newcastle East	32	55	30	151	47	30	11/03/2000
		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
		Stockton Beach	32	54	58	151	47	20	23/03/2001
Australian Raven		CBD Foreshore	32	55	29	151	46	40	11/02/2005
		Newcastle foreshore	32	55	32	151	47	23	15/03/1999
		Stockton Beach	32	51	55	151	49	49	11/11/2000
		Stockton Beach	32	54	58	151	47	20	23/03/2001
Beach Stone-curlew	1	Stockton Beach	32	53	0	151	48	10	23/09/1998
Common Tern		Newcastle Baths	32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	8/11/1999
		Nobby Island	32	55	30	151	47	30	26/01/2004
		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Nobbys Head, Newcastle East	32	55	30	151	47	30	11/03/2000
		Nobbys Head, Newcastle East	32	55	30	151	47	32	11/03/2000
	2	Nobbys Island	32	55	30	151	47	30	23/12/2003
		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
		Shortland Esplanade	32	55	38	151	47	30	22/02/2002
		Stockton Beach	32	54	58	151	47	20	23/03/2001
Crested Tern		Newcastle Baths	32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	20/01/2005
			32	55	56	151	47	28	8/11/1999
		Newcastle foreshore	32	55	32	151	47	23	15/03/1999
		Nobby Island	32	55	30	151	47	30	26/01/2004
		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Nobbys Head, Newcastle East	32	55	30	151	47	30	11/03/2000
			32	55	30	151	47	32	11/03/2000
			32	55	15	151	47	30	18/11/2000
			32	55	30	151	47	30	21/04/2001
		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
		Shortland Esplanade	32	55	38	151	47	30	22/02/2002
		Stockton Beach	32	51	55	151	49	49	11/11/2000
			32	54	58	151	47	20	23/03/2001
Darter		CBD Foreshore	32	55	29	151	46	40	11/02/2005
Great Cormorant		Newcastle Baths	32	55	56	151	47	28	8/11/1999
		Newcastle Beach pools	32	55	45	151	47	30	24/10/1999
		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Nobbys Head, Newcastle East	32	55	15	151	47	30	18/11/2000
			32	55	30	151	47	30	21/04/2001
		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
		Shortland Esplanade	32	55	38	151	47	30	22/02/2002
		Stockton Beach	32	54	58	151	47	20	23/03/2001

Rock-platform frequenting birds

Appendix 5 - Birds Australia New Atlas Data – Species (cont.)

Species	No.	Location	Latitude			Longitude			Date
Grey-tailed Tattler	1	Newcastle Baths	32	55	56	151	47	28	2/04/2003
	1		32	55	56	151	47	28	8/11/1999
Gull-billed Tern		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
Kelp Gull		Newcastle Beach	32	56		151	47		19/12/1998
Little Black Cormorant		CBD Foreshore	32	55	29	151	46	40	11/02/2005
		Newcastle Baths	32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	20/01/2005
	4		32	55	56	151	47	28	25/03/2002
		Newcastle East	32	55	30	151	47	30	12/06/1999
		Newcastle foreshore	32	55	32	151	47	23	15/03/1999
		Nobbys Head	32	55	14	151	47	49	2/11/2002
			32	55	30	151	47	32	11/03/2000
		Nobbys Head, Newcastle East	32	55	30	151	47	30	21/04/2001
		Stockton Beach	32	54	58	151	47	20	23/03/2001
Little Tern		Macquarie Pier, Newcastle East	32	55	21	151	47	37	4/01/2001
		Newcastle Baths	32	55	56	151	47	28	25/03/2002
			32	55	56	151	47	28	8/11/1999
		Nobbys Head, Newcastle East	32	55	30	151	47	30	11/03/2000
			32	55	30	151	47	32	11/03/2000
		Stockton Bight	32	53		151	48		27/12/1999
Masked Lapwing		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
Nankeen Kestrel		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Stockton Beach	32	51	55	151	49	49	11/11/2000
		Stockton Bight	32	53		151	48		27/12/1999
Pied Cormorant		CBD Foreshore	32	55	29	151	46	40	11/02/2005
		Newcastle East	32	55	30	151	47	30	12/06/1999
			32	55	56	151	47	28	22/03/2001
		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Nobbys Head, Newcastle East	32	55	30	151	47	30	11/03/2000
		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
		Stockton Beach	32	54	58	151	47	20	23/03/2001
Pied Oystercatcher		Stockton	32	52	30	151	45		21/09/1998
	7	Stockton Beach	32	51	55	151	49	49	11/11/2000
Red-necked Stint	21	Nobbys Island	32	55	30	151	47	30	23/12/2003
Rock Dove		CBD Foreshore	32	55	29	151	46	40	11/02/2005
		Newcastle Baths	32	55	56	151	47	28	2/04/2003
		Newcastle Baths	32	55	56	151	47	28	25/03/2002
		Newcastle Baths	32	55	56	151	47	28	8/11/1999
		Newcastle East	32	55	30	151	47	30	12/06/1999
		Newcastle foreshore	32	55	32	151	47	23	15/03/1999
		Nobbys Head, Newcastle East	32	55	30	151	47	30	11/03/2000

Rock-platform frequenting birds

Appendix 5 - Birds Australia New Atlas Data – Species (cont.)

Species	No.	Location	Latitude			Longitude			Date
Ruddy Turnstone	25	Newcastle Baths	32	55	56	151	47	28	2/04/2003
	6		32	55	56	151	47	28	20/01/2005
	20		32	55	56	151	47	28	25/03/2002
	1		32	55	56	151	47	28	8/11/1999
		Newcastle Beach pools	32	55	45	151	47	30	24/10/1999
	12	Newcastle East	32	55	56	151	47	28	22/03/2001
	10	Nobby Island	32	55	30	151	47	30	26/01/2004
		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Nobbys Head, Newcastle East	32	55	30	151	47	32	11/03/2000
	2		32	55	30	151	47	30	21/04/2001
	20	Nobbys Island	32	55	30	151	47	30	23/12/2003
		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
		Shortland Esplanade	32	55	38	151	47	30	22/02/2002
Silver Gull		Newcastle Baths	32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	20/01/2005
			32	55	56	151	47	28	25/03/2002
			32	55	56	151	47	28	8/11/1999
		Newcastle Beach pools	32	55	45	151	47	30	24/10/1999
		Newcastle East	32	55	30	151	47	30	12/06/1999
			32	55	56	151	47	28	22/03/2001
		Newcastle foreshore	32	55	32	151	47	23	15/03/1999
		Nobby Island	32	55	30	151	47	30	26/01/2004
		Nobbys Head	32	55	14	151	47	49	2/11/2002
		Nobbys Head, Newcastle East	32	55	30	151	47	32	11/03/2000
			32	55	15	151	47	30	18/11/2000
			32	55	30	151	47	30	21/04/2001
		North Arm breakwater, Stockton	32	55	0	151	47	35	1/02/2000
		Shipwreck site	32	53	40	151	47	19	7/11/2003
		Shortland Esplanade	32	55	38	151	47	30	22/02/2002
		Stockton	32	52	30	151	45		21/09/1998
		Stockton Beach	32	51	55	151	49	49	11/11/2000
			32	54	58	151	47	20	23/03/2001
Sooty Oystercatcher	2	Newcastle Baths	32	55	56	151	47	28	8/11/1999
	9		32	55	56	151	47	28	25/03/2002
	14		32	55	56	151	47	28	2/04/2003
	6		32	55	56	151	47	28	20/01/2005
		Nobbys Head	32	55	14	151	47	49	2/11/2002
	5	Nobbys Head, Newcastle East (probably rock platform north of baths)	32	55	30	151	47	30	21/04/2001
		Shortland Esplanade	32	55	38	151	47	30	22/02/2002
	9		32	57	8	151	45	17	31/08/2001

Rock-platform frequenting birds

Appendix 5 - Birds Australia New Atlas Data – Species (cont.)

Species	No.	Location	Latitude			Longitude			Date
Whistling Kite		NEWCASTLE	32	55		151	45		12/05/2000
		Stockton Beach & Sewage Works	32	53	39	151	47	33	15/07/2000
		Stockton Bight	32	53		151	48		1/11/1999
White-bellied Sea-Eagle		NEWCASTLE	32	55		151	45		11/10/2000
		NEWCASTLE	32	55		151	45		11/10/2000
		NEWCASTLE	32	55		151	45		12/05/2000
		Newcastle Baths	32	55	56	151	47	28	25/03/2002
		Newcastle East	32	55	30	151	47	30	12/06/1999
		Stockton Beach	32	51	55	151	49	49	11/11/2000
		Stockton Beach & Sewage Works	32	53	39	151	47	33	15/07/2000
White-faced Heron	1	Newcastle Baths	32	55	56	151	47	28	25/03/2002
		Newcastle East	32	55	30	151	47	30	12/06/1999
		Shortland Esplanade	32	55	38	151	47	30	22/02/2002
		Stockton Beach	32	54	58	151	47	20	23/03/2001

Rock-platform frequenting birds

Appendix 6 - Birds Australia New Atlas Data – Location

Location	Species	No.	Latitude			Longitude			Date
CBD Foreshore	Australian Raven		32	55	29	151	46	40	11/02/2005
	Darter		32	55	29	151	46	40	11/02/2005
	Little Black Cormorant		32	55	29	151	46	40	11/02/2005
	Pied Cormorant		32	55	29	151	46	40	11/02/2005
	Rock Dove		32	55	29	151	46	40	11/02/2005
Macquarie Pier, Newcastle East	Little Tern		32	55	21	151	47	37	4/01/2001
Newcastle	Whistling Kite		32	55		151	45		12/05/2000
Newcastle	White-bellied Sea-Eagle		32	55		151	45		11/10/2000
Newcastle	White-bellied Sea-Eagle		32	55		151	45		11/10/2000
Newcastle	White-bellied Sea-Eagle		32	55		151	45		12/05/2000
Newcastle Baths	Australian Pelican		32	55	56	151	47	28	8/11/1999
	Common Tern		32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	8/11/1999
	Crested Tern		32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	20/01/2005
			32	55	56	151	47	28	8/11/1999
	Great Cormorant		32	55	56	151	47	28	8/11/1999
	Grey-tailed Tattler	1	32	55	56	151	47	28	2/04/2003
		1	32	55	56	151	47	28	8/11/1999
	Little Black Cormorant		32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	20/01/2005
		4	32	55	56	151	47	28	25/03/2002
	Little Tern		32	55	56	151	47	28	25/03/2002
			32	55	56	151	47	28	8/11/1999
	Rock Dove		32	55	56	151	47	28	2/04/2003
	Rock Dove		32	55	56	151	47	28	25/03/2002
	Rock Dove		32	55	56	151	47	28	8/11/1999
	Ruddy Turnstone	25	32	55	56	151	47	28	2/04/2003
		6	32	55	56	151	47	28	20/01/2005
		20	32	55	56	151	47	28	25/03/2002
		1	32	55	56	151	47	28	8/11/1999
	Silver Gull		32	55	56	151	47	28	2/04/2003
			32	55	56	151	47	28	20/01/2005
			32	55	56	151	47	28	25/03/2002
			32	55	56	151	47	28	8/11/1999
	Sooty Oystercatcher	2	32	55	56	151	47	28	8/11/1999
		9	32	55	56	151	47	28	25/03/2002
		14	32	55	56	151	47	28	2/04/2003
		6	32	55	56	151	47	28	20/01/2005
	White-bellied Sea-Eagle		32	55	56	151	47	28	25/03/2002
	White-faced Heron	1	32	55	56	151	47	28	25/03/2002
Newcastle Beach	Kelp Gull		32	56		151	47		19/12/1998
Newcastle Beach pools	Australian Pelican		32	55	45	151	47	30	24/10/1999
	Great Cormorant		32	55	45	151	47	30	24/10/1999
	Ruddy Turnstone		32	55	45	151	47	30	24/10/1999
	Silver Gull		32	55	45	151	47	30	24/10/1999

Rock-platform frequenting birds

Appendix 6 - Birds Australia New Atlas Data – Location (cont.)

Location	Species	No.	Latitude			Longitude			Date
Newcastle East	Little Black Cormorant		32	55	30	151	47	30	12/06/1999
	Pied Cormorant		32	55	30	151	47	30	12/06/1999
			32	55	56	151	47	28	22/03/2001
	Rock Dove		32	55	30	151	47	30	12/06/1999
	Ruddy Turnstone	12	32	55	56	151	47	28	22/03/2001
	Silver Gull		32	55	30	151	47	30	12/06/1999
			32	55	56	151	47	28	22/03/2001
	White-bellied Sea-Eagle		32	55	30	151	47	30	12/06/1999
	White-faced Heron		32	55	30	151	47	30	12/06/1999
Newcastle foreshore	Australian Pelican		32	55	32	151	47	23	15/03/1999
	Australian Raven		32	55	32	151	47	23	15/03/1999
	Crested Tern		32	55	32	151	47	23	15/03/1999
	Little Black Cormorant		32	55	32	151	47	23	15/03/1999
	Rock Dove		32	55	32	151	47	23	15/03/1999
	Silver Gull		32	55	32	151	47	23	15/03/1999
Nobbys Head	Australian Pelican		32	55	14	151	47	49	2/11/2002
	Common Tern		32	55	14	151	47	49	2/11/2002
	Crested Tern		32	55	14	151	47	49	2/11/2002
	Great Cormorant		32	55	14	151	47	49	2/11/2002
	Little Black Cormorant		32	55	14	151	47	49	2/11/2002
	Nankeen Kestrel		32	55	14	151	47	49	2/11/2002
	Pied Cormorant		32	55	14	151	47	49	2/11/2002
	Ruddy Turnstone		32	55	14	151	47	49	2/11/2002
	Silver Gull		32	55	14	151	47	49	2/11/2002
	Sooty Oystercatcher		32	55	14	151	47	49	2/11/2002
Nobbys Head, Newcastle East	Australian Pelican		32	55	30	151	47	30	11/03/2000
	Common Tern		32	55	30	151	47	30	11/03/2000
			32	55	30	151	47	32	11/03/2000
	Crested Tern		32	55	30	151	47	30	11/03/2000
			32	55	30	151	47	32	11/03/2000
			32	55	15	151	47	30	18/11/2000
			32	55	30	151	47	30	21/04/2001
	Great Cormorant		32	55	15	151	47	30	18/11/2000
			32	55	30	151	47	30	21/04/2001
	Little Black Cormorant		32	55	30	151	47	32	11/03/2000
			32	55	30	151	47	30	21/04/2001
	Little Tern		32	55	30	151	47	30	11/03/2000
			32	55	30	151	47	32	11/03/2000
	Pied Cormorant		32	55	30	151	47	30	11/03/2000
	Rock Dove		32	55	30	151	47	30	11/03/2000
	Ruddy Turnstone		32	55	30	151	47	32	11/03/2000
		2	32	55	30	151	47	30	21/04/2001
	Silver Gull		32	55	30	151	47	32	11/03/2000
			32	55	15	151	47	30	18/11/2000
			32	55	30	151	47	30	21/04/2001

Rock-platform frequenting birds

Appendix 6 - Birds Australia New Atlas Data – Location (cont.)

Location	Species	No.	Latitude			Longitude			Date
Nobbys Head, Newcastle East (probably rock platform north of baths)	Sooty Oystercatcher	5	32	55	30	151	47	30	21/04/2001
Nobbys Island	Common Tern		32	55	30	151	47	30	26/01/2004
	Crested Tern		32	55	30	151	47	30	26/01/2004
	Ruddy Turnstone	10	32	55	30	151	47	30	26/01/2004
	Silver Gull		32	55	30	151	47	30	26/01/2004
	Common Tern	2	32	55	30	151	47	30	23/12/2003
	Red-necked Stint	21	32	55	30	151	47	30	23/12/2003
	Ruddy Turnstone	20	32	55	30	151	47	30	23/12/2003
North Arm breakwater, Stockton	Australian Pelican		32	55	0	151	47	35	1/02/2000
	Common Tern		32	55	0	151	47	35	1/02/2000
	Crested Tern		32	55	0	151	47	35	1/02/2000
	Great Cormorant		32	55	0	151	47	35	1/02/2000
	Gull-billed Tern		32	55	0	151	47	35	1/02/2000
	Masked Lapwing		32	55	0	151	47	35	1/02/2000
	Pied Cormorant		32	55	0	151	47	35	1/02/2000
	Ruddy Turnstone		32	55	0	151	47	35	1/02/2000
	Silver Gull		32	55	0	151	47	35	1/02/2000
Shipwreck site	Silver Gull		32	53	40	151	47	19	7/11/2003
Shortland Esplanade	Common Tern		32	55	38	151	47	30	22/02/2002
	Crested Tern		32	55	38	151	47	30	22/02/2002
	Great Cormorant		32	55	38	151	47	30	22/02/2002
	Ruddy Turnstone		32	55	38	151	47	30	22/02/2002
	Silver Gull		32	55	38	151	47	30	22/02/2002
	Sooty Oystercatcher		32	55	38	151	47	30	22/02/2002
	White-faced Heron		32	55	38	151	47	30	22/02/2002
Stockton	Pied Oystercatcher		32	52	30	151	45		21/09/1998
	Silver Gull		32	52	30	151	45		21/09/1998
Stockton Beach	Australian Pelican		32	54	58	151	47	20	23/03/2001
	Australian Raven		32	51	55	151	49	49	11/11/2000
	Australian Raven		32	54	58	151	47	20	23/03/2001
	Beach Stone-curlew	1	32	53	0	151	48	10	23/09/1998
	Common Tern		32	54	58	151	47	20	23/03/2001
	Crested Tern		32	51	55	151	49	49	11/11/2000
			32	54	58	151	47	20	23/03/2001
	Great Cormorant		32	54	58	151	47	20	23/03/2001
	Little Black Cormorant		32	54	58	151	47	20	23/03/2001
	Nankeen Kestrel		32	51	55	151	49	49	11/11/2000
	Pied Cormorant		32	54	58	151	47	20	23/03/2001
	Pied Oystercatcher	7	32	51	55	151	49	49	11/11/2000
	Silver Gull		32	51	55	151	49	49	11/11/2000
			32	54	58	151	47	20	23/03/2001
	White-bellied Sea-Eagle		32	51	55	151	49	49	11/11/2000
	White-faced Heron		32	54	58	151	47	20	23/03/2001

Rock-platform frequenting birds

Appendix 6 - Birds Australia New Atlas Data – Location (cont.)

Location	Species	No.	Latitude			Longitude			Date
Stockton Beach & Sewage Works	Whistling Kite		32	53	39	151	47	33	15/07/2000
Stockton Beach & Sewage Works	White-bellied Sea-Eagle		32	53	39	151	47	33	15/07/2000
Stockton Bight	Little Tern		32	53		151	48		27/12/1999
	Nankeen Kestrel		32	53		151	48		27/12/1999
	Whistling Kite		32	53		151	48		1/11/1999

Rock-platform frequenting birds

Appendix 7 - Birds Australia Old Atlas Data

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Australian Pelican	32	55	151	45	1/02/1977	30/04/1977
Australian Pelican	32	55	151	45	5/03/1977	5/03/1977
Australian Pelican	32	55	151	45	10/04/1977	11/04/1977
Australian Pelican	32	55	151	45	15/04/1977	7/12/1977
Australian Pelican	32	55	151	45	22/04/1977	22/04/1977
Australian Pelican	32	55	151	45	24/10/1977	24/10/1977
Australian Pelican	32	55	151	45	15/01/1978	15/01/1978
Australian Pelican	32	55	151	45	28/03/1978	28/03/1978
Australian Pelican	32	55	151	45	20/05/1978	20/05/1978
Australian Pelican	32	55	151	45	22/06/1978	22/06/1978
Australian Pelican	32	55	151	45	1/09/1978	1/09/1978
Australian Pelican	32	55	151	45	29/10/1978	29/10/1978
Australian Pelican	32	55	151	45	2/12/1978	3/12/1978
Australian Pelican	32	55	151	45	2/12/1978	2/12/1978
Australian Pelican	32	55	151	45	22/12/1978	22/12/1978
Australian Pelican	32	55	151	45	26/12/1978	26/12/1978
Australian Pelican	32	55	151	45	20/01/1979	20/01/1979
Australian Pelican	32	55	151	45	17/02/1979	17/02/1979
Australian Pelican	32	55	151	45	19/03/1979	19/03/1979
Australian Pelican	32	55	151	45	24/03/1979	24/03/1979
Australian Pelican	32	55	151	45	25/03/1979	25/03/1979
Australian Pelican	32	55	151	45	22/04/1979	22/04/1979
Australian Pelican	32	55	151	45	14/05/1979	14/05/1979
Australian Pelican	32	55	151	45	15/06/1979	15/06/1979
Australian Pelican	32	55	151	45	30/08/1979	2/09/1979
Australian Pelican	32	55	151	45	1/09/1979	1/09/1979
Australian Pelican	32	55	151	45	1/10/1979	31/10/1979
Australian Pelican	32	55	151	45	25/11/1979	25/11/1979
Australian Pelican	32	55	151	45	1/12/1979	29/02/1980
Australian Pelican	32	55	151	45	8/12/1979	9/12/1979
Australian Pelican	32	55	151	45	2/01/1980	2/01/1980
Australian Pelican	32	55	151	45	19/01/1980	19/01/1980
Australian Pelican	32	55	151	45	26/01/1980	26/01/1980
Australian Pelican	32	55	151	45	19/04/1980	19/04/1980
Australian Pelican	32	55	151	45	31/08/1980	31/08/1980
Australian Pelican	32	55	151	45	21/12/1980	21/12/1980
Australian Pelican	32	55	151	45	1/01/1981	31/07/1981
Australian Pelican	32	55	151	45	6/01/1981	6/01/1981
Australian Pelican	32	55	151	45	21/03/1981	22/03/1981
Australian Pelican	32	55	151	45	4/04/1981	4/04/1981
Australian Pelican	32	55	151	45	20/11/1981	20/11/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Caspian Tern	32	55	151	45	5/03/1977	5/03/1977
Caspian Tern	32	55	151	45	10/04/1977	11/04/1977
Caspian Tern	32	55	151	45	28/03/1978	28/03/1978
Caspian Tern	32	55	151	45	22/06/1978	22/06/1978
Caspian Tern	32	55	151	45	1/09/1978	1/09/1978
Caspian Tern	32	55	151	45	2/12/1978	3/12/1978
Caspian Tern	32	55	151	45	2/12/1978	2/12/1978
Caspian Tern	32	55	151	45	22/12/1978	22/12/1978
Caspian Tern	32	55	151	45	20/01/1979	20/01/1979
Caspian Tern	32	55	151	45	11/03/1979	11/03/1979
Caspian Tern	32	55	151	45	19/03/1979	19/03/1979
Caspian Tern	32	55	151	45	24/03/1979	24/03/1979
Caspian Tern	32	55	151	45	14/05/1979	14/05/1979
Caspian Tern	32	55	151	45	15/06/1979	15/06/1979
Caspian Tern	32	55	151	45	30/08/1979	2/09/1979
Caspian Tern	32	55	151	45	1/09/1979	1/09/1979
Caspian Tern	32	55	151	45	25/11/1979	25/11/1979
Caspian Tern	32	55	151	45	19/04/1980	19/04/1980
Caspian Tern	32	55	151	45	31/08/1980	31/08/1980
Caspian Tern	32	55	151	45	1/01/1981	31/07/1981
Common Tern	32	55	151	45	5/03/1977	5/03/1977
Common Tern	32	55	151	45	24/10/1977	24/10/1977
Common Tern	32	55	151	45	15/01/1978	15/01/1978
Common Tern	32	55	151	45	28/03/1978	28/03/1978
Common Tern	32	55	151	45	22/06/1978	22/06/1978
Common Tern	32	55	151	45	1/09/1978	1/09/1978
Common Tern	32	55	151	45	2/12/1978	3/12/1978
Common Tern	32	55	151	45	26/12/1978	26/12/1978
Common Tern	32	55	151	45	11/03/1979	11/03/1979
Common Tern	32	55	151	45	24/03/1979	24/03/1979
Common Tern	32	55	151	45	1/09/1979	1/09/1979
Common Tern	32	55	151	45	25/11/1979	25/11/1979
Common Tern	32	55	151	45	8/12/1979	9/12/1979
Common Tern	32	55	151	45	2/01/1980	2/01/1980
Common Tern	32	55	151	45	26/01/1980	26/01/1980
Common Tern	32	55	151	45	21/12/1980	21/12/1980
Common Tern	32	55	151	45	1/01/1981	31/07/1981
Common Tern	32	55	151	45	6/01/1981	6/01/1981
Common Tern	32	55	151	45	4/04/1981	4/04/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Crested Tern	32	55	151	45	5/03/1977	5/03/1977
Crested Tern	32	55	151	45	10/04/1977	11/04/1977
Crested Tern	32	55	151	45	22/04/1977	22/04/1977
Crested Tern	32	55	151	45	15/01/1978	15/01/1978
Crested Tern	32	55	151	45	28/03/1978	28/03/1978
Crested Tern	32	55	151	45	22/06/1978	22/06/1978
Crested Tern	32	55	151	45	1/09/1978	1/09/1978
Crested Tern	32	55	151	45	2/12/1978	3/12/1978
Crested Tern	32	55	151	45	2/12/1978	2/12/1978
Crested Tern	32	55	151	45	22/12/1978	22/12/1978
Crested Tern	32	55	151	45	20/01/1979	20/01/1979
Crested Tern	32	55	151	45	17/02/1979	17/02/1979
Crested Tern	32	55	151	45	11/03/1979	11/03/1979
Crested Tern	32	55	151	45	19/03/1979	19/03/1979
Crested Tern	32	55	151	45	24/03/1979	24/03/1979
Crested Tern	32	55	151	45	22/04/1979	22/04/1979
Crested Tern	32	55	151	45	14/05/1979	14/05/1979
Crested Tern	32	55	151	45	15/06/1979	15/06/1979
Crested Tern	32	55	151	45	30/08/1979	2/09/1979
Crested Tern	32	55	151	45	1/09/1979	1/09/1979
Crested Tern	32	55	151	45	25/11/1979	25/11/1979
Crested Tern	32	55	151	45	8/12/1979	9/12/1979
Crested Tern	32	55	151	45	2/01/1980	2/01/1980
Crested Tern	32	55	151	45	26/01/1980	26/01/1980
Crested Tern	32	55	151	45	19/04/1980	19/04/1980
Crested Tern	32	55	151	45	1/01/1981	31/07/1981
Crested Tern	32	55	151	45	6/01/1981	6/01/1981
Crested Tern	32	55	151	45	21/03/1981	22/03/1981
Crested Tern	32	55	151	45	4/04/1981	4/04/1981
Crested Tern	32	55	151	45	20/11/1981	20/11/1981
Great Cormorant	32	55	151	45	5/03/1977	5/03/1977
Great Cormorant	32	55	151	45	10/04/1977	11/04/1977
Great Cormorant	32	55	151	45	22/04/1977	22/04/1977
Great Cormorant	32	55	151	45	24/10/1977	24/10/1977
Great Cormorant	32	55	151	45	15/01/1978	15/01/1978
Great Cormorant	32	55	151	45	28/03/1978	28/03/1978
Great Cormorant	32	55	151	45	22/06/1978	22/06/1978
Great Cormorant	32	55	151	45	1/09/1978	1/09/1978
Great Cormorant	32	55	151	45	26/09/1978	26/09/1978
Great Cormorant	32	55	151	45	20/10/1978	18/11/1978
Great Cormorant	32	55	151	45	21/10/1978	22/10/1978
Great Cormorant	32	55	151	45	29/10/1978	29/10/1978
Great Cormorant	32	55	151	45	2/12/1978	3/12/1978
Great Cormorant	32	55	151	45	2/12/1978	2/12/1978
Great Cormorant	32	55	151	45	26/12/1978	26/12/1978
Great Cormorant	32	55	151	45	17/02/1979	17/02/1979

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Great Cormorant	32	55	151	45	11/03/1979	11/03/1979
Great Cormorant	32	55	151	45	19/03/1979	19/03/1979
Great Cormorant	32	55	151	45	30/08/1979	2/09/1979
Great Cormorant	32	55	151	45	1/09/1979	1/09/1979
Great Cormorant	32	55	151	45	8/12/1979	9/12/1979
Great Cormorant	32	55	151	45	2/01/1980	2/01/1980
Great Cormorant	32	55	151	45	19/01/1980	19/01/1980
Great Cormorant	32	55	151	45	26/01/1980	26/01/1980
Great Cormorant	32	55	151	45	19/04/1980	19/04/1980
Great Cormorant	32	55	151	45	31/08/1980	31/08/1980
Great Cormorant	32	55	151	45	21/12/1980	21/12/1980
Great Cormorant	32	55	151	45	1/01/1981	31/07/1981
Great Cormorant	32	55	151	45	6/01/1981	6/01/1981
Great Cormorant	32	55	151	45	4/04/1981	4/04/1981
Great Cormorant	32	55	151	45	20/11/1981	20/11/1981
Great Cormorant	32	55	151	45	20/11/1981	20/11/1981
Grey-tailed Tattler	32	55	151	45	5/03/1977	5/03/1977
Grey-tailed Tattler	32	55	151	45	10/04/1977	11/04/1977
Grey-tailed Tattler	32	55	151	45	22/04/1977	22/04/1977
Grey-tailed Tattler	32	55	151	45	24/10/1977	24/10/1977
Grey-tailed Tattler	32	55	151	45	15/01/1978	15/01/1978
Grey-tailed Tattler	32	55	151	45	28/03/1978	28/03/1978
Grey-tailed Tattler	32	55	151	45	1/09/1978	1/09/1978
Grey-tailed Tattler	32	55	151	45	2/12/1978	2/12/1978
Grey-tailed Tattler	32	55	151	45	17/02/1979	17/02/1979
Grey-tailed Tattler	32	55	151	45	11/03/1979	11/03/1979
Grey-tailed Tattler	32	55	151	45	25/03/1979	25/03/1979
Grey-tailed Tattler	32	55	151	45	22/04/1979	22/04/1979
Grey-tailed Tattler	32	55	151	45	27/04/1979	27/04/1979
Grey-tailed Tattler	32	55	151	45	15/06/1979	15/06/1979
Grey-tailed Tattler	32	55	151	45	1/09/1979	1/09/1979
Grey-tailed Tattler	32	55	151	45	8/12/1979	9/12/1979
Grey-tailed Tattler	32	55	151	45	2/01/1980	2/01/1980
Grey-tailed Tattler	32	55	151	45	26/01/1980	26/01/1980
Grey-tailed Tattler	32	55	151	45	19/04/1980	19/04/1980
Grey-tailed Tattler	32	55	151	45	31/08/1980	31/08/1980
Grey-tailed Tattler	32	55	151	45	21/12/1980	21/12/1980
Grey-tailed Tattler	32	55	151	45	1/01/1981	31/07/1981
Grey-tailed Tattler	32	55	151	45	6/01/1981	6/01/1981
Grey-tailed Tattler	32	55	151	45	21/03/1981	22/03/1981
Grey-tailed Tattler	32	55	151	45	4/04/1981	4/04/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Gull-billed Tern	32	55	151	45	22/04/1977	22/04/1977
Gull-billed Tern	32	55	151	45	24/10/1977	24/10/1977
Gull-billed Tern	32	55	151	45	15/01/1978	15/01/1978
Gull-billed Tern	32	55	151	45	28/03/1978	28/03/1978
Gull-billed Tern	32	55	151	45	22/06/1978	22/06/1978
Gull-billed Tern	32	55	151	45	1/09/1978	1/09/1978
Gull-billed Tern	32	55	151	45	2/12/1978	3/12/1978
Gull-billed Tern	32	55	151	45	2/12/1978	2/12/1978
Gull-billed Tern	32	55	151	45	24/03/1979	24/03/1979
Gull-billed Tern	32	55	151	45	15/06/1979	15/06/1979
Gull-billed Tern	32	55	151	45	30/08/1979	2/09/1979
Gull-billed Tern	32	55	151	45	1/09/1979	1/09/1979
Gull-billed Tern	32	55	151	45	8/12/1979	9/12/1979
Gull-billed Tern	32	55	151	45	2/01/1980	2/01/1980
Gull-billed Tern	32	55	151	45	26/01/1980	26/01/1980
Gull-billed Tern	32	55	151	45	19/04/1980	19/04/1980
Gull-billed Tern	32	55	151	45	31/08/1980	31/08/1980
Gull-billed Tern	32	55	151	45	21/12/1980	21/12/1980
Gull-billed Tern	32	55	151	45	1/01/1981	31/07/1981
Gull-billed Tern	32	55	151	45	6/01/1981	6/01/1981
Gull-billed Tern	32	55	151	45	4/04/1981	4/04/1981
Kelp Gull	32	55	151	45	1/01/1981	31/07/1981
Little Black Cormorant	32	55	151	45	5/03/1977	5/03/1977
Little Black Cormorant	32	55	151	45	10/04/1977	11/04/1977
Little Black Cormorant	32	55	151	45	22/04/1977	22/04/1977
Little Black Cormorant	32	55	151	45	26/06/1977	26/06/1977
Little Black Cormorant	32	55	151	45	15/01/1978	15/01/1978
Little Black Cormorant	32	55	151	45	28/03/1978	28/03/1978
Little Black Cormorant	32	55	151	45	20/05/1978	20/05/1978
Little Black Cormorant	32	55	151	45	22/06/1978	22/06/1978
Little Black Cormorant	32	55	151	45	1/09/1978	1/09/1978
Little Black Cormorant	32	55	151	45	21/10/1978	22/10/1978
Little Black Cormorant	32	55	151	45	2/12/1978	3/12/1978
Little Black Cormorant	32	55	151	45	2/12/1978	2/12/1978
Little Black Cormorant	32	55	151	45	22/12/1978	22/12/1978
Little Black Cormorant	32	55	151	45	26/12/1978	26/12/1978
Little Black Cormorant	32	55	151	45	20/01/1979	20/01/1979
Little Black Cormorant	32	55	151	45	17/02/1979	17/02/1979
Little Black Cormorant	32	55	151	45	19/03/1979	19/03/1979
Little Black Cormorant	32	55	151	45	14/05/1979	14/05/1979
Little Black Cormorant	32	55	151	45	15/06/1979	15/06/1979
Little Black Cormorant	32	55	151	45	30/08/1979	2/09/1979
Little Black Cormorant	32	55	151	45	1/09/1979	1/09/1979
Little Black Cormorant	32	55	151	45	25/11/1979	25/11/1979
Little Black Cormorant	32	55	151	45	8/12/1979	9/12/1979

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Little Black Cormorant	32	55	151	45	19/01/1980	19/01/1980
Little Black Cormorant	32	55	151	45	26/01/1980	26/01/1980
Little Black Cormorant	32	55	151	45	31/08/1980	31/08/1980
Little Black Cormorant	32	55	151	45	1/01/1981	31/07/1981
Little Black Cormorant	32	55	151	45	6/01/1981	6/01/1981
Little Black Cormorant	32	55	151	45	4/04/1981	4/04/1981
Little Black Cormorant	32	55	151	45	20/11/1981	20/11/1981
Little Black Cormorant	32	55	151	45	20/11/1981	20/11/1981
Little Pied Cormorant	32	55	151	45	5/03/1977	5/03/1977
Little Pied Cormorant	32	55	151	45	10/04/1977	11/04/1977
Little Pied Cormorant	32	55	151	45	22/04/1977	22/04/1977
Little Pied Cormorant	32	55	151	45	26/06/1977	26/06/1977
Little Pied Cormorant	32	55	151	45	24/10/1977	24/10/1977
Little Pied Cormorant	32	55	151	45	22/06/1978	22/06/1978
Little Pied Cormorant	32	55	151	45	1/09/1978	1/09/1978
Little Pied Cormorant	32	55	151	50	1/09/1978	1/09/1978
Little Pied Cormorant	32	55	151	45	26/09/1978	26/09/1978
Little Pied Cormorant	32	55	151	45	2/12/1978	3/12/1978
Little Pied Cormorant	32	55	151	45	2/12/1978	2/12/1978
Little Pied Cormorant	32	55	151	45	26/12/1978	26/12/1978
Little Pied Cormorant	32	55	151	45	17/02/1979	17/02/1979
Little Pied Cormorant	32	55	151	45	11/03/1979	11/03/1979
Little Pied Cormorant	32	55	151	45	19/03/1979	19/03/1979
Little Pied Cormorant	32	55	151	45	14/05/1979	14/05/1979
Little Pied Cormorant	32	55	151	45	15/06/1979	15/06/1979
Little Pied Cormorant	32	55	151	45	30/08/1979	2/09/1979
Little Pied Cormorant	32	55	151	45	1/09/1979	1/09/1979
Little Pied Cormorant	32	55	151	45	25/11/1979	25/11/1979
Little Pied Cormorant	32	55	151	45	8/12/1979	9/12/1979
Little Pied Cormorant	32	55	151	45	2/01/1980	2/01/1980
Little Pied Cormorant	32	55	151	45	19/01/1980	19/01/1980
Little Pied Cormorant	32	55	151	45	26/01/1980	26/01/1980
Little Pied Cormorant	32	55	151	45	31/08/1980	31/08/1980
Little Pied Cormorant	32	55	151	45	1/01/1981	31/07/1981
Little Pied Cormorant	32	55	151	45	6/01/1981	6/01/1981
Little Pied Cormorant	32	55	151	45	21/03/1981	22/03/1981
Little Pied Cormorant	32	55	151	45	4/04/1981	4/04/1981
Little Pied Cormorant	32	55	151	45	20/11/1981	20/11/1981
Little Pied Cormorant	32	55	151	45	20/11/1981	20/11/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Little Tern	32	55	151	45	5/03/1977	5/03/1977
Little Tern	32	55	151	45	10/03/1977	10/03/1977
Little Tern	32	55	151	45	10/04/1977	11/04/1977
Little Tern	32	55	151	45	22/04/1977	22/04/1977
Little Tern	32	55	151	45	24/10/1977	24/10/1977
Little Tern	32	55	151	45	15/01/1978	15/01/1978
Little Tern	32	55	151	45	22/06/1978	22/06/1978
Little Tern	32	55	151	45	1/09/1978	1/09/1978
Little Tern	32	55	151	45	2/12/1978	2/12/1978
Little Tern	32	55	151	45	22/12/1978	22/12/1978
Little Tern	32	55	151	45	20/01/1979	20/01/1979
Little Tern	32	55	151	45	17/02/1979	17/02/1979
Little Tern	32	55	151	45	11/03/1979	11/03/1979
Little Tern	32	55	151	45	24/03/1979	24/03/1979
Little Tern	32	55	151	45	25/03/1979	25/03/1979
Little Tern	32	55	151	45	1/09/1979	1/09/1979
Little Tern	32	55	151	45	25/11/1979	25/11/1979
Little Tern	32	55	151	45	8/12/1979	9/12/1979
Little Tern	32	55	151	45	2/01/1980	2/01/1980
Little Tern	32	55	151	45	26/01/1980	26/01/1980
Little Tern	32	55	151	45	19/04/1980	19/04/1980
Little Tern	32	55	151	45	21/12/1980	21/12/1980
Little Tern	32	55	151	45	1/01/1981	31/07/1981
Little Tern	32	55	151	45	6/01/1981	6/01/1981
Little Tern	32	55	151	45	21/03/1981	22/03/1981
Little Tern	32	55	151	45	4/04/1981	4/04/1981
Pied Cormorant	32	55	151	45	5/03/1977	5/03/1977
Pied Cormorant	32	55	151	45	10/04/1977	11/04/1977
Pied Cormorant	32	55	151	45	24/10/1977	24/10/1977
Pied Cormorant	32	55	151	45	15/01/1978	15/01/1978
Pied Cormorant	32	55	151	45	28/03/1978	28/03/1978
Pied Cormorant	32	55	151	45	22/06/1978	22/06/1978
Pied Cormorant	32	55	151	45	1/09/1978	1/09/1978
Pied Cormorant	32	55	151	45	29/10/1978	29/10/1978
Pied Cormorant	32	55	151	45	2/12/1978	3/12/1978
Pied Cormorant	32	55	151	45	2/12/1978	2/12/1978
Pied Cormorant	32	55	151	45	11/03/1979	11/03/1979
Pied Cormorant	32	55	151	45	24/03/1979	24/03/1979
Pied Cormorant	32	55	151	45	25/03/1979	25/03/1979
Pied Cormorant	32	55	151	45	15/06/1979	15/06/1979
Pied Cormorant	32	55	151	45	30/08/1979	2/09/1979
Pied Cormorant	32	55	151	45	1/09/1979	1/09/1979
Pied Cormorant	32	55	151	45	25/11/1979	25/11/1979
Pied Cormorant	32	55	151	45	2/01/1980	2/01/1980
Pied Cormorant	32	55	151	45	26/01/1980	26/01/1980
Pied Cormorant	32	55	151	45	19/04/1980	19/04/1980
Pied Cormorant	32	55	151	45	31/08/1980	31/08/1980
Pied Cormorant	32	55	151	45	1/01/1981	31/07/1981
Pied Cormorant	32	55	151	45	6/01/1981	6/01/1981
Pied Cormorant	32	55	151	45	21/03/1981	22/03/1981
Pied Cormorant	32	55	151	45	4/04/1981	4/04/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Red-necked Stint	32	55	151	45	5/03/1977	5/03/1977
Red-necked Stint	32	55	151	45	10/04/1977	11/04/1977
Red-necked Stint	32	55	151	45	24/10/1977	24/10/1977
Red-necked Stint	32	55	151	45	12/11/1977	12/11/1977
Red-necked Stint	32	55	151	45	15/01/1978	15/01/1978
Red-necked Stint	32	55	151	45	28/03/1978	28/03/1978
Red-necked Stint	32	55	151	45	22/06/1978	22/06/1978
Red-necked Stint	32	55	151	45	7/10/1978	7/10/1978
Red-necked Stint	32	55	151	45	2/12/1978	2/12/1978
Red-necked Stint	32	55	151	45	22/12/1978	22/12/1978
Red-necked Stint	32	55	151	45	20/01/1979	20/01/1979
Red-necked Stint	32	55	151	45	17/02/1979	17/02/1979
Red-necked Stint	32	55	151	45	17/02/1979	17/02/1979
Red-necked Stint	32	55	151	45	11/03/1979	11/03/1979
Red-necked Stint	32	55	151	45	24/03/1979	24/03/1979
Red-necked Stint	32	55	151	45	30/08/1979	2/09/1979
Red-necked Stint	32	55	151	45	25/11/1979	25/11/1979
Red-necked Stint	32	55	151	45	8/12/1979	9/12/1979
Red-necked Stint	32	55	151	45	2/01/1980	2/01/1980
Red-necked Stint	32	55	151	45	26/01/1980	26/01/1980
Red-necked Stint	32	55	151	45	19/04/1980	19/04/1980
Red-necked Stint	32	55	151	45	31/08/1980	31/08/1980
Red-necked Stint	32	55	151	45	21/12/1980	21/12/1980
Red-necked Stint	32	55	151	45	1/01/1981	31/07/1981
Red-necked Stint	32	55	151	45	6/01/1981	6/01/1981
Red-necked Stint	32	55	151	45	21/03/1981	22/03/1981
Red-necked Stint	32	55	151	45	4/04/1981	4/04/1981
Ruddy Turnstone	32	55	151	45	29/01/1977	29/01/1977
Ruddy Turnstone	32	55	151	45	5/03/1977	5/03/1977
Ruddy Turnstone	32	55	151	45	15/01/1978	15/01/1978
Ruddy Turnstone	32	55	151	45	22/06/1978	22/06/1978
Ruddy Turnstone	32	55	151	45	2/12/1978	3/12/1978
Ruddy Turnstone	32	55	151	45	2/12/1978	2/12/1978
Ruddy Turnstone	32	55	151	45	26/12/1978	26/12/1978
Ruddy Turnstone	32	55	151	45	17/02/1979	17/02/1979
Ruddy Turnstone	32	55	151	45	24/03/1979	24/03/1979
Ruddy Turnstone	32	55	151	45	25/03/1979	25/03/1979
Ruddy Turnstone	32	55	151	45	25/11/1979	25/11/1979
Ruddy Turnstone	32	55	151	45	8/12/1979	9/12/1979
Ruddy Turnstone	32	55	151	45	2/01/1980	2/01/1980
Ruddy Turnstone	32	55	151	45	26/01/1980	26/01/1980
Ruddy Turnstone	32	55	151	45	19/04/1980	19/04/1980
Ruddy Turnstone	32	55	151	45	31/08/1980	31/08/1980
Ruddy Turnstone	32	55	151	45	21/12/1980	21/12/1980
Ruddy Turnstone	32	55	151	45	6/01/1981	6/01/1981
Ruddy Turnstone	32	55	151	45	4/04/1981	4/04/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Silver Gull	32	55	151	45	5/03/1977	5/03/1977
Silver Gull	32	55	151	45	10/04/1977	11/04/1977
Silver Gull	32	55	151	45	22/04/1977	22/04/1977
Silver Gull	32	55	151	45	26/06/1977	26/06/1977
Silver Gull	32	55	151	45	1/08/1977	1/03/1978
Silver Gull	32	55	151	45	24/10/1977	24/10/1977
Silver Gull	32	55	151	45	15/01/1978	15/01/1978
Silver Gull	32	55	151	45	28/03/1978	28/03/1978
Silver Gull	32	55	151	45	20/05/1978	20/05/1978
Silver Gull	32	55	151	45	22/06/1978	22/06/1978
Silver Gull	32	55	151	45	1/09/1978	1/09/1978
Silver Gull	32	55	151	45	21/10/1978	22/10/1978
Silver Gull	32	55	151	45	29/10/1978	29/10/1978
Silver Gull	32	55	151	45	2/12/1978	3/12/1978
Silver Gull	32	55	151	45	2/12/1978	2/12/1978
Silver Gull	32	55	151	45	22/12/1978	22/12/1978
Silver Gull	32	55	151	45	26/12/1978	26/12/1978
Silver Gull	32	55	151	45	20/01/1979	20/01/1979
Silver Gull	32	55	151	45	17/02/1979	17/02/1979
Silver Gull	32	55	151	45	11/03/1979	11/03/1979
Silver Gull	32	55	151	45	19/03/1979	19/03/1979
Silver Gull	32	55	151	45	24/03/1979	24/03/1979
Silver Gull	32	55	151	45	25/03/1979	25/03/1979
Silver Gull	32	55	151	45	14/05/1979	14/05/1979
Silver Gull	32	55	151	45	15/06/1979	15/06/1979
Silver Gull	32	55	151	45	30/08/1979	2/09/1979
Silver Gull	32	55	151	45	1/09/1979	1/09/1979
Silver Gull	32	55	151	45	25/11/1979	25/11/1979
Silver Gull	32	55	151	45	1/12/1979	29/02/1980
Silver Gull	32	55	151	45	8/12/1979	9/12/1979
Silver Gull	32	55	151	45	2/01/1980	2/01/1980
Silver Gull	32	55	151	45	19/01/1980	19/01/1980
Silver Gull	32	55	151	45	26/01/1980	26/01/1980
Silver Gull	32	55	151	45	19/04/1980	19/04/1980
Silver Gull	32	55	151	45	31/08/1980	31/08/1980
Silver Gull	32	55	151	45	1/01/1981	31/07/1981
Silver Gull	32	55	151	45	6/01/1981	6/01/1981
Silver Gull	32	55	151	45	21/03/1981	22/03/1981
Silver Gull	32	55	151	45	4/04/1981	4/04/1981
Silver Gull	32	55	151	45	20/11/1981	20/11/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
Striated Heron	32	55	151	45	5/03/1977	5/03/1977
Striated Heron	32	55	151	45	1/09/1978	1/09/1978
Striated Heron	32	55	151	45	17/02/1979	17/02/1979
Striated Heron	32	55	151	45	1/09/1979	1/09/1979
Striated Heron	32	55	151	45	8/12/1979	9/12/1979
Striated Heron	32	55	151	45	2/01/1980	2/01/1980
Striated Heron	32	55	151	45	4/04/1981	4/04/1981
White-bellied Sea-Eagle	32	55	151	45	5/03/1977	5/03/1977
White-bellied Sea-Eagle	32	55	151	45	26/06/1977	26/06/1977
White-bellied Sea-Eagle	32	55	151	45	24/10/1977	24/10/1977
White-bellied Sea-Eagle	32	55	151	45	15/01/1978	15/01/1978
White-bellied Sea-Eagle	32	55	151	45	20/05/1978	20/05/1978
White-bellied Sea-Eagle	32	55	151	45	22/06/1978	22/06/1978
White-bellied Sea-Eagle	32	55	151	50	1/09/1978	1/09/1978
White-bellied Sea-Eagle	32	55	151	45	26/09/1978	26/09/1978
White-bellied Sea-Eagle	32	55	151	45	2/12/1978	3/12/1978
White-bellied Sea-Eagle	32	55	151	45	2/12/1978	2/12/1978
White-bellied Sea-Eagle	32	55	151	45	26/12/1978	26/12/1978
White-bellied Sea-Eagle	32	55	151	45	20/01/1979	20/01/1979
White-bellied Sea-Eagle	32	55	151	45	17/02/1979	17/02/1979
White-bellied Sea-Eagle	32	55	151	45	24/03/1979	24/03/1979
White-bellied Sea-Eagle	32	55	151	45	22/04/1979	22/04/1979
White-bellied Sea-Eagle	32	55	151	45	15/06/1979	15/06/1979
White-bellied Sea-Eagle	32	55	151	45	25/11/1979	25/11/1979
White-bellied Sea-Eagle	32	55	151	45	1/12/1979	29/02/1980
White-bellied Sea-Eagle	32	55	151	45	26/01/1980	26/01/1980
White-bellied Sea-Eagle	32	55	151	45	19/04/1980	19/04/1980
White-bellied Sea-Eagle	32	55	151	45	5/05/1980	5/05/1980
White-bellied Sea-Eagle	32	55	151	45	1/01/1981	31/07/1981
White-bellied Sea-Eagle	32	55	151	45	6/01/1981	6/01/1981
White-bellied Sea-Eagle	32	55	151	45	21/03/1981	22/03/1981

Appendix 7 - Birds Australia Old Atlas Data (cont.)

Note: Refers to a ten-minute block without specific location details.

Common Name	LatDeg	LatMin	LongDeg	LongMin	1st date	2nd date
White-faced Heron	32	55	151	45	5/03/1977	5/03/1977
White-faced Heron	32	55	151	45	10/04/1977	11/04/1977
White-faced Heron	32	55	151	45	22/04/1977	22/04/1977
White-faced Heron	32	55	151	45	15/01/1978	15/01/1978
White-faced Heron	32	55	151	45	22/06/1978	22/06/1978
White-faced Heron	32	55	151	45	1/09/1978	1/09/1978
White-faced Heron	32	55	151	50	1/09/1978	1/09/1978
White-faced Heron	32	55	151	45	26/09/1978	26/09/1978
White-faced Heron	32	55	151	45	21/10/1978	22/10/1978
White-faced Heron	32	55	151	45	29/10/1978	29/10/1978
White-faced Heron	32	55	151	45	2/12/1978	3/12/1978
White-faced Heron	32	55	151	45	2/12/1978	2/12/1978
White-faced Heron	32	55	151	45	26/12/1978	26/12/1978
White-faced Heron	32	55	151	45	20/01/1979	20/01/1979
White-faced Heron	32	55	151	45	17/02/1979	17/02/1979
White-faced Heron	32	55	151	45	19/03/1979	19/03/1979
White-faced Heron	32	55	151	45	24/03/1979	24/03/1979
White-faced Heron	32	55	151	45	22/04/1979	22/04/1979
White-faced Heron	32	55	151	45	15/06/1979	15/06/1979
White-faced Heron	32	55	151	45	30/08/1979	2/09/1979
White-faced Heron	32	55	151	45	1/09/1979	1/09/1979
White-faced Heron	32	55	151	45	8/12/1979	9/12/1979
White-faced Heron	32	55	151	45	2/01/1980	2/01/1980
White-faced Heron	32	55	151	45	26/01/1980	26/01/1980
White-faced Heron	32	55	151	45	19/04/1980	19/04/1980
White-faced Heron	32	55	151	45	31/08/1980	31/08/1980
White-faced Heron	32	55	151	45	21/12/1980	21/12/1980
White-faced Heron	32	55	151	45	1/01/1981	31/07/1981
White-faced Heron	32	55	151	45	6/01/1981	6/01/1981
White-faced Heron	32	55	151	45	21/03/1981	22/03/1981
White-faced Heron	32	55	151	45	4/04/1981	4/04/1981
White-fronted Tern	32	55	151	45	1/01/1981	31/07/1981
White-winged Black Tern	32	55	151	45	5/03/1977	5/03/1977
White-winged Black Tern	32	55	151	45	24/10/1977	24/10/1977
White-winged Black Tern	32	55	151	45	22/12/1978	22/12/1978
White-winged Black Tern	32	55	151	45	17/02/1979	17/02/1979
White-winged Black Tern	32	55	151	45	24/03/1979	24/03/1979
White-winged Black Tern	32	55	151	45	8/12/1979	9/12/1979

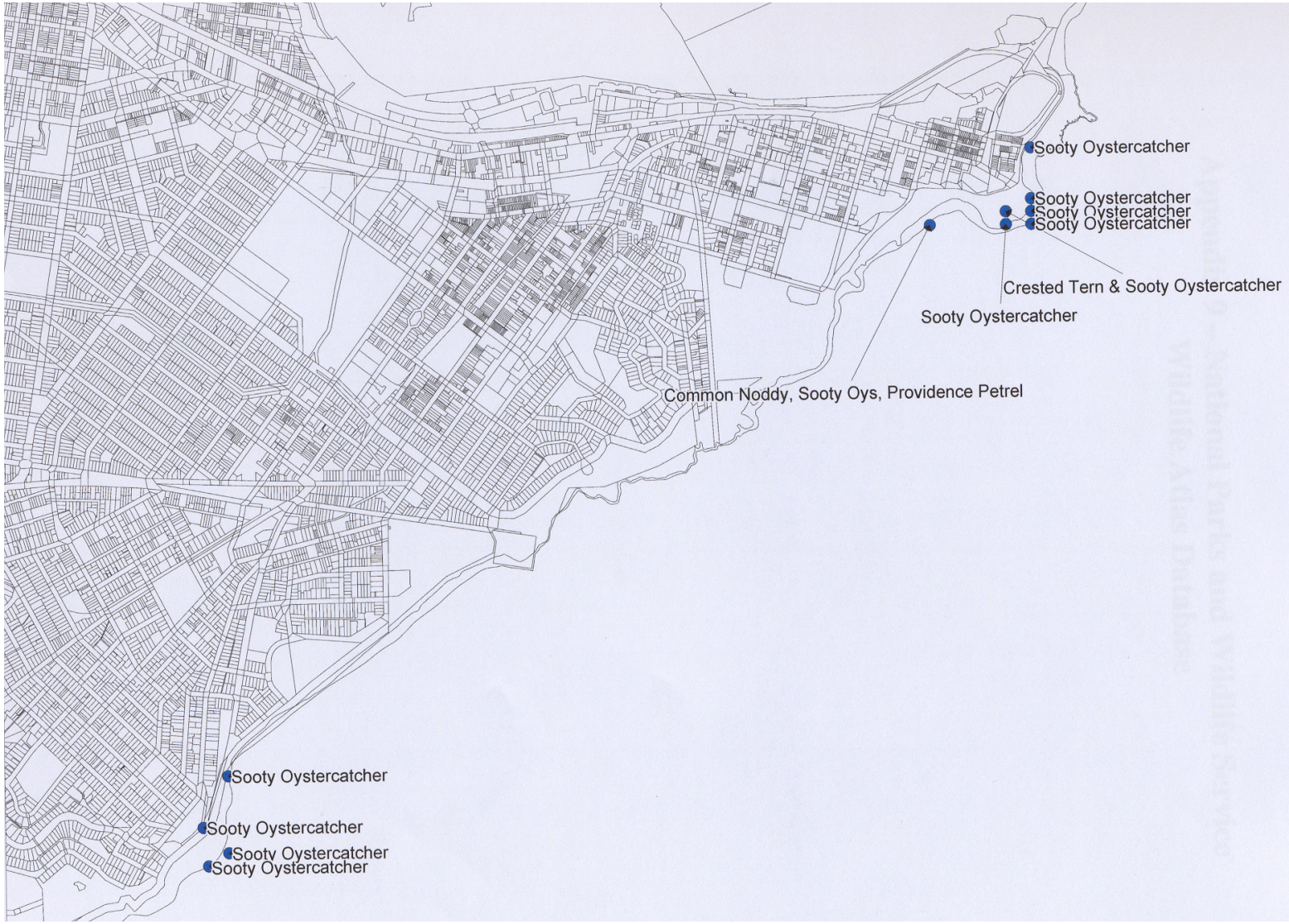
Appendix 8 - NSW Bird Atlassers Data

NSW Bird Atlassers Data	Newcastle City	Nobbys/ Newcastle Beach	Newcastle Beach	Hunter River Mouth	Newcastle Baths	Newcastle Stockton Bight
Observation Periods	1/9/1993-29/1/1998	7/6/1998-12/6/1998	1/3/1994-31/3/1994	21/5/1997-27/5/1997	2/10/1996	6/02/1972 - 30/11/1999
Species						
Darter	*					
Little Pied Cormorant	*	*	*	*		*
Pied Cormorant	*	*		*		
Little Black Cormorant	*	*	*	*		
Great Cormorant	*	*	*			
Australian Pelican	*	*				
White-faced Heron	*		*			*
Eastern Reef Egret		*				
White-necked Heron						*
Australian White Ibis	*					
Whistling Kite						*
White-bellied Sea-Eagle	*			*		
Australian Hobby	*					
Peregrine Falcon	*					
Nankeen Kestrel	*	*				
Whimbrel	*					
Ruddy Turnstone	*					
Sooty Oystercatcher	*			*		
Masked Lapwing	*	*		*		*
Silver Gull	*	*	*	*	*	*
Gull-billed Tern	*					
Caspian Tern	*					
Crested Tern	*	*	*	*		*
Common Tern						*
Little Tern						*
Rock Dove	*		*			
Spotted Turtle-Dove	*					
Little Wattlebird				*		
Magpie Lark	*					*
Willie Wagtail	*					
Black-faced Cuckoo shrike	*	*				*
Figbird	*					
Australian Magpie	*	*				
Pied Currawong	*					
Australian Raven	*	*		*		*
House Sparrow	*					
Welcome Swallow	*	*	*			*
Silvereye	*					
Common Starling	*					*
Common Mynah	*		*			*

Note : Rock platform frequenting bird

Appendix 9 - National Parks and Wildlife Service Wildlife Atlas Database

Sighting_Key		First Date	Last Date	No.	Easting	Northing
100226-035	Providence Petrel	25/11/1985	25/11/1985	1	386500	6355600
36637-HO	Sooty Oystercatcher	2/06/1992	2/06/1992	4	383700	6353500
36638-HO	Sooty Oystercatcher	24/02/1992	13/10/1993	8	386900	6355700
36639-HO	Sooty Oystercatcher	24/02/1992	13/10/1993	2	386900	6355700
97775-035	Sooty Oystercatcher	23/08/1987	23/08/1987	2	386500	6355600
SDMP00020801	Sooty Oystercatcher	14/01/2000	1/02/2000	7	386900	6355900
SJJT02120503	Sooty Oystercatcher	18/09/2002	18/09/2002	4X	383600	6353300
SJJT02120505	Sooty Oystercatcher	27/11/2002	27/11/2002	7X	386800	6355600
SJJT0312101N	Sooty Oystercatcher	26/03/2003	26/03/2003	12	386900	6355650
SPJG01091703	Sooty Oystercatcher	31/08/2001	31/08/2001	9X	383600	6353300
SPJG02082200	Sooty Oystercatcher	9/01/2002	9/01/2002	15	386900	6355650
SPJG02082201	Sooty Oystercatcher	13/03/2002	13/03/2002	7	386900	6355600
SPJG02082202	Sooty Oystercatcher	21/07/2002	21/07/2002	5	386800	6355650
SPJG02082204	Sooty Oystercatcher	12/11/2001	12/11/2001	8	383700	6353200
SPJG02082205	Sooty Oystercatcher	12/11/2001	12/11/2001	3	383700	6353200
SPJG02082206	Sooty Oystercatcher	15/08/2002	15/08/2002	3	383620	6353150
SPXE96061403	Sooty Oystercatcher	3/05/1996	3/05/1996	8	386900	6355700
95361-035	Common Noddy	15/07/1989	15/07/1989	2	386500	6355600
SPJG02082203	Crested Tern	21/07/2002	21/07/2002		386800	6355650


Sooty Oystercatcher
Sooty Oystercatcher
Sooty Oystercatcher
Sooty Oystercatcher
Crested Tern & Sooty Oystercatcher
Sooty Oystercatcher
Common Noddy, Sooty Oys, Providence Petrel
Sooty Oystercatcher
Sooty Oystercatcher
Sooty Oystercatcher
Sooty Oystercatcher

Appendix 10 - Boat Harbour Data

Species	No.	Date
Australian Kestrel	1	11/05/2002
Australian Pelican	2	11/05/2002
Australian Pelican	1	8/11/2002
Common Tern	1	15/01/1995
	2	11/09/1995
	2	4/01/2002
	55	28/10/2002
	40	4/11/2002
	20	8/11/2002
	16	4/12/2002
	3	9/12/2002
	122	21/12/2002
	35	5/02/2003
Crested Tern	30	15/01/1995
	7	12/06/1995
	37	11/09/1995
	14	5/10/1995
	2	17/11/2001
	12	6/12/2001
	4	4/01/2002
	52	13/04/2002
	10	29/04/2002
	22	11/05/2002
	12	26/07/2002
	17	29/07/2002
	19	8/09/2002
	21	15/09/2002
	100	30/09/2002
	17	11/10/2002
	15	28/10/2002
	90	4/11/2002
	100	8/11/2002
	40	4/12/2002
	50	9/12/2002
	6	21/12/2002
	20	5/02/2003
Curlew Sandpiper	2	15/01/1995
Double-banded Plover	11	12/06/1995
	1	11/09/1995
	14	13/04/2002
	15	29/04/2002
	8	11/05/2002
	16	26/07/2002
	24	29/07/2002

Species	No.	Date
Eastern Reef Egret	1	13/04/2002
	1	29/04/2002
	1	29/07/2002
	2	11/10/2002
	1	4/12/2002
Great Cormorant	1	12/06/1995
	9	11/09/1995
	5	25/11/1995
	6	17/11/2001
	1	4/01/2002
	1	29/04/2002
	1	11/05/2002
	1	26/07/2002
	2	8/09/2002
	1	11/10/2002
	1	28/10/2002
	2	4/11/2002
	1	8/11/2002
	2	4/12/2002
	4	9/12/2002
	3	21/12/2002
	1	5/02/2003
Grey-tailed Tattler	1	30/09/2002
	1	28/10/2002
	1	4/11/2002
	1	8/11/2002
	2	4/12/2002
Kelp Gull	1	15/01/1995
	1	6/12/2001
	3	13/04/2002
	2	29/04/2002
	2	11/05/2002
	2	26/07/2002
	2	28/10/2002
	2	5/02/2003
Lesser Sand Plover	13	15/01/1995
	3	17/11/2001
	3	18/11/2001
	3	6/12/2001
	4	4/01/2002
	1	13/04/2002
	2	29/04/2002
	2	11/05/2002
	1	28/10/2002
	2	4/11/2002
	2	4/12/2002
	2	9/12/2002
	2	5/02/2003

Appendix 10 - Boat Harbour Data (cont.)

Species	No.	Date
Little Black Cormorant	2	11/09/1995
	3	5/10/1995
	2	6/12/2001
	2	4/01/2002
	8	29/04/2002
	5	26/07/2002
	6	29/07/2002
	1	8/09/2002
	4	11/10/2002
	3	28/10/2002
	3	4/11/2002
	5	8/11/2002
	4	4/12/2002
	5	9/12/2002
	1	21/12/2002
	3	5/02/2003
Little Pied Cormorant	26	11/09/1995
	1	5/10/1995
	2	25/11/1995
	3	6/12/2001
	4	4/01/2002
	2	13/04/2002
	2	29/04/2002
	3	26/07/2002
	8	29/07/2002
	4	8/09/2002
	3	11/10/2002
	1	28/10/2002
	2	21/12/2002
	1	5/02/2003
Little Tern	72	25/11/1995
	9	6/12/2001
	8	28/10/2002
	10	8/11/2002
	3	9/12/2002
	4	21/12/2002
Pacific Golden Plover	2	15/01/1995
	5	8/11/2001
	3	6/12/2001
	4	4/01/2002
	3	11/10/2002
	11	28/10/2002
	14	4/11/2002
	12	8/11/2002
	15	4/12/2002
	11	9/12/2002
	17	21/12/2002

Species	No.	Date
Pied Cormorant	14	12/06/1995
	3	11/09/1995
	7	5/10/1995
	7	25/11/1995
	8	17/11/2001
	6	6/12/2001
	5	13/04/2002
	3	29/04/2002
	7	11/05/2002
	5	26/07/2002
	9	8/09/2002
	1	15/09/2002
	12	11/10/2002
	2	28/10/2002
	2	4/11/2002
	4	8/11/2002
	1	4/12/2002
	1	9/12/2002
	2	21/12/2002
Pied Oystercatcher	5	17/11/2001
	4	4/11/2002
	1	8/11/2002
	1	4/12/2002
	1	9/12/2002
Red-necked Stint	53	15/01/1995
	2	12/06/1995
	23	11/09/1995
	8	5/10/1995
	89	25/11/1995
	50	8/11/2001
	30	17/11/2001
	77	18/11/2001
	70	6/12/2001
	97	4/01/2002
	15	13/04/2002
	16	29/04/2002
	16	11/05/2002
	21	26/07/2002
	15	29/07/2002
	8	8/09/2002
	47	15/09/2002
	57	11/10/2002
	80	28/10/2002
	101	8/11/2002
	143	4/12/2002
	110	9/12/2002
	93	21/12/2002
	120	5/02/2003

Appendix 10 - Boat Harbour Data (cont.)

Species	No.	Date
Ruddy Turnstone	35	15/01/1995
	13	11/09/1995
	20	5/10/1995
	25	25/11/1995
	3	8/11/2001
	12	17/11/2001
	19	18/11/2001
	21	6/12/2001
	20	4/01/2002
	12	13/04/2002
	5	11/05/2002
	2	26/07/2002
	4	29/07/2002
	1	8/09/2002
	11	15/09/2002
	4	30/09/2002
	18	11/10/2002
	19	28/10/2002
	16	4/11/2002
	19	8/11/2002
	19	4/12/2002
	17	9/12/2002
	12	21/12/2002
	5	5/02/2003
Sanderling	1	28/10/2002
	1	21/12/2002
Sharp-tailed Sandpiper	57	30/09/2002
	110	4/11/2002
Silver Gull	80	12/06/1995
	7	5/10/1995
	13	25/11/1995
	40	6/12/2001
	59	4/01/2002
	100	13/04/2002
	30	29/04/2002
	50	11/05/2002
	17	29/07/2002
	4	8/09/2002
	50	15/09/2002
	100	30/09/2002
	22	11/10/2002
	25	28/10/2002
	70	4/11/2002
	50	8/11/2002
	50	4/12/2002
	28	9/12/2002
	25	21/12/2002

Species	No.	Date
Sooty Oystercatcher	2	15/01/1995
	1	5/10/1995
	6	25/11/1995
	8	8/11/2001
	2	17/11/2001
	4	18/11/2001
	8	4/01/2002
	14	29/04/2002
	3	29/07/2002
	6	15/09/2002
	5	30/09/2002
	6	11/10/2002
	8	28/10/2002
	1	8/11/2002
	10	4/12/2002
	9	9/12/2002
	7	21/12/2002
	12	5/02/2003
Striated Heron	1	29/07/2002
Whimbrel	1	15/01/1995
	1	11/10/2002
Whiskered Tern	3	9/12/2002
White-bellied Sea-Eagle	2	11/05/2002
White-faced Heron	1	29/04/2002
	1	29/07/2002
	1	30/09/2002
	2	11/10/2002
	1	28/10/2002
	1	4/11/2002
	1	5/02/2003
White-fronted Tern	5	26/07/2002
	2	4/12/2002

Appendix 11 – Long Reef Data

Species	No.	Date
Australian Pelican	7	6/10/1995
	1	28/11/1995
	2	5/01/1996
	6	5/02/1996
	9	11/05/1996
	1	15/06/1996
	6	16/08/1996
	1	24/09/1996
	4	27/10/1996
	4	18/11/1996
	4	16/12/1996
	3	18/01/1997
	2	24/02/1997
	3	23/03/1997
	6	16/04/1997
	4	24/05/1997
	7	13/06/1997
	3	21/07/1997
	1	20/09/1997
	5	13/11/1997
Bar-tailed Godwit	1	28/11/1995
Caspian Tern	2	31/07/1994
	1	16/04/1995
Common Tern	68	20/11/1994
	2	22/01/1995
Crested Tern	8	31/07/1994
	18	21/08/1994
	56	24/09/1994
	64	23/10/1994
	12	20/11/1994
	10	18/12/1994
	11	22/01/1995
	14	15/02/1995
	18	20/03/1995
	60	16/04/1995
	6	24/06/1995
	8	23/07/1995
	4	11/08/1995
	23	8/09/1995
	44	6/10/1995
	40	28/11/1995
	4	24/12/1995
	1	5/01/1996
	55	5/02/1996
	20	3/03/1996

Species	No.	Date
Crested Tern	35	5/04/1996
	110	11/05/1996
	9	12/05/1996
	4	15/06/1996
	2	22/07/1996
	24	16/08/1996
	100	24/09/1996
	16	16/12/1996
	2	18/01/1997
	25	24/02/1997
	60	23/03/1997
	48	16/04/1997
	6	24/05/1997
	21	13/06/1997
	13	20/09/1997
	85	18/10/1997
	37	13/11/1997
	9	15/12/1997
	51	12/01/1998
	30	7/02/1998
Curlew Sandpiper	1	20/09/1997
Double-banded Plover	8	31/07/1994
	8	21/08/1994
	3	20/03/1995
	5	16/04/1995
	9	24/06/1995
	8	23/07/1995
	4	11/08/1995
	5	5/04/1996
	9	11/05/1996
	4	12/05/1996
	8	15/06/1996
	6	22/07/1996
	2	16/08/1996
	2	16/04/1997
	6	24/05/1997
	5	13/06/1997
	5	21/07/1997
Eastern Curlew	2	28/09/1996
	1	27/10/1996
	2	18/11/1996

Appendix 11 – Long Reef Data (cont.)

Species	No.	Date
Eastern Reef Egret	2	21/08/1994
	1	24/09/1994
	1	23/10/1994
	1	24/06/1995
	1	11/08/1995
	1	8/09/1995
	2	6/10/1995
	1	24/12/1995
	1	5/01/1996
	1	5/02/1996
	1	15/06/1996
	1	16/08/1996
	1	20/09/1997
	1	13/11/1997
Great Cormorant	8	31/07/1994
	12	21/08/1994
	8	24/09/1994
	7	23/10/1994
	18	20/11/1994
	11	18/12/1994
	9	22/01/1995
	6	15/02/1995
	1	16/04/1995
	4	24/06/1995
	3	23/07/1995
	24	6/10/1995
	3	28/11/1995
	18	24/12/1995
	17	5/01/1996
	12	5/02/1996
	2	3/03/1996
	1	5/04/1996
	1	12/05/1996
	3	15/06/1996
	1	22/07/1996
	5	16/08/1996
	9	24/09/1996
	5	16/12/1996
	1	24/02/1997
	1	13/06/1997
	9	20/09/1997
	1	18/10/1997
	10	13/11/1997
	4	15/12/1997
	10	12/01/1998
	11	7/02/1998

Species	No.	Date
Grey-tailed Tattler	2	24/09/1994
	12	20/11/1994
	3	18/12/1994
	4	22/01/1995
	4	20/03/1995
	3	16/04/1995
	1	24/06/1995
	2	11/08/1995
	3	8/09/1995
	1	6/10/1995
	1	28/11/1995
	2	24/12/1995
	1	5/01/1996
	2	5/02/1996
	4	5/04/1996
	1	11/05/1996
	2	12/05/1996
	1	15/06/1996
	1	22/07/1996
	45	13/11/1996
	9	16/12/1996
	6	18/01/1997
	7	24/02/1997
	4	23/03/1997
	3	16/04/1997
	1	24/05/1997
	1	13/06/1997
	2	21/07/1997
	3	20/09/1997
	3	18/10/1997
	7	13/11/1997
	8	15/12/1997
	5	12/01/1998
	8	7/02/1998
Intermediate Egret	2	28/09/1996
Kelp Gull	1	22/01/1995
	1	28/11/1995
	1	5/02/1996
Large Sand Plover	1	5/02/1996

Appendix 11 – Long Reef Data (cont.)

Species	No.	Date
Little Black Cormorant	2	23/10/1994
	3	20/11/1994
	1	18/12/1994
	2	22/01/1995
	2	16/04/1995
	3	6/10/1995
	4	24/12/1995
	1	3/03/1996
	2	15/06/1996
	1	22/07/1996
	2	16/08/1996
	3	24/09/1996
	2	16/12/1996
	2	18/01/1997
	1	24/02/1997
	2	16/04/1997
	2	13/06/1997
	2	20/09/1997
	3	13/11/1997
	1	12/01/1998
Little Pied Cormorant	3	31/07/1994
	3	20/11/1994
	2	15/02/1995
	2	20/03/1995
	1	16/04/1995
	2	24/06/1995
	1	23/07/1995
	4	11/08/1995
	5	24/12/1995
	2	5/01/1996
	2	5/02/1996
	4	3/03/1996
	4	5/04/1996
	1	11/05/1996
	3	12/05/1996
	5	15/06/1996
	1	22/07/1996
	2	16/08/1996
	1	24/09/1996
	1	16/12/1996
	1	18/01/1997
	1	24/02/1997
	1	23/03/1997
	6	16/04/1997
	3	24/05/1997
	2	13/06/1997
	4	21/07/1997

Species	No.	Date
Little Pied Cormorant	2	20/09/1997
	2	13/11/1997
	2	15/12/1997
	2	12/01/1998
	5	7/02/1998
Masked Lapwing	2	27/10/1996
	2	12/01/1998
Pacific Golden Plover	3	24/09/1994
	8	18/12/1994
	5	22/01/1995
	3	15/02/1995
	6	16/04/1995
	5	5/02/1996
	7	3/03/1996
	12	5/04/1996
	10	16/12/1996
	14	18/01/1997
	13	24/02/1997
	11	16/04/1997
	1	24/05/1997
	1	13/06/1997
	1	21/07/1997
	3	20/09/1997
	9	18/10/1997
	5	13/11/1997
	14	15/12/1997
	8	12/01/1998
	9	7/02/1998
Pied Cormorant	6	21/08/1994
	1	24/09/1994
	1	23/10/1994
	1	20/11/1994
	1	18/12/1994
	1	22/01/1995
	1	15/02/1995
	1	24/06/1995
	1	23/07/1995
	1	6/10/1995
	1	24/12/1995
	1	5/01/1996
	1	5/02/1996
	1	3/03/1996
	1	22/07/1996
	1	16/08/1996

Appendix 11 – Long Reef Data (cont.)

Species	No.	Date
Red-necked Stint	25	31/07/1994
	15	21/08/1994
	30	24/09/1994
	34	18/12/1994
	40	22/01/1995
	6	15/02/1995
	30	20/03/1995
	8	16/04/1995
	8	24/06/1995
	10	23/07/1995
	10	11/08/1995
	12	8/09/1995
	4	28/11/1995
	32	24/12/1995
	72	5/01/1996
	40	5/02/1996
	42	3/03/1996
	25	5/04/1996
	42	11/05/1996
	14	12/05/1996
	36	15/06/1996
	23	22/07/1996
	29	16/08/1996
	63	24/09/1996
	55	16/12/1996
	108	18/01/1997
	70	24/02/1997
	29	23/03/1997
	26	16/04/1997
	14	24/05/1997
	12	13/06/1997
	12	21/07/1997
	40	20/09/1997
	17	18/10/1997
	40	13/11/1997
	40	15/12/1997
	50	12/01/1998
	66	7/02/1998

Species	No.	Date
Ruddy Turnstone	6	31/07/1994
	5	21/08/1994
	22	20/11/1994
	4	18/12/1994
	20	22/01/1995
	14	15/02/1995
	2	16/04/1995
	6	24/06/1995
	3	23/07/1995
	4	11/08/1995
	10	8/09/1995
	1	28/11/1995
	7	24/12/1995
	36	5/01/1996
	25	5/02/1996
	20	3/03/1996
	18	5/04/1996
	5	11/05/1996
	5	12/05/1996
	1	15/06/1996
	1	22/07/1996
	1	16/08/1996
	11	24/09/1996
	32	16/12/1996
	27	18/01/1997
	25	24/02/1997
	25	16/04/1997
	4	24/05/1997
	3	13/06/1997
	4	21/07/1997
	8	20/09/1997
	21	13/11/1997
	20	15/12/1997
	25	12/01/1998
	12	7/02/1998

Appendix 11 – Long Reef Data (cont.)

Species	No.	Date
Silver Gull	30	31/07/1994
	15	21/08/1994
	30	24/09/1994
	22	23/10/1994
	17	20/11/1994
	28	18/12/1994
	48	22/01/1995
	70	15/02/1995
	40	20/03/1995
	35	16/04/1995
	18	24/06/1995
	32	23/07/1995
	14	11/08/1995
	8	6/10/1995
	8	28/11/1995
	170	5/02/1996
	30	3/03/1996
	40	5/04/1996
	20	11/05/1996
	42	12/05/1996
	25	15/06/1996
	40	22/07/1996
	40	16/08/1996
	300	24/09/1996
	40	28/09/1996
	30	27/10/1996
	14	18/11/1996
	70	16/12/1996
	60	18/01/1997
	91	24/02/1997
	150	23/03/1997
	76	16/04/1997
	96	24/05/1997
	67	13/06/1997
	30	21/07/1997
	29	20/09/1997
	36	18/10/1997
	40	13/11/1997
	41	15/12/1997
	35	12/01/1998
	98	7/02/1998

Species	No.	Date
Sooty Oystercatcher	1	22/01/1995
	1	15/02/1995
	11	20/03/1995
	14	16/04/1995
	1	24/06/1995
	8	23/07/1995
	10	11/08/1995
	9	8/09/1995
	9	6/10/1995
	8	28/11/1995
	6	24/12/1995
	8	5/02/1996
	19	5/04/1996
	10	11/05/1996
	3	12/05/1996
	1	22/07/1996
	5	18/01/1997
	14	24/02/1997
	21	23/03/1997
	9	16/04/1997
	14	24/05/1997
	4	21/07/1997
	1	13/11/1997
	3	15/12/1997
	4	12/01/1998
	8	7/02/1998
Whimbrel	1	11/05/1996
White-faced Heron	1	15/02/1995
	1	20/03/1995
	1	8/09/1995
	6	28/09/1996
	5	27/10/1996
	2	18/11/1996
	1	16/04/1997
	1	24/05/1997
	1	13/06/1997
White-fronted Tern	16	21/08/1994
	2	24/09/1994
	5	23/10/1994
	2	20/11/1994
	1	11/08/1995
	30	8/09/1995
	1	16/08/1996

Appendix 12 – Latest Observations

Dr William Gladstone's Observations

12 May 2005 - 20 Sooty Oystercatchers feeding and roosting on northern and southern side of Susan Gilmore Beach from 0700-1015.

25 May 2005 - 6 sooty oystercatchers feeding immediately south of the Bogey Hole at 1400

26 May 2005 - 1 Sooty Oystercatcher at Bogey Hole at 1300
- 3 Sooty Oystercatchers at Merewether Ocean Baths at 1330
- 6 Sooty Oystercatchers south of Merewether Ocean Baths at 1415

3 June 2005 - 9 Sooty Oystercatchers on large, elevated rock platform between Bogey Hole and Susan Gilmore Beach, 0900-1130.

1 June 2005 - 1 Sooty Oystercatcher south of Merewether Ocean Baths at 1000.

8 June 2005 - 3 Sooty Oystercatchers feeding on the rock platform south of Susan Gilmore Beach at 1530.

9 June 2005 - 1 Sooty Oystercatcher at Soldiers Baths at 1330, feeding at low tide.
- 8 Sooty Oystercatchers south of Susan Gilmore Beach at 1500, feeding at low tide.

29 June - 3 Sooty Oystercatcher feeding south of Merewether Ocean Baths at 0800.

Hunter Bird Observers Club Observations

14 May 2005 - 21 Sooty Oystercatchers roosting just north of Newcastle Ocean Baths (A. Stuart)

8 June 2005 - 22 Sooty Oystercatchers at Newcastle Ocean Baths (R. McDonald)
- 2 Ruddy Turnstones at Newcastle Ocean Baths
- 8 White-fronted Terns at Newcastle Ocean Baths

Observations at Newcastle Rock Platform – December 2005 to January 2006
(7am each day) (Judith Thomas)

N = north of Ocean Baths to Soldiers Baths A = Roost A B = Roost B CP = Canoe Pool (on sand)

Date	Ruddy Turnstone	Sooty Oystercatcher	Pied Oystercatcher	Common Sandpiper
2005				
Dec 19	15 (N)	6		
Dec 28	17 (B)	7	1 (B)	1 (B)
2006				
Jan 3	7 (A)		1 (B)	
Jan 4	0		1 (B)	
Jan 5	0			
Jan 6	5 (A)	19 (A)		
Jan 7	5 (A)			
Jan 8	0	15 (A)		
Jan 9	11 (B)	19 (A)		
Jan 10	15 (B)	0		
Jan 11	17 (B)	0		
Jan 12	13 (B)	6		1 (B)
Jan 13	7 (B)	14 (A)		
Jan 14	14 (B)	21 (A)		
Jan 15	14 (A)	21 (A)		
Jan 16	3 (A)	1 (B)		
Jan 17	0	22 (A)		
Jan 18	0	7 (A)		
Jan 19	0	4 (N)		
Jan 20	0	2 (N)		
Jan 21	1 (B)	4 (N) 4 (A)		
Jan 22	0	6 (N)		
Jan 23	0	10 (N)		
Jan 24	0	4 (B)		
Jan 25	0	23 (N)		
Jan 26	0	0		
Jan 27	1			
Jan 29	0	7		
Jan 31	0	2 (N) 21 (A)		
Feb 2	0	14 (N)		

Observations at Newcastle Rock Platform – December 2005 to January 2006 (cont.)
(7am each day) (Judith Thomas)

N = north of Ocean Baths to Soldiers Baths A = Roost A B = Roost B CP = Canoe Pool

2006	Crested Tern	Little Pied Cormorant	Silver Gull	Australian Pelican	Great Cormorant	Rock Pigeon	Little Black Cormorant
Jan 15	23 (B)	1 (B)	50 (N) 24 (A) 100 (CP)		1 (on pole)	20 (N)	
Jan 16	52 (B)	1 (A)	50 (CP)	1 (CP)	3 (on poles)		
Jan 17	12 (A) 39 (B)		50 (CP)				
Jan 18	42 (A)		6 (A) 167 (CP)		3 (N)		
Jan 19	14 (A)		90 (CP)	1 (N)		3 (N)	
Jan 20	7 (A) 14 (B)		6 (N) 55 (B) 50 (CP)	1 (N)	2 (N)	4 (N)	
Jan 21	42 (A)		8 (N) 6 (A) 45 (CP)	1 (N)	2 at Bar Beach + WF Heron	8 (N)	4 (A)
Jan 22	7 (N) 48 (A)		40 (N) 14 (A) 56 (CP)	1 (N)		6 (N)	2 (N)
Jan 23	45 (A)		30 (N) 16 (A) 60 (CP) (dist. dog)		3 at Bar Beach + WF Heron	3 (N)	1 (A)
Jan 24	87 (A)		8 (N) 17 (B) 24 (CP)			8 (N) dist. dog	1 (N) 1 (A)
Jan 25	0		8 (N) 9 (A) 3 (B) 100 CP	1 (N)		3 (N)	1 (N)
Jan 26	39 (A)	1 (N)	8 (N) 48 (CP)		1 (N)	6 (N)	
Jan 27	42 (A) 12 (B)		9 (A) 12 (B) 30 (CP)				
Jan 29	23 (A) 3 (B)	1 (A)	6 (A) 30 (B) 57 (CP)				
Jan 31	11 (A) 14 (B)		15 (N) 9 (A) 21 (B) 111 (CP)				1 (N)
Feb 2	23 (N)	1 (N)	11 (N) 18 (B) 105 (CP)				