Shorebird Records for the Hunter Estuary prior to 1999

Alan Stuart

HBOC Special Report No. 8

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Cover Photo: Roosting godwits: Black-tailed Godwit *Limosa limosa* and Bar-tailed Godwit *Limosa lapponica* (Photographer: Alan Stuart).
These two migratory godwit species were abundant in the Hunter Estuary in the period 1970-1999 and probably for a long time prior to that.

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TABLE OF CONTENTS

Executive Summary

The Hunter Estuary is recognised as the most important site for shorebirds in New South Wales. It also is highly ranked in both a national and an international context, particularly for several migratory shorebird species.

Since April 1999, there have been regular, systematic counts of the numbers of shorebirds present in the Hunter Estuary each month. This allows any population changes to be identified and for the changes to be able to be related to the quality of local shorebird habitats and to things which may be occurring elsewhere within the East Asian – Australasian Flyway.

Ideally the post-1999 status should also be compared with the status in earlier times. However, until now there have been serious impediments to doing this. Firstly, there was a lack of any consistent approach to shorebird data collection prior to 1999, with some notable exceptions. Secondly, there were many different places where the data were documented (if indeed they were documented at all), making it very difficult to get a clear overall impression about shorebirds in the Estuary. Thirdly, there has been a lack of any critical review of the available shorebird records, whereby anomalous records, that potentially distort the analysis, can be excluded from consideration.

This Report represents an attempt to address these impediments. All the known pre 1999 records have been collated, with their source referenced. Those records have been critiqued, with several erroneous records about shorebird numbers identified and suggestions made for the probable/actual numbers which were present. Finally, based on the correct information, estimates have been made of the annual shorebird numbers present in the Hunter Estuary in previous eras.

Using actual data when available and interpolating in those cases where data were not available, it seems that about 11,000 migratory shorebirds on average visited the Hunter Estuary each year in the 1970s and 1980s. More limited data for the 1940s and 1960s suggest a similar situation. Undoubtedly the actual numbers varied from year to year, but there seems good evidence that 11,000 birds was the typical total. By the 1990s, the average numbers for migratory shorebirds had decreased by some 20%, to about 9,000 birds. In contrast, the numbers of resident shorebirds increased steadily from the 1970s through to the 1990s

	Typical numbers present		
	1970s	**1980s**	**1990s**
Migratory shorebirds	11,000 ± 4,000	11,500 ± 3,500	9,200 ± 2,700
Australian resident birds	1,200 ± 650	2,700 ± 1,100	4,200 ± 1,600
Total shorebirds	12,000 ± 4,500	14,500 ± 4,500	13,500 ± 4,300

For most species, the numbers visiting each year were reasonably stable over the medium term, albeit with fluctuating numbers for some of them in the shorter ter. Several species experienced substantial population declines between the 1960s and the 1990s, in particular: Pacific Golden Plover *Pluvialis fulva*; Double-banded Plover *Charadrius bicinctus*; Lesser Sand Plover *Charadrius mongolus*; Black-tailed Godwit *Limosa limosa*; Broad-billed Sandpiper *Limicola falcinellus*. The numbers of visiting Bar-tailed Godwits *Limosa lapponica* rose through the

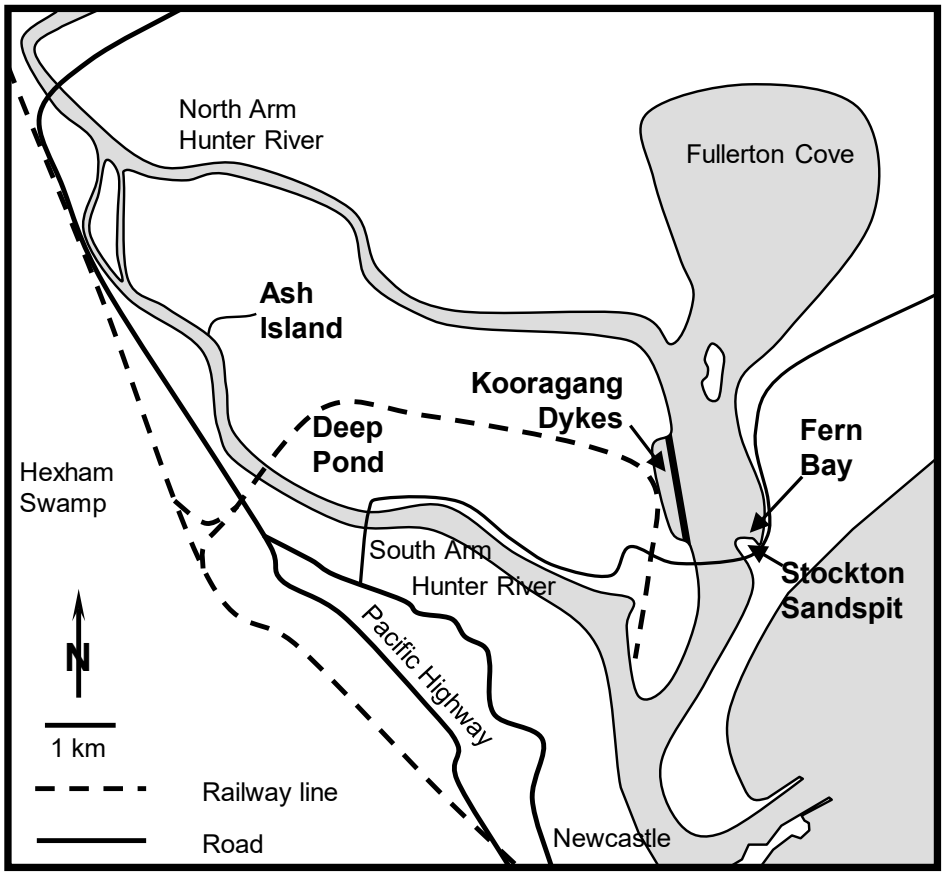
1970s and 1980s before declining (but in numbers still higher than before the increase began). Red-necked Avocets *Recurvirostra novaehollandiae* began arriving in small numbers in the early 1970s; within a decade many thousands of them were often present.

1. INTRODUCTION

The Hunter Estuary, including Kooragang Island, Fullerton Cove and Hexham Swamp, is a very important area for migratory and Australian shorebirds, in local, NSW, Australian and international contexts (Stuart *et al.* 2013). The Estuary and the main shorebird roost sites are shown in Figure 1.

The Hunter Estuary was nominated by Smith (1991) as by far the most important shorebird site in New South Wales. He ranked it as a Priority 1 site; no other area in NSW was assigned this ranking. More than 20 years later, the Estuary remains the most important shorebird site in NSW and its national and international importance continues (Stuart *et al.* 2013)

Figure 1. Main shorebird survey sites in the Hunter Estuary *(map prepared by Chris Herbert)*



In April 1999, Hunter Bird Observers Club (HBOC) started conducting regular and systematic monthly counts of shorebirds in the Hunter Estuary, later extending these surveys to the counting of all waterbirds. The counts are made at high tide, when the shorebirds can be expected to be roosting at a small number of sites, thus facilitating the counting. Typically, in the summers since 1999, 3,000-4,000 shorebirds have been present each month in the Estuary and occasionally 8,000-10,000 birds when inland conditions bring increased numbers of Australian shorebirds to the coast. The raw results are contained within the Hunter Region Bird Reports, published annually by HBOC.

It is of considerable interest to be able to compare the recent HBOC results with historical count data. Generally, and with two notable exceptions, there was no systematic approach to the collection of shorebird population data before April 1999. Anecdotal and *ad hoc*

information available to us suggests that counts of >10,000 birds were frequent in earlier times, implying that there has been a substantial decline in numbers. However, comparisons of the pre- and post-April 1999 data are not easily made because of the paucity of the former. Also, such data that exist are found scattered through numerous sources not all of which are readily accessible.

There have been two systematic studies of shorebird populations in the Hunter Estuary prior to 1999. For 8 years from 1969, van Gessel and Kendall carried out weekly counts at all the major sites in the Estuary. The raw data are no longer available (T. Kendall pers. comm.) but the counts to 1974 became the basis for several important papers (including some that are unpublished). In 1994-1996, a combination of land, helicopter and canoe was used to survey all the major sites monthly (in summer) and bi-monthly (winter).

Smith (1991), using the maximum counts for various wetlands, suggested a figure of around 24,000 shorebirds for the Hunter Estuary including more than 20,000 migratory birds. However, these numbers were based upon the maximum counts for each individual species over an interval of 20 years. While this method for evaluating wetlands is appropriate in some contexts, it does not provide a useful comparison for the post-1999 data. The various environmental and ecological changes that occurred between 1970 and 1990 become masked by taking just the maximum count for the period.

The purpose of this present report is to assess the known records for migratory and other shorebirds from prior to the commencement of the HBOC surveys, and use these records to estimate the numbers annually for each species in the Hunter Estuary, and also to estimate the total number of birds present each year. This analysis, when compared with the post-1999 data, will then allow more ready identification of any changes to the status of individual species, or to the overall Estuary population.

Many sources of information have now been obtained, that can assist in developing a better picture of the historical record of shorebirds in the Hunter Estuary. With some exceptions, the data were not collected systematically but instead were based on opportunistic observations. A consequence is that the reported shorebird counts do not necessarily reflect the total numbers of birds that were present in the Estuary. Despite this, the published counts do provide an indication of the minimum numbers of shorebirds that were present in any given year, and they also allow inferences to be drawn about other years.

This report summarises all of the shorebird data from before April 1999 for which sources have been found. The nomenclature follows that of BirdLife Australia's Working Checklist V1.1. The data have been analysed and conclusions drawn about shorebird status in the Hunter Estuary prior to 1999. The intention is to facilitate future comparisons with the data collected systematically since April 1999. Each species is considered separately, and then an overall Estuary analysis has been made.

About this Report

The bulk of the research and writing for this Report occurred during 2004-2005. A draft was then sent to several people for their review and comments. The same draft was also made available for three other projects, with the information used to inform the conclusions in the reports from those projects, which are detailed below:

- Distribution, Abundance and Status of Birds in the Hunter Estuary (Herbert 2007)
- Migratory shorebird ecology in the Hunter estuary, south-eastern Australia (Spencer 2010)
- Atlas of the Birds of NSW and the ACT (Cooper *et al.*)

After an eight year hiatus, the 2005 draft report at last has been finalised.
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2. SOURCES OF INFORMATION

1. NSW Bird Reports

One useful source of information has been the NSW Bird Reports 1971-1999 (references 1-29). These are produced by Birding NSW (formerly the NSW Field Ornithologists Club). The reports, from the initial 1971 Report (issued May 1972) to the 1999 Report (issued April 2000), have been published annually in the journal *Australian Birds*. They provide a limited but valuable record of shorebird numbers in the Hunter Estuary. The limitations stem from the following:

- The information presented is based mainly on opportunistic observations
- The general philosophy used in preparing the Bird Reports is to concentrate on exceptional observations (birds out of normal range, or present in abnormal numbers).

One consequence is that the reported shorebird counts do not necessarily reflect the total numbers of birds that were present in the Estuary. Another consequence is that for some years there are no counts reported – which may be because birds were absent or not observed, or because the number of birds recorded was in line with the preceding few years.

Despite these qualifications, the published counts do provide an indication of the minimum numbers of shorebirds that were present in any given year. Also, it is possible to interpolate numbers between the years where no data were published (on an assumption that the year-on-year situations were similar).

2. Hunter Region Bird Reports

HBOC has produced annual reports about the status of species within the Hunter Region since 1993. The relevant records through to 1999 are presented in this article (references 30-36). Although also based primarily on opportunistic observations, as for the NSW Bird Reports, and therefore with similar limitations, the general philosophy used is to report appropriately on every species known to occur in the Region, instead of focussing on observations about birds out of normal range, or present in abnormal numbers. Thus, there generally are more data available in the Hunter Region Bird Reports.

3. National Wader Count Data

Most of the results for the Hunter Estuary have been published in *Stilt*, the journal of the Australasian Wader Studies Group (AWSG). The AWSG counts are understood to have commenced in 1981 but Hunter Estuary data were not included in the summaries for the initial years. Also, the initial reporting method by AWSG was to provide brief reports directly to the surveyors – mostly those reports have proven to be untraceable. Some have been found and they form part of the "other information sources" discussed in the next section.

4. Other Information Sources

Many other sources or potential sources have been examined in preparing this Report:

- *The Emu* (journal of Birdlife Australia, published since 1901; until the mid-1970s a good source of local and regional information);
- *Hunter Natural History* (journal of the now defunct Newcastle Flora and Fauna Society; published in the 1970s; in particular articles therein by Holmes in 1970 and Kendall & van Gessel over 1972-1974);
- Miscellaneous articles, reports and books (in particular: Gosper 1975, Lane 1987, Smith 1991, Kingsford *et al.* 1998);
- Reports to participants in the national wader counts in summer and winter 1983 and summer 1985 (Lane and Jessop 1983a, 1983b, 1985);
- HBOC archives (which contain copies of record sheets from some of the 1982-1984 AWSG summer and winter counts);
- Personal archives of the late Wilma Barden;
- Two unpublished papers by Fred van Gessel and Tom Kendall, written in the late 1970s and made available by Tom Kendall.
- Personal recollections by some 1970s/1980s Hunter Estuary wader surveyors (Wilma Barden, Sue Hamonet, Fred van Gessel, Dick Cooper, Tom Kendall, Phil Straw).

3. STATUS OF INDIVIDUAL SHOREBIRD SPECIES

In the Appendix are presented tables of collated data that have been extracted from the sources described above. From these data, it has been possible to draw some conclusions about the historical status of every shorebird species for which records in the Hunter Estuary are known to exist.

Australian Pied Oystercatcher *(Haematopus longirostris)*

Analysis

There are relatively few reports of Pied Oystercatcher in the Estuary but it probably was regularly present in small numbers such that observations were not considered noteworthy for publication. From 1993 onwards, when recording efforts became more deliberate, birds were recorded each year. This was also the case during the AWSG surveys over 1982-84.

A breeding record at Stockton Bight in 1984 further serves to suggest that birds were resident in the Hunter region and therefore were likely to have been observed at locations around the Estuary.

In the early 1970s, there were some reports of >20 birds but after then all reports were of <20 birds and most were of fewer than 5 birds.

Summary of status prior to 1999

Small numbers of birds were regularly present in the Estuary.

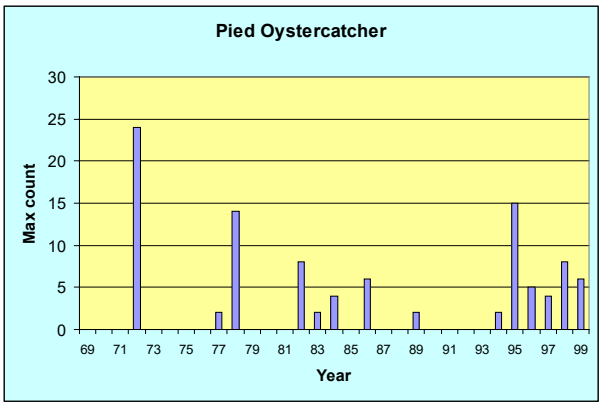
Sooty Oystercatcher *(Haematopus fuliginosus)*

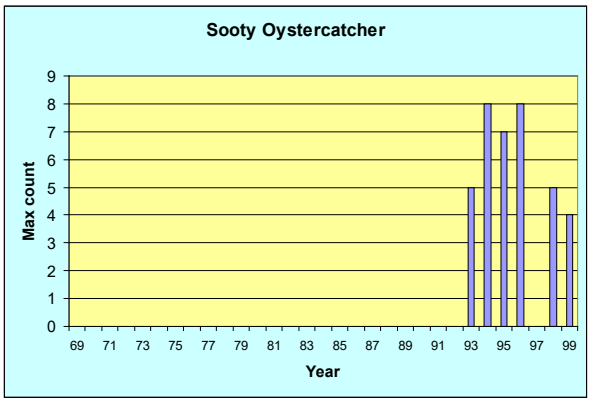
Analysis

There are very few reports of Sooty Oystercatcher in or near to the Estuary including there are no records at all reported in the NSW Bird Reports. With the advent in 1993 of the Hunter Region Bird Reports, some birds were recorded each year but at locations such as Newcastle Baths where they roosted on a rock ledge. The Baths are near to the Hunter Estuary but cannot be considered to be part of the Estuary. The other locations where they were recorded are beaches – Newcastle Beach, Stockton Bight. There are no known records for birds roosting or feeding within the Estuary proper.

Summary of status prior to 1999

Birds were not recorded to have utilised the Estuary for feeding or roosting purposes, although they were often present at nearby areas.





Black-winged Stilt *(Himantopus leucocephalus)*

Analysis

The peak count was of 1,659 birds present in October 1996 but there were >1,000 birds present in 1977, 1984 and 1985, and 800-1,000 birds in 1978 and 1986. The high counts occurred in both summer and winter months. In some other years, the maximum counts were very low – sometimes of less than 100 birds (years for which there are no records are taken to be because no reports were submitted and/or numbers were not considered exceptional). The variability seems authentic, in that it also occurred when systematic surveying was being done. For example, in the AWSG surveys of 1982-84, there were only 83 birds recorded in 1983 compared with 677 birds in 1982 and 1,053 birds in 1984.

The pattern fits the finding from the regular surveys of the Hunter Estuary that have been conducted monthly since April 1999 by HBOC. That is, there are influxes of large numbers of birds when conditions are unfavourable elsewhere, and the birds mostly disperse again when those conditions improve.

Breeding records from 1984 (3 pairs nesting), 1995 (at least one pair nesting) and 1996 (10 pairs nesting) indicate that it was common for birds to breed in the Hunter Estuary when conditions were favourable.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Black-winged Stilt, based on an average summer count of 550 birds over 1981-1985.

Summary of status prior to 1999

At least some birds were present every year and there were regular influxes of 500-1500+ birds when conditions were unfavourable elsewhere.

Red-necked Avocet *(Recurvirostra novaehollandiae)*

Analysis

Records of a small number of birds (maximum count 19 birds) in 1972 were described as "notable" in the NSW Bird Report, indicating that birds were rare or very uncommon in the Estuary prior to this. Numbers increased somewhat over the1973-1984, to a peak count of 140 birds in 1983. Then, 1200+ birds arrived in 1985 and were present all year, with the numbers rising to around 2000 birds by 1987. The birds apparently then departed the Estuary although 300-500 of them returned in 1989 and 1991. Then, over 1992-1997, there were 1,500-3,000

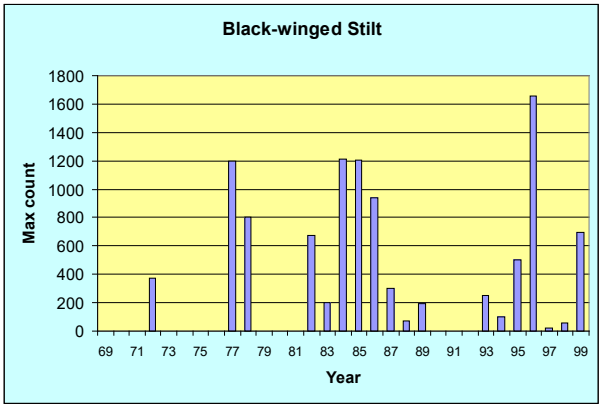
birds regularly (although not permanently) present with the peak count being of 4,500 birds in June 1996. The numbers then declined again over 1998-99.

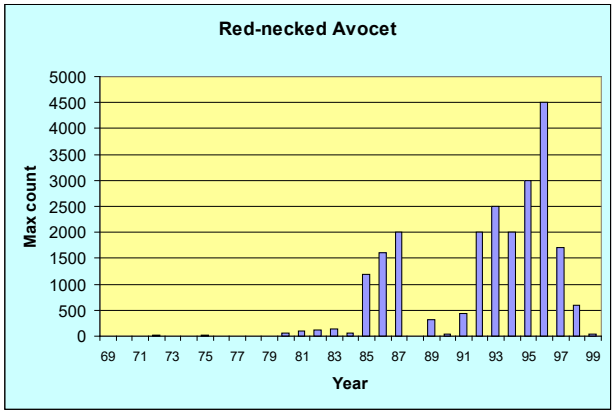
In some years the birds were present almost all year, but on other occasions they were only in the Estuary for part of the year. The arrival and departure dates varied from year to year.

The 1988 NSW Bird Report noted the Avocet as nesting in the Estuary in January but provided no additional information. There are no other known breeding records, including to present times; the 1988 record is anomalous and possibly is in error.

Summary of status prior to 1999

The Red-necked Avocet was an irregular but frequent visitor to the Hunter Estuary, its movements presumably in response to unfavourable conditions inland. Fewer than 100 birds visited occasionally in the 1970s and early 1980s, and then subsequently there were two substantial regular influxes of many thousands of birds, over 1985-87 and 1992-97. Although the counts varied during these periods, the trend was that progressively more birds were present, and the peak count in 1996 was of 4,500 birds.





Banded Stilt *(Cladorhynchus leucocephalus)*

Analysis

The only records are of single birds in May and August-September 1972, January 1973 and October-December 1984, and two birds from December 1995 to early February 1996. All of the birds were immatures.

Summary of status prior to 1999

The Banded Stilt was an accidental visitor to the Hunter Estuary.

Pacific Golden Plover *(Pluvialis fulva)*

Analysis

Although there hardly are any reports of shorebird numbers in the Hunter Estuary prior to 1969, the Pacific Golden Plover is an exception. D'Ombrain (1945) reported large flocks to be present in 1944 at "Stockton and the upper reaches of Newcastle Harbour".

Reliable numbers for Pacific Golden Plover can be difficult to obtain, because the birds do not always roost with other shorebirds nor do they always roost as a single flock – and if scattered in several groups some of the groups can be overlooked. The only record for the 1970s in the NSW Bird Reports is of 350 birds in 1972, without any additional comment. Barden (ref 37)

also recorded 400 birds present in 1979. In the 1980s there were several more high counts, in particular counts of 500-800 birds during various systematic surveys.

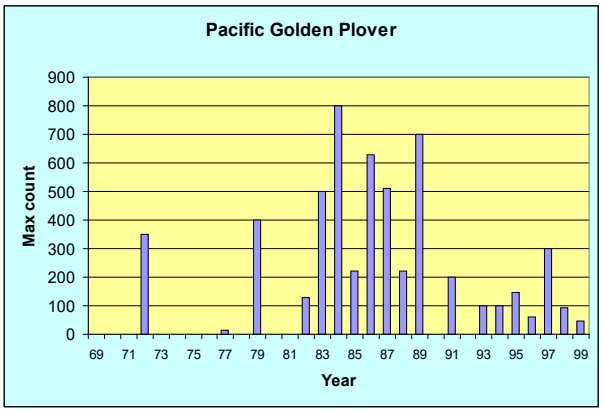
In the counts from similar surveys over 1994-97 by Kingsford *et al.*, the largest count was of 300 birds and more typically 100-200 birds were recorded.

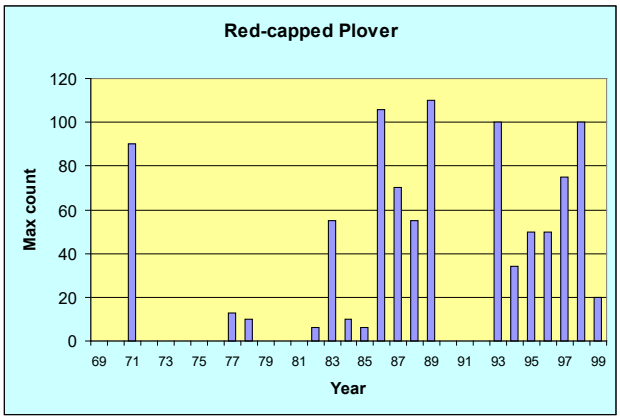
The only winter record located is of 13 birds present 7 August 1977 – possibly, these were birds recently returned after the breeding season.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Pacific Golden Plover, based on an average summer count of 410 birds over 1981-1985.

Summary of status prior to 1999

500-800 Pacific Golden Plover regularly visited the Hunter Estuary in the 1980s and the total numbers probably were similar in the 1970s. Numbers declined in the 1990s, with 100-200 birds typically being present and the peak count being of 300 birds. Birds did not over-winter.





Grey Plover *(Pluvialis squatarola)*

Analysis

Two birds were recorded in 1984; and single birds in 1973, 1974, 1982, 1983, 1984, 1985 and 1991.

Summary of status prior to 1999

The Grey Plover was a rare visitor to the Hunter Estuary in the summer months.

Ringed Plover *(Charadrius hiaticula)*

Analysis

The only record was of a single bird present between February and December 1967 (van Gessel and Kendall ref 41).

Summary of status prior to 1999

The Ringed Plover was an accidental visitor to the Hunter Estuary.

Red-capped Plover *(Charadrius ruficapillus)*

Analysis

Both Smith (ref 43) and Gosper (47) reported a maximum count of 130 birds in the 1970s (1970-73) although the actual date for that record (or records) was not indicated. The count is consistent with several other records of 50-100 birds and some records of 100+ birds. Generally the species does not roost communally although medium sized feeding parties can occur. Thus, except in the course of systematic studies, the numbers present in the Estuary will generally be under-estimated.

A small number of breeding records have been located. Most likely, such observations were not considered especially noteworthy (for an Australian breeding resident species) and the breeding status probably is under-recorded.

Summary of status prior to 1999

100+ Red-capped Plover were present in the Hunter Estuary when conditions were favourable, and probably at least 50 birds were regularly present and some pairs breeding.

Double-banded Plover *(Charadrius bicinctus)*

Analysis

The maximum count in the 1970s was of 260 birds in 1973 but there generally have been few records for Double-banded Plover in the Hunter Estuary. 165 birds were recorded in 1978 and 40-60 birds in the late 1960s and in 1972 and 1983. There are no known records over 1986-1994, but small numbers were recorded over 1995-98 (with a peak count of 28 birds).

The record dates for this trans-Tasman winter migrant span from April to August; most records are from the June-July period.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Double-banded Plover, based on an average winter count of 90 birds over 1981-1985.

Summary of status prior to 1999

In the 1960s and 1970s, 40-60 birds were sometimes present in winter and several hundred birds occasionally. The numbers then declined substantially.

Lesser Sand Plover *(Charadrius mongolus)*

Analysis

Although there hardly are any reports of shorebird numbers in the Hunter Estuary prior to 1969, the Lesser Sand Plover is an exception. McGill & Keast (1945) reported them to be present in large (but unspecified) flocks to be "scattered over the flats" around the Estuary.

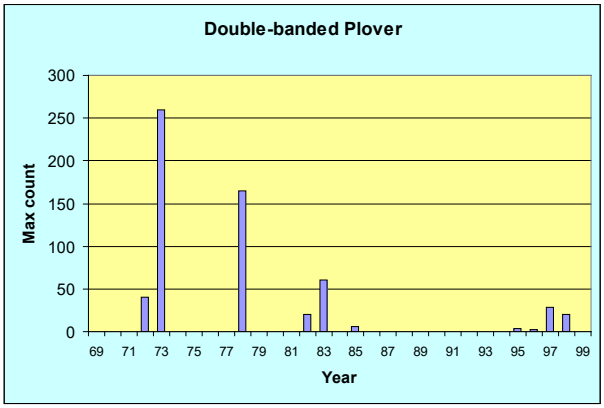
The maximum count in the 1970s was of 800 birds in November 1972 – there also were 500 birds present in March 1972 as well as the late 1960s. Otherwise, there are relatively few records from the 1970s - this most likely is because the records were unexceptional, and therefore not used in the collated NSW Bird Reports. Gosper (ref 47) described the Lesser Sand Plover as a common visitor; he also reported up to 70 birds over-wintering which suggests much greater numbers in summer. It seems reasonable to assume that many hundreds of birds visited most summers in the 1960s and 1970s, but were not recorded due to a lack of systematic surveys.

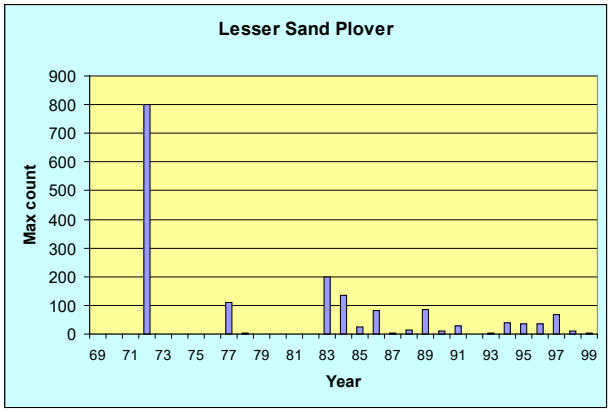
All the records since 1977 are of <200 birds and since 1986 they are of <100 birds. By the late 1990s the counts were down to <20 birds.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Lesser Sand Plover, based on an average summer count of 130 birds over 1981-1985.

Summary of status prior to 1999

Many hundreds of Lesser Sand Plover came to the Hunter Estuary in the early 1970s. After then, the numbers of birds visiting declined steadily, down to just a few tens of birds by the late 1990s. Many birds over-wintered in the 1970s but not since then.





Greater Sand Plover *(Charadrius leschenaultii)*

Analysis

There were ten birds reported in the late 1960s, 31 birds in 1976 and 23 birds in 1997; all other reports were of <5 birds (in 1971, 1972, 1983 and 1984). The 1997 report was not able to be confirmed by any local observers and given the absence of any records for the previous 13 years, its validity is doubtful. The report of 31 birds in 1976 also stands out as being contrary to the general trend. Mis-identification with the (then) more common Lesser Sand Plover can easily occur especially for inexperienced birdwatchers.

Summary of status prior to 1999

The Greater Sand Plover was a rare visitor to the Hunter Estuary.

Oriental Plover *(Charadrius veredus)*

Analysis

The only published records are of some birds present in 1980 and 1981. The initial record was of a single bird, and the 1981 record was of either 16 birds (NSW Bird Report) or 18 birds (Smith).

Summary of status prior to 1999

The Oriental Plover was a rare visitor to the Hunter Estuary.

Black-fronted Dotterel *(Elseyornis melanops)*

Analysis

There were very few published records for Black-fronted Dotterel in the Hunter Estuary prior to the 1990s. This most likely reflects the general absence of any systematic surveys during this time, particularly to areas of preferred habitat (for example, the Ash Island ponds). Most records of the species would therefore have been opportunistic sightings of small numbers of birds, and hence not considered for the NSW Bird Report as the records would have been unexceptional.

Smith (ref 43) reported a peak count of 31 birds in the period 1970-1990 but the date for that record was not indicated. The other substantial count prior to the 1990s was of 24 birds in 1984 – this result was from a systematic survey although not one that was targeting habitat for Black-fronted Dotterel. With the advent of the Hunter Region Bird Reports in the early 1990s, Black-fronted Dotterel counts were more likely to have been captured; this probably accounts for the apparent increase in numbers.

Summary of status prior to 1999

Between 20 and 50 Black-fronted Dotterel were frequently present in the Hunter Estuary when conditions were favourable; some birds were resident.

Red-kneed Dotterel *(Erythrogonys cinctus)*

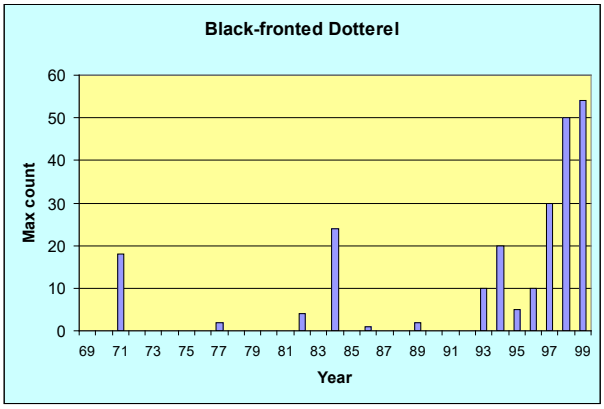
Analysis

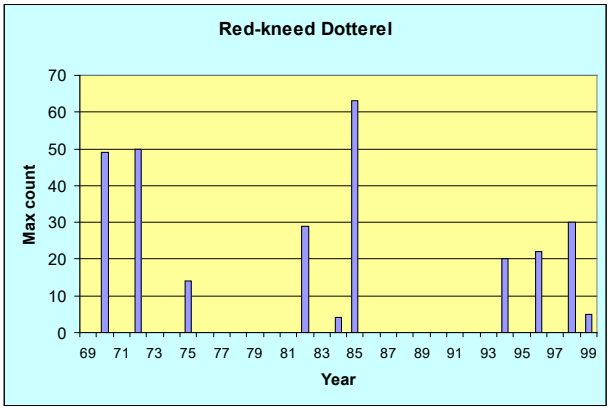
Red-kneed Dotterel more commonly occur inland and it would be expected that any records in the Hunter Estuary would have been published. The available records therefore confirm the intermittent nature of their occurrence in the Estuary. They were recorded in 10 of the 30 years for which any observations data have been located, with the peak count being of 63 birds and most other counts being of 10-50 birds. The bulk of the available records were from the period March-August.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Red-kneed Dotterel, based on an average summer count of 20 birds over 1981-1985.

Summary of status prior to 1999

Up to 50-60 birds were sometimes present in the Hunter Estuary when the conditions inland were unfavourable.





Banded Lapwing *(Vanellus tricolor)*

Analysis

The only published records for the Hunter Estuary were of some birds present in 1984, 1985, 1990 and 1992-94. The peak count was of 16 birds in October 1984.

Summary of status prior to 1999

The Banded Lapwing was an infrequent visitor to the Hunter Estuary.

Masked Lapwing *(Vanellus miles)*

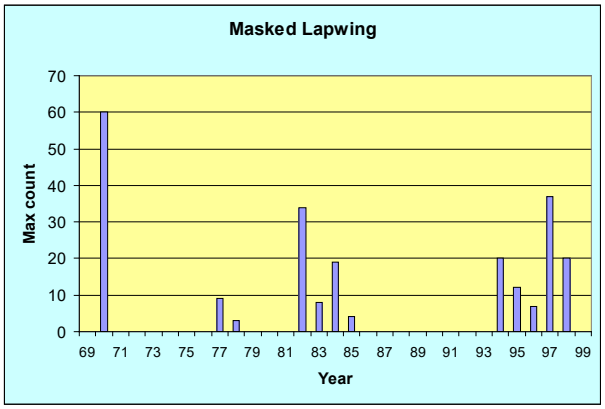
Analysis

There were very few published records for Masked Lapwing in the Hunter Estuary prior to the 1990s. This most likely reflects the general absence of any systematic surveys during this time, particularly to areas of preferred habitat (for example, Ash Island). Most records of the species would therefore have been opportunistic sightings of small numbers of birds, and hence not considered for the NSW Bird Report as the records would have been unexceptional.

Smith (ref 43) reported a peak count of 147 birds in the period 1970-1990 but the date for that record was not indicated. The only substantial counts prior to the 1990s were of 34 birds in 1982 and 37 birds in 1997 – these results were from systematic surveys although not ones that were targeting habitat for Masked Lapwing. In the late 1990s the Hunter Region Bird Reports took a somewhat more deliberate approach to the reporting of records and this most likely accounts for the increased counts of Masked Lapwing.

Summary of status prior to 1999

At least 50 Masked Lapwings were regularly present in the Hunter Estuary.



Black-tailed Godwit *(Limosa limosa)*

Analysis

The detailed data indicate a maximum count of 4,000 birds in 1985 and several records of 2,000-3,000 birds over 1984-85. These however seem to be very exceptional counts and there are no other records of more than 800 birds. The very high counts in the NSW Bird Report for Jan-Feb 1984 do not match with the February 1984 AWSG count of 520 birds. Either the 2,000-3,000 birds were temporarily present while in transit to elsewhere, or some mis-identifications from Bar-tailed Godwit may have occurred due to observer inexperience or to

data management errors. Bar-tailed Godwits were present in large numbers in the Estuary at the time.

The reports of around 800 birds present in the 1970s are credible as they are based on surveys by two experienced observers and are reinforced by some similar counts reported by others. Lower counts in some years may indicate genuine fluctuations in numbers, or may reflect non-systematic counting i.e. birds were dispersed over more than one location and hence not all were recorded.

The records from the 1980s and 1990s include data from surveys of the Estuary conducted by the Australasian Wader Study Group and by Kingsford *et al.* As these surveys were conducted systematically, and were done by experienced observers, the counts are considered to be credible. The maximum reported count from the 1980s is of 618 birds in 1987 – this is slightly greater than the AWSG count of 550 birds in February but seems likely to be valid.

The limited winter count data that are available suggest that 30-50 birds often over-wintered in the 1970s and 1980s. The peak count of 110 birds is exceptional and perhaps reflects some abnormal circumstances.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Black-tailed Godwit, based on an average summer count of 470 birds over 1981-1985.

Summary of status prior to 1999

700-800 Black-tailed Godwits migrated to the Hunter Estuary each summer in the 1970s, declining to 400-600 birds in the 1980s and then further declining to 300-400 birds in the 1990s. 30-50 birds often over-wintered in the 1970s and 1980s.

Hudsonian Godwit *(Limosa haemastica)*

Analysis

This species is a vagrant in Australia, and is only occasionally recorded. There was a well-documented occurrence in the Hunter Estuary in late 1982 and the bird was seen by many observers. Over the following years there were several additional records of what probably was the same bird. Apparently not all of the sightings have been documented (ref 43). The last report was from October 1988.

Summary of status prior to 1999

Single birds (probably the same individual) were recorded intermittently for several years from late 1982; there were no further records.

Bar-tailed Godwit *(Limosa lapponica)*

Analysis

Although there hardly are any reports of shorebird numbers in the Hunter Estuary prior to 1969, the Bar-tailed Godwit is an exception. D'Ombrain (1945) reported large flocks to be present in 1944 at "Stockton and the upper reaches of Newcastle Harbour".

Apparently, the counts in the 1960s and early 1970s were of only 600-800 birds. From 1973, however, very much greater numbers of birds were regularly confirmed to be present. 1,500 birds were recorded in January 1973 and in the years since there have been many counts of more than 2,000 birds and also several counts in excess of 3,000 birds.

The record of 1,500 birds in January 1973 occurred just a few months after an article by Van Gessel and Kendall noted that 800 birds was the maximum number ever recorded in the Estuary. This sudden large rise in numbers in 1973 may have been due to more birds actually coming to the Estuary that year, or due to changes in the roosting sites being selected (for example because of degradation at a site that was not known to surveyors and/or improvements at a site that was being surveyed). However, there seems a clear trend that numbers increased through the 1970s and to the mid 1980s. It seems very unlikely that several thousand birds would have been overlooked in the earlier years.

The numbers appear to have increased reasonably steadily until the mid 1980s by which time around 4,000 birds were present. Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Bar-tailed Godwit, based on an average summer count of 1,300 birds over 1981-1985. This low 5 year average count (his raw count data are not available) is contradictory to the counts of 2000-3,000+ birds that were reported in the NSW Bird Reports for many of those years. Even if these counts unintentionally included the often co-present Black-tailed Godwit this would not led to a large enough over-estimate to account for the contradictions.

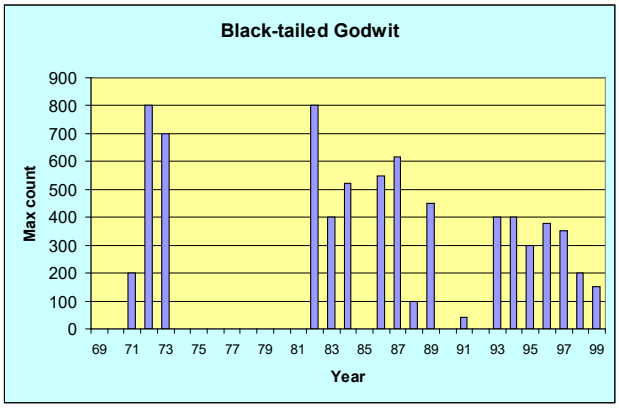
Subsequently, from the late 1980s the numbers appear to have been in decline. Although naturally there will be annual variability in numbers (relating to the degree of breeding success and the conditions along the migration route), the decline seems real. The analysis is clouded by the available data being mostly from opportunistic observations and with uncertainty therefore if the counts always are a record of the total population present in the Estuary. However, the numbers present in the late 1980s to mid 1990s seem to have decreased to 2,000-3,000 birds and then further decreased to be less than 2,000 birds in the late 1990s.

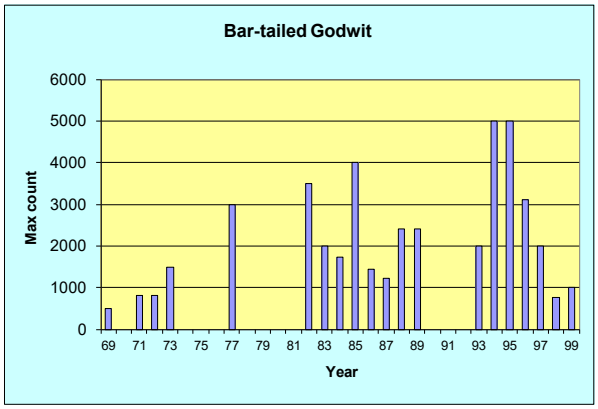
A significant exception to the trend of decline is the all-time peak counts of around 5,000 birds, which were made in successive months of December 1993 and January 1994. The records are from an experienced observer. It is not clear why such a very large number of birds were present for a relatively short time but outside the normal period when birds are on passage. Perhaps the numbers included birds that had been disturbed at their usual locations such as Port Stephens or sites even further to the north.

There are not a great deal of records available about over-wintering immature birds. Such data as are available suggest that around 400 birds over-wintered in the 1980s and that the numbers declined to around 250 birds in the mid-1990s.

Summary of status prior to 1999

The numbers of migrating Bar-tailed Godwit rose fairly steadily from less than 1,000 birds in the 1960s to around 4,000 birds in the mid 1980s. Subsequently the numbers declined again and by the late 1990s the typical counts were down to around 2,000 birds (but with some higher counts). Around 400 birds over-wintered in the 1980s, declining to ~250 birds in the 1990s.





Little Curlew *(Numenius minutus)*

Analysis

There are only intermittent records of Little Curlew in the Hunter Estuary, and some of those may involve mis-identifications of Whimbrels. 32 birds were reported to have been present in March 1984 *(this count seems anomalous in view of the paucity of other records in the Estuary and in the Region generally)*. Seven birds were reported to have been present in October 1994 *(again, anomalous)*. There are three other records for the Estuary – these being of 1-3 birds, and perhaps more credible. There are only two other known records from any locations near to the Estuary.

Summary of status prior to 1999

The Little Curlew was an accidental visitor to the Hunter Estuary.

Whimbrel *(Numenius phaeopus)*

Analysis

Quite large numbers of Whimbrel were recorded over 1993-1995. There were many records of >200 birds and the peak count was around 500 birds in January 1995. There are only two other known records of >100 birds being present – these were of 105 birds in 1978 and 181 birds in 1996. Over the years since the 1970s the majority of records are of 30-80 birds. Typical counts in the 1970s and 1980s were of 30-60 birds, and 50-80 birds in the more recent years i.e. the numbers may have risen. However, as Whimbrel very often roost in mangroves it can be difficult to locate where they are roosting and also then to count them correctly. The records of Whimbrel numbers for the Hunter Estuary are therefore quite likely to be under-estimates for the most part. It is quite possible that several hundred Whimbrel have regularly visited the Hunter Estuary each year and that only part of the population has been recorded on most occasions. However, this cannot be proven.

There are few records from when the adult birds have departed for the breeding season, but the available data suggest that 10-30 immature birds over-wintered in the Estuary each year.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Whimbrel, based on an average summer count of 30 birds over 1981-1985.

Summary of status prior to 1999

At least 200 Whimbrel were frequently in the Hunter Estuary over 1993-95 and the peak count was around 500 birds. In most other years, the maximum counts were of less than 100 birds. Whimbrel is a difficult species to count accurately and it seems quite possible that Whimbrel numbers were reasonably stable.

Eastern Curlew *(Numenius madagascariensis)*

Analysis

Reports of 800-1,000 birds occurred frequently from the mid 1970s. It seems that such numbers were considered normal and hence were not always documented. For example, the report of 900+ birds in 1993 was noted in the NSW Bird Report as being “consistent with recent years”. The numbers visiting in the late 1960s and early 1970s appear to have been

fewer, with the peak count being 600 birds and 300 birds being more typically recorded. The apparent rise in numbers in the mid 1970s may have been due to more birds actually coming to the Estuary, or due to changes in the roosting sites being selected (for example because of degradation at a site that was not known to surveyors and/or improvements at a site that was being surveyed). There may be parallels with the increase in numbers of Bar-tailed Godwit previously discussed.

In several years since the mid 1970s the counts have been lower (300-400+ birds) than the apparent norm. To at least some extent this no doubt reflects the annual variability due to breeding success/failure and to conditions along the migration route. However, it is also possible that, because not all roosting sites in the Estuary were known and/or surveyed each time, some birds were over-looked and the counts are incomplete.

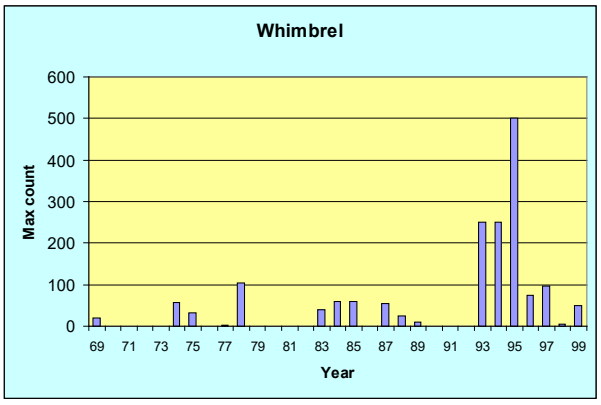
Most counts of over-wintering immature birds indicate that populations of around 150-250 birds consistently were present. Also, these numbers typically amounted to 15-30% of the summer population. In some years though the proportion of over-wintering birds was much greater – at least based on the counts made. For example, the proportion of immature birds apparently was 58% in 1983 and 56% in 1988 (data from ref 43). This possibly is an indication that the total Estuary population was not always surveyed during summer counts (due to the counting techniques and/or dispersal of birds to multiple roosting sites).

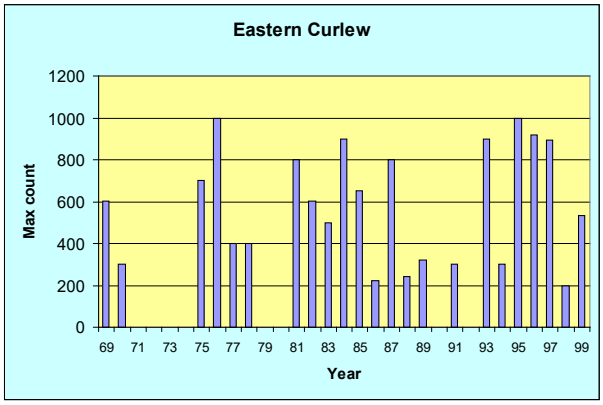
Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Eastern Curlew, based on an average summer count of 490 birds over 1981-1985.

Summary of status prior to 1999

At least 600 birds regularly visited the Hunter Estuary from at least the 1960s onwards and in many years some 800-1,000 birds were present. A minimum of 300-400 birds were present every summer. Typically, 150-250 immature birds over-wintered.

The estimated total population of Eastern Curlew is 38,000 birds (ref 44, 46). Thus, in excess of 1% of the total world population were present almost every year and in some years the numbers amounted to nearly 2.5% of the population. Without doubt, the Hunter Estuary was consistently a very important site for Eastern Curlew over the review period.





Terek Sandpiper *(Tringa cinereus)*

Analysis

In the late 1960s and early 1970s, 500-600 Terek Sandpiper were present in the Estuary on at least some occasions. It seems possible though that these were exceptional numbers, and that the more typical counts were of less than 200 birds (for example, this was the highest number noted by Kendall and van Gessel in their surveys over 1969-72). In any case, such high numbers were not recorded subsequently and most of the maximum counts were of around 100-150 birds. There are only two over-wintering records, both dating from the 1970s.

There is an erroneous report in the literature, which distorts the picture for Terek Sandpipers:

- A report of 633 birds in 1997 (Kingsford *et al.*) is a typographical error – only 63 birds were present (D. Geering pers. comm.)

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Terek Sandpiper, based on an average summer count of 30 birds over 1981-1985. His number seems low based on the other data sourced.

Summary of status prior to 1999

100-150 Terek Sandpiper regularly visited the Hunter Estuary and occasionally there were much greater influxes. The peak counts were 600 birds in 1970 and 350+ birds in more recent times. Over-wintering by immature birds was quite uncommon.

Common Sandpiper *(Actitis hypoleucos)*

Analysis

The peak count is of 11 birds in 1974 but this seems to have been an exception as all other records are of 1-4 birds. There are records for a considerable number of the years since the 1970s and it seems very likely that some birds have regularly visited the Estuary. After 1988, only one record was of more than one bird. However, the Common Sandpiper often is solitary and it cannot be concluded that there was only a single bird in the Estuary based on these records.

Summary of status prior to 1999

Small numbers of Common Sandpiper regularly visited the Hunter Estuary.

Grey-tailed Tattler *(Tringa brevipes)*

Analysis

There are few records prior to the early 1980s; however, up to 34 birds are confirmed to have been present during 1943-44. Without doubt, some birds were present in the Estuary in the 1970s, as evidenced by records of 19 birds in 1971 and 13 over-wintering birds in 1977. The lack of records may be because the normal roost site(s) were unknown at the time. At high tide, Grey-tailed Tattler often roost in mangroves or on rocky shorelines i.e. they would not have been found at the same sites where the bulk of the shorebird species were roosting.

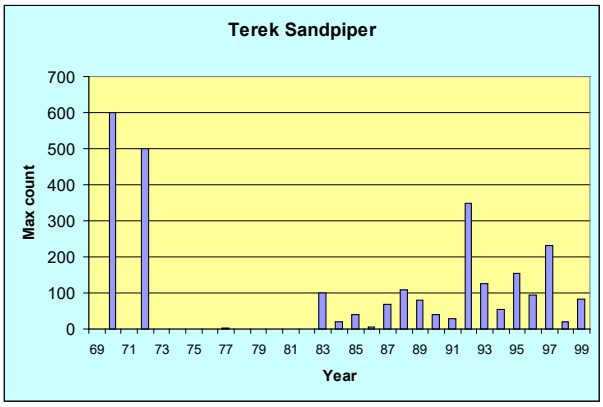
From 1983, birds were recorded in most years and in usually in counts of at least 30 birds. The peak count is of 96 birds in 1984 and there are several years where the maximum known count is of >50 birds. Because of the difficulty in locating this species during surveys it seems quite probable that similar numbers were present most years.

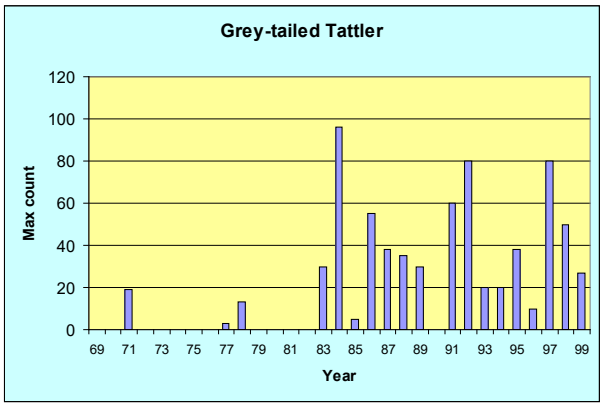
There are several records of 10-15 over-wintering birds in the 1970s and early 1980s. The more recent winter records have been of 1-5 birds.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Grey-tailed Tattler, based on an average summer count of 100 birds over 1981-1985.

Summary of status prior to 1999

40-50 Grey-tailed Tattler regularly visited the Hunter Estuary. Occasionally, 60-100 birds were present. 10-15 birds regularly over-wintered until around the mid-1980s with the winter numbers subsequently declining to around 5 birds.





Wandering Tattler *(Tringa incana)*

Analysis

Single birds were recorded in 1974, 1980 and 1982.

Summary of status prior to 1999

The Wandering Tattler was a rare visitor to the Hunter Estuary, with occasional records of single birds.

Common Greenshank *(Tringa nebularia)*

Analysis

There are many records of >100 birds and often the counts were around 200 birds. The peak count is of 561 birds in 1985 although this may be for an area larger than just the Hunter Estuary (the record was noted as being for "Hunter wetlands"). However, Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Common Greenshank, based on an average summer count of 560 birds over 1981-1985. Records of 350 birds in both March and December 1996, and 300 birds for one year of the 1969-72 period, show that there was potential for the Estuary to support large numbers of birds.

The peak counts of over-wintering immature birds are from the 1980s, with 51 birds present in 1982, 25 birds in 1986 and lesser numbers in the records available for the other years. It seems quite likely that some birds would have been present each winter in the years prior to this. Kingsford *et al.* recorded small numbers of birds present each winter over 1994-97, indicating that some young birds regularly have over-wintered.

Summary of status prior to 1999

150-200 Common Greenshank regularly visited the Hunter Estuary and greater numbers were present occasionally. Most years up to ten immature birds over-wintered.

Marsh Sandpiper *(Tringa stagnatilis)*

Analysis

There are many records of >100 birds in the Estuary from the 1970s onwards and numbers in excess of 200 birds often occurred. The accepted peak counts are 500+ birds in 1975 and 433 birds in 1995 Records from some years of 50 birds or fewer quite probably are the result of not all potential sites having been surveyed. There were very few records of birds over-wintering and when this occurred, the numbers present were always low (<10 birds).

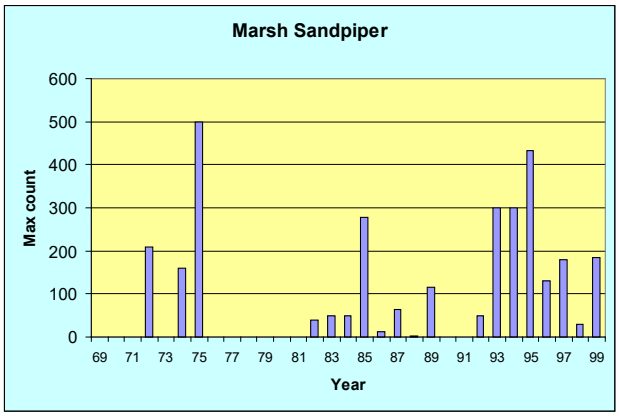
There is an erroneous report in the literature, which distort the picture for Marsh Sandpipers:

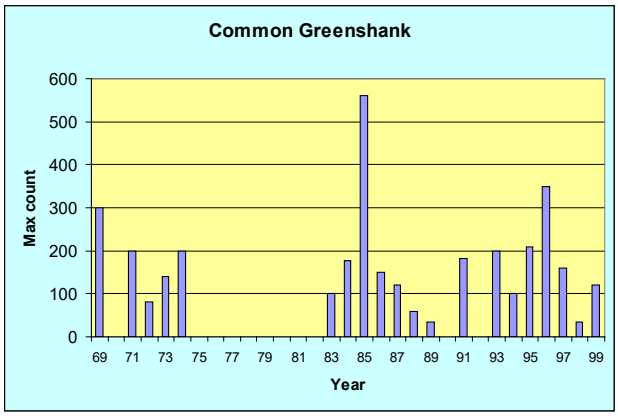
- A report of 678 birds in 1996 (Kingsford *et al.*) is a typographical error – only 68 birds were present (D. Geering pers. comm.)

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Marsh Sandpiper, based on an average summer count of 280 birds over 1981-1985.

Summary of status prior to 1999

100-200 Marsh Sandpiper regularly visited the Hunter Estuary and greater numbers were present in several years. The Estuary was capable of supporting 400-500+ birds. Occasionally, a few birds over-wintered.





Wood Sandpiper *(Tringa glareola)*

Analysis

Six birds were present in February 1972 and there were several reports of three birds over 1970-1971. All other records are of single birds: in 1974 (both February and August), 1975 (January, February) 1981, 1982, 1990 and 1992.

Summary of status prior to 1999

The Wood Sandpiper was an uncommon visitor to the Hunter Estuary in the early 1970s and became increasingly rare in the subsequent years. It was not recorded within the Estuary after 1992.

Ruddy Turnstone *(Arenaria interpres)*

Analysis

There are two erroneous reports in the literature, which distort the picture for Ruddy Turnstones:

- The 1986 summer counts published in *Stilt* indicate 520 birds were present in February. This count is then used by Smith (1991) in his review. The count is about an order of magnitude more than most other records. The next row in the table in *Stilt* reports just 40 Eastern Curlews in the same survey – an unusually low count for this species. Lane (1987) clearly did not use the record of 520 birds in his analysis for Ruddy Turnstone (the average count he reported was <100 birds as this was the cut-off for a top 20 site for Ruddy Turnstone over 1981-1985). There seems no doubt that the two records were accidentally transposed in the *Stilt* table (and that the error then propagated into Smith's 1991 review).
- A report of 401 birds in 1996 (Kingsford *et al.*) is a typographical error – only 40 birds were present (D. Geering pers. comm.)

There are several records of 30-50 birds and this seems a more reasonable estimate of the Estuary population. In many years the counts are lower but it should be noted that at high tide, Ruddy Turnstone often roost on rocky shorelines i.e. they would not have been found at the same sites where the bulk of the shorebird species were roosting.

There have been occasional records of over-wintering birds, for example, August 1982, June 1983 and June 1984.

Summary of status prior to 1999

30-50 Ruddy Turnstones regularly visited the Hunter Estuary each summer and a few birds occasionally over-wintered.

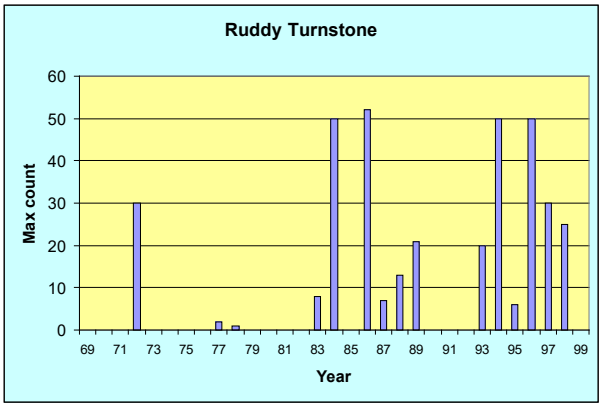
Asian Dowitcher *(Limnodromus semipalmatus)*

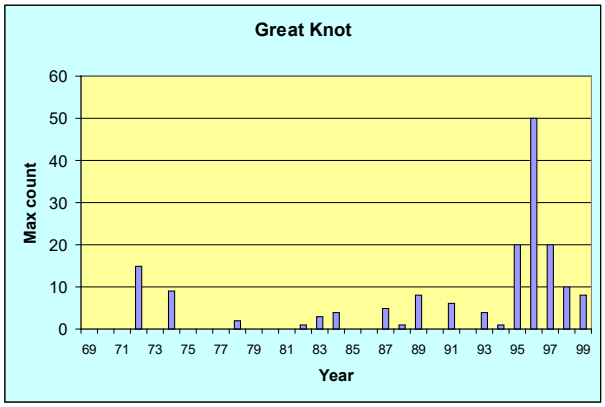
Analysis

Single birds were recorded in 1985 and 1988.

Summary of status prior to 1999

The Asian Dowitcher was an accidental visitor to the Hunter Estuary, with records of single birds in two years only.





Great Knot *(Calidris tenuirostris)*

Analysis

50 birds were present in October 1996 and the record is consistent with high counts from other observers in that year. All other years had lower counts. Smith (ref 43) reported a maximum count of 30 birds over 1970-1990 but the origin of this number is unclear. The maximum count for the 1970s and 1980s, as reported in the NSW Bird Reports, is of 15+ birds on 18 March 1972. However, Van Gessel and Kendall reported only 12 birds to be present on that same date; their count is considered more credible. All other records for these two decades are of <10 birds.

In the 1990s, there were several reports of 15-20 birds present, in addition to the high count for 1996. Thus, it seems that the numbers of birds coming to the Hunter Estuary may have increased during the decade. There is only one known winter record – of 5 birds present in July 1995.

Summary of status prior to 1999

Birds regularly visited the Hunter Estuary each year, initially in counts of 5-12 birds; the numbers increased to 20+ birds in the 1990s. It was uncommon for birds to over-winter.

Red Knot *(Calidris canutus)*

Analysis

In the summer surveys (February or March) that sometimes took place in the Hunter Estuary, small numbers of birds were recorded at times. The highest counts were of 80 birds in February 1989 and 60 birds in 1996. More typically, <20 birds were present. There were occasional winter records also – 17 birds in July 1978 and 8 birds in July 1982, and 1-2 birds in the winters of 1986-89.

The migration passage movement of Red Knot through the Hunter Estuary in the September to November period was a known phenomenon. There were several records of 400-600 birds, and also counts of ~1,000 birds in September 1984 and 2,000 birds in September 1996. Since there was usually no systematic approach to collecting data at this time of the year, it seems very likely that similar numbers moved through the Hunter Estuary every year.

Summary of status prior to 1999

The peak counts for the Hunter Estuary each spring during the migration passage were of 1,000-2,000 birds. Outside of this period, small numbers of birds were present – typically there were less than 20 birds but occasionally the numbers rose to above 50 birds. It was uncommon for birds to over-winter.

Sanderling *(Calidris alba)*

Analysis

Single birds were recorded in 1973 and 1995, and small numbers were present in the late 1960s.

Summary of status prior to 1999

The Sanderling was a rare visitor to the Hunter Estuary.

Red-necked Stint *(Calidris ruficollis)*

Analysis

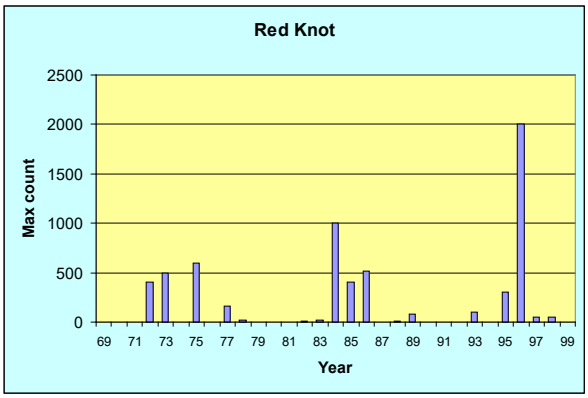
Smith *(ref 43)* noted the maximum count for 1970-1990 as being 540 birds – the original source for this count is unknown. However, Van Gessel and Kendall reported a count of 500 birds in January 1972 and this number is considered to be reliable. The next highest counts are of 400 birds in December 1995 and 278 birds in December 1998. There are also records of 100-200 birds present in 1983, 1986-1989, 1997 and 1999.

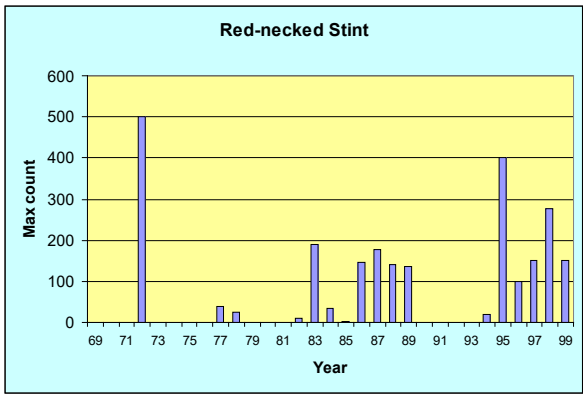
Records from the 1970s and 1980s are scant but birds were regularly present over 1969-1972 (they were recorded in 37% of year-round surveys over this period). It is therefore reasonable to assume that birds visited the Hunter Estuary every year. Numbers of up to 200 birds most likely were the norm, and with 400-500 birds present when conditions were appropriate.

Winter records are scant. Two significant records are of 190 birds present in 1983 and 61 birds in June 1997; however, the only other winter records are of 4 birds in 1987 (Smith). The 1983 summer count was just 107 birds, suggesting that immature birds had moved to the Estuary in winter 1983 perhaps because the conditions were unfavourable elsewhere. In which case, it can be concluded that the Estuary was an important location for immature birds at times.

Summary of status prior to 1999

100-200 birds regularly migrated to the Hunter Estuary and at times the Estuary supported up to 500 birds. Over-wintering was uncommon but the Estuary was an important refuge for immature birds when conditions were unfavourable elsewhere.





Pectoral Sandpiper *(Calidris melanotos)*

Analysis

Most records were of 1-2 birds and birds were recorded in 2 of every 3 years, on average, from the late 1960s onwards. It can be difficult to locate small numbers of Pectoral Sandpipers when they are associated with large flocks of Sharp-tailed Sandpiper, as is often the case for the Hunter Estuary. Thus, birds might have been present in the Estuary some other years but with their presence being unrecorded.

The greatest count is of 25 birds present December 1972; this is an unusually large number viewed against the more typical counts for the species. The next greatest counts are of 10+ birds in 1983 and 1997 and 4-5 birds in 1975, 1977 and 1989. The 1972 record is thus an exceptional case, or else has resulted from a mis-identification.

Summary of status prior to 1999

Small numbers were often present in the Hunter Estuary during summer months.

Sharp-tailed Sandpiper *(Calidris acuminata)*

Analysis

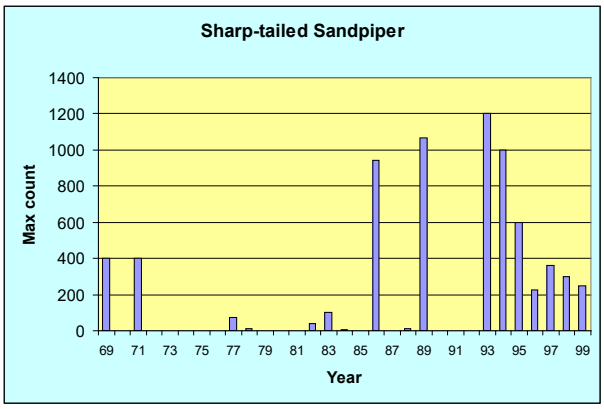
The peak count over the period in review is of 1,200 birds present in the Hunter Estuary in November 1993. There are two other records of >1,000 birds (1989 and 1994) and also 940 birds were present in 1986. In some other years, moderate to high numbers (200-500+ birds) were present but then at other times the recorded numbers present were fairly low (<50 birds).

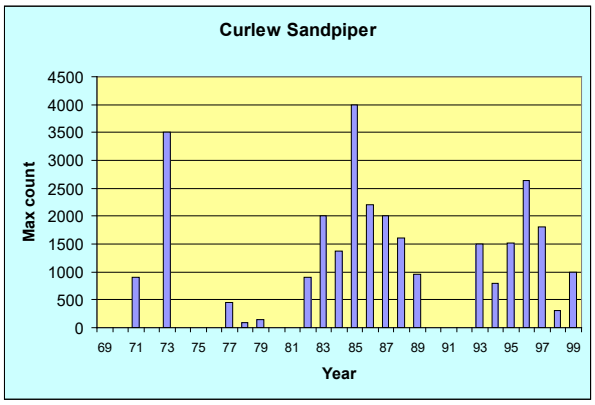
More recent knowledge (i.e. post 1999) about the preferred habitats locally for this species suggests that their presence in areas at or near the Hunter Estuary might have been overlooked in some years. Sharp-tailed Sandpipers are more often recorded at wetlands such as Hexham swamp and the Ash Island ponds – these areas were at best infrequently visited until recent times.

All the known records until April 1999 are of summer visitors –no records have been located of any birds present between mid April and mid September in any year.

Summary of status prior to 1999

Sharp-tailed Sandpipers came to the Hunter Estuary each summer, sometimes only in small to moderate numbers – but when conditions were unfavourable elsewhere, the Estuary became an important refuge, with more than 1,000 birds present at such times. It is likely that their presence was under-recorded because of the infrequent visits by observers to the more preferred habitats around the Estuary.





Curlew Sandpiper *(Calidris ferruginea)*

Analysis

Two records of greater than 3,000 birds present are known – an estimated 4,000 birds in November 1985 and 3,500 birds in December 1973. The more typical maximum counts in the 1980s and 1990s were of 1,500-2,500 birds, while 2,637 birds were recorded to be present in February 1996. Smith (ref 43) commented that the Hunter Estuary was "the most important site in NSW for the species", while Morris and Burton (ref 26) noted the Estuary as a "very important feeding site in NSW". The Australian population was estimated in 1991 to be 140,000 birds (ref 44) and so the above counts represent from 1.0% up to 2.8% of the total population.

There are very few records from the 1970s. However, the 1973 record of 3,500 birds was reported without comment in the NSW Bird Report. This strongly suggests that counts of several thousand birds were not unusual through the 1970s.

580 over-wintering birds were present in 1983 and 387 birds in 1986, and 50-90 birds in 1978, 1984, 1987 and 1989. These records suggest that it was usual for some immature birds to remain in the Estuary each year at least in the 1970s and 1980s. Kingsford *et al.* (ref 39) also recorded 36-91 birds in winters of 1994-1996.

The summer records were regularly of >1% of the Australian population, emphasising the international importance of the Hunter Estuary for Curlew Sandpiper. The occasional very high winter count no doubt also represented a significant proportion of the total population of immature birds.

Lane (1987) rated the Hunter estuary as a top 20 site in Australia for Curlew Sandpiper, based on an average summer count of 1,570 birds over 1981-1985.

Summary of status prior to 1999

Between 1,500 and 2,500 birds regularly visited the Hunter Estuary each summer and the numbers rose to >3,500 birds when conditions were unfavourable elsewhere. Up to 100 immature birds regularly over-wintered and occasionally the numbers were substantially greater in winter. The Estuary was a very important site for Curlew Sandpiper.

Buff-breasted Sandpiper *(Tryngites subruficollis)*

Analysis

A single bird was March 1979 (the bird was caught during a banding project, and a band was placed on it).

Summary of status prior to 1999

The Buff-breasted Sandpiper was an accidental visitor to the Hunter Estuary.

Broad-billed Sandpiper *(Limicola falcinellus)*

Analysis

Holmes (1970) reported that numbers of up to 100 birds were present in the Estuary in the 1960s. This matches reasonably well with the count of 180 birds present in February 1972. However, a rapid decline must have happened soon after, as birds were only reported in 11 of the 27 years between 1973-1999 and with a maximum count of 15 birds (in 1983). All the other counts were of less than 10 birds.

Summary of status prior to 1999

Broad-billed Sandpiper often visited the Estuary in counts of 100 or more in the 1960s and early 1970s, but after that there was a severe decline, with the counts since the mid 1970s generally being of less than 10 birds and birds only intermittently present.

Ruff *(Philomachus pugnax)*

Analysis

Two birds were recorded in 1974; all other records were of single birds (in 1967, 1972, 1973, 1974, 1977, 1983, 1995 and 1998).

Summary of status prior to 1999

The Ruff was a rare visitor to the Hunter Estuary in the summer months.

Other Species

Two other shorebird species have been reported to have occurred in the Hunter Estuary: Cox's Sandpiper (treated at the time as *Calidris paramelanotos* but now considered to be a hybrid of Pectoral and Curlew Sandpipers) and Little Stint *Calidris minuta*. These were very rare records; and it is unclear if the records were confirmed. In view of this, the records have not been analysed for this report. However, for completeness, the records are presented in the Appendix.

4. DISCUSSION

Much of the discussion that follows in this section is based around the maximum counts for individual species. Some shorebird species are only present in their maximum numbers for a relatively short period, for example during migration passage or if conditions elsewhere have become unfavourable. For all species, however, the maximum count at any particular wetlands site indicates the relative importance of that wetlands to the survival of the species. For at least some time in their lifecycle, the birds have relied on that site for food and shelter.

Almost all of the available records have been from occasional and short duration visits to the Estuary by observers. In most cases therefore, it is not possible to know with certainty how long a particular species remained present in its maximum numbers. Indeed, it cannot even be concluded for sure that the maximum numbers were counted. However, the fact that many species often were counted in similar numbers in repeat visits during a season, and over different seasons, does suggest that they often remained in their maximum numbers for extended times.

4.1 Typical Ranges for Maximum Shorebird Numbers in the Hunter Estuary

Table 1 summarises the individual species analyses that were developed earlier in the report. For each of the main shorebird species that occurred in the Hunter Estuary (rare visitors such as Ruff and Asian Dowitcher have not been included), and for each of the three decades for which substantial data were available, a range is given in the Table. For some of the species, there occasionally were greater maximum counts than are indicated by the ranges shown in Table 1. Those few exceptional counts will be considered in a later section of the report. In this section, the focus is on the typical utilisation of the Estuary by shorebirds.

The ranges shown in Table 1 represent interpolated estimates of the typical maximum counts that could be expected for the species in any given season from that decade. For example, for Bar-tailed Godwit in the 1970s, the maximum counts in any season are considered would always have been of at least 1,000 birds, and maximum counts of up to 3,000 birds would not have been unexpected. Taking another example, for the Curlew Sandpiper in the 1970s maximum counts of 3,500 birds would not have been unexpected but by the 1990s any counts of more than 2,500 birds would have been considered to be exceptional.

It should not be interpreted that birds were present all the time in the numbers indicated in Table 1. The ranges indicate the maximum numbers that would have been counted if there were regular systematic surveys. Basically, Table 1 provides an interpolation for all species in all years from the limited Hunter Estuary data that are available.

4.2 Importance of the Hunter Estuary to Shorebirds Collectively

Extending the theme that the maximum numbers of a shorebird species present at a wetland site indicate the importance of the site for the survival of that particular species, it is instructive to consider the total of all of the maximum counts. This total, being the number of different individual birds, is a useful indicator of the importance of the Hunter Estuary to shorebirds generally. Not all the birds are necessarily present simultaneously, but all have relied on the site for some part of their life cycle.

Table 1 Typical Shorebird Maximum Counts for the Hunter Estuary[#]

	Typical numbers present[*]		
Species	**1970s**	**1980s**	**1990s**
Pied Oystercatcher	5-20	5-20	5-20
Sooty Oystercatcher	1-10	1-10	1-10
Black-winged Stilt	500-1,500	500-1,500	500-1,500
Red-necked Avocet	0-100	1,000-2,000	2,000-4,000
Pacific Golden Plover	500-800	500-800	100-200
Red-capped Plover	50-100	50-100	50-100
Double-banded Plover	200-300	10-50	10-50
Lesser Sand Plover	100-500	100-200	50-100
Black-fronted Dotterel	20-50	20-50	20-50
Red-kneed Dotterel	10-50	10-50	10-50
Banded Lapwing	0-20	0-20	0-20
Masked Lapwing	50-80	50-80	50-80
Black-tailed Godwit	700-800	400-600	300-400
Bar-tailed Godwit	1,000-3,000	3,000-4,000	2,000-3,000
Whimbrel	100-200	100-200	100-200
Eastern Curlew	600-1,000	600-800	600-1,000
Terek Sandpiper	100-150	100-150	50-100
Common Sandpiper	1-5	1-5	1-5
Grey-tailed Tattler	40-50	40-50	20-40
Common Greenshank	200-300	100-200	100-200
Marsh Sandpiper	200-400	200-300	100-300
Great Knot	0-10	0-8	10-50
Red Knot	1,000-2,000	1,000-2,000	1,000-2,000
Ruddy Turnstone	30-50	20-50	20-50
Red-necked Stint	100-200	100-200	100-200
Pectoral Sandpiper	1-5	1-5	1-5
Sharp-tailed Sandpiper	1,000-1,500	1000-1500	1,000-1,500
Curlew Sandpiper	1,000-3,500	1,000-4,000	1,000-2,500

[#] *Rare species have not been included in the Table.*

* *Estimated total numbers of birds visiting the Estuary. NB Often, not all species were present simultaneously in their maximum count.*

It must be noted that this approach will under-estimate the total number of individual birds that relied on the Estuary in any season, as it neglects the Estuary's importance to birds that are *in transit*. For example, Red Knots regularly visit the Estuary in September-November, before continuing with their migration. In this period, the numbers present on any given day can be many hundreds, and sometimes are in excess of 1,000 birds. Are these the same birds all the time? Most probably not – the post-breeding migration is relatively fast for most species compared with the movement north to the breeding grounds (where birds stage at several sites to feed and regain weight, thus ensuring that they arrive in prime condition for breeding). Recent studies in 2012-2013 (Herbert and Crawford unpublished) are showing that individual Red Knots only stay in the Estuary for a relatively short period. Thus, very many thousands of Red Knots rely temporarily on the Hunter Estuary. For all the other migratory birds a similar situation potentially applies, such that the birds recorded at the beginning of the migration period are not necessarily the same as those that are present later in the season.

Despite this difficulty, by using the ranges for individual species from Table 1 the total numbers of shorebirds utilising the Estuary in each decade can be estimated. The numbers are presented in Table 2. Thus, for the 1970s at least 7,000 individual migratory shorebirds visited the Hunter Estuary each year and perhaps as many as 15,000 birds (i.e. 11,000 ± 4,000 birds). The total numbers held up fairly well in the 1980s (range 8,000-14,000 birds) but by the 1990s the total number of migrants had declined to 9,200 ± 2,700 birds (i.e. ranging from 6,500 birds to around 12,000 birds).

Over the three decades, the numbers of Australian resident birds utilising the Estuary progressively increased. This change largely reflects the growing numbers of Red-necked Avocet that were present. These were an infrequent visitor in the 1970s but by the 1990s they often were present in counts of many thousands of birds.

Table 2 Typical Numbers of Shorebirds Utilising the Hunter Estuary Each Year

	Typical numbers present		
	1970s	**1980s**	**1990s**
Migratory shorebirds	11,000 ± 4,000	11,500 ± 3,500	9,200 ± 2,700
Australian resident birds	1,200 ± 650	2,700 ± 1,100	4,200 ± 1,600
Total shorebirds	12,000 ± 4,500	14,500 ± 4,500	13,500 ± 4,300

***** *Estimated total numbers of birds visiting the Estuary e.g. during the migration period. Often, not all of the species were present simultaneously in their maximum count.*

The figures in Table 2 indicate the great importance of the Hunter Estuary to shorebirds. In some years during the 1980s at least 19,000 individual birds potentially relied at least some of the time on the Estuary for their food and shelter. This number is in line with Smith's tally of around 24,000 birds over the period 1970-1990.

Tables 1 and 2 are based upon estimates for population ranges; any errors in the initial estimates will distort the conclusions. It is therefore of interest to compare those suggested numbers with the counts for years for which a reasonable amount of information was able to be located. In 1985 and 1986, partly because of some Australian Wader Study Group surveys, there are counts available for many species. Similarly, over 1994-96, from the study by Kingsford *et al.*, there are a reasonable amount of data. The data are presented in Table 3; note that where no records were available the maximum numbers of birds present has been estimated.

The data from Table 3 agree well with the predictions of Table 2. In 1985 there were 14,486 total shorebirds including 11,907 migratory birds – both figures lie very near the mid-point of predicted ranges for the 1980s. Similarly for 1994-96, the actual numbers generally lie comfortably within the predicted ranges; the exception being the 1996 total of 6,314 individuals for Australian breeding resident birds – this reflects the exceptionally high count of Red-necked Avocet in that year (4,500 birds). The 1986 data for migratory shorebirds (Table 3) indicate numbers below the typical range expected. This is mainly associated with very low maximum counts for Bar-tailed Godwit, Eastern Curlew, Marsh Sandpiper and Red Knot. Possibly, exceptionally low numbers of each of these species visited that year, but more probably the peak numbers were not recorded.

Table 3 Shorebird Maximum Counts for Some Particular Years

	Maximum counts*				
Species	**1985**	**1986**	**1994**	**1995**	**1996**
Pied Oystercatcher	*10*	*10*	*10*	*10*	5
Sooty Oystercatcher	*5*	*5*	*5*	*5*	8
Black-winged Stilt	1,205	943	100	500	1,659
Red-necked Avocet	1,200	1,600	2,000	3,000	4,500
Pacific Golden Plover	220	630	100	145	60
Red-capped Plover	6	106	34	50	50
Double-banded Plover	6	*20*	*20*	3	2
Lesser Sand Plover	25	83	40	35	35
Black-fronted Dotterel	*30*	*30*	20	*30*	*30*
Red-kneed Dotterel	63	*20*	20	*20*	22
Masked Lapwing	*60*	*60*	*60*	*60*	*60*
Black-tailed Godwit	*500*	550	400	300	379
Bar-tailed Godwit	4,000	1,440	5,000	2,000	3,100
Whimbrel	60	*100*	250	500	75
Eastern Curlew	650	220	303	1,000	917
Terek Sandpiper	40	5	55	154	94
Common Sandpiper	*2*	*2*	*2*	*2*	*2*
Grey-tailed Tattler	*40*	55	20	38	10
Common Greenshank	561	150	100	208	350
Marsh Sandpiper	277	12	300	433	131
Great Knot	*5*	*5*	1	20	50
Red Knot	400	50	*1,000*	305	2,000
Ruddy Turnstone	*20*	50	50	6	50
Red-necked Stint	*100*	145	20	400	100
Pectoral Sandpiper	*1*	*1*	*1*	*1*	*1*
Sharp-tailed Sandpiper	*1,000*	940	1,000	600	228
Curlew Sandpiper	4,000	2,200	800	1,520	2,737
Other species	*5*	*5*	*5*	*5*	*5*
Total of migratory birds	11,912	6,663	9,467	7,675	10,326
Total of Aust. resident birds	2,579	2,774	2,249	3,675	6,334
TOTAL	14,491	9,437	11,716	11,350	16,660

* Numbers in *Red Italics* are estimated. All others are from the maximum reported counts.

4.3 Shorebird Banding Studies

In the 1970s and 1980s there was a long-term project to trap and band migratory shorebirds in the Hunter estuary (Lane 1973, Van Gessel & Kendall unpublished). The banding activities declined after F. van Gessel departed NSW for Darwin in the early 1980s. Between July 1972 and April 1973, 728 migratory waders were banded in the Newcastle and Sydney areas combined (Lane 1983). Van Gessel and Kendall solved some of the difficulties that initially had been encountered, with the result that 845 shorebirds were banded in the Hunter estuary in the following 14 months – i.e. May 1973 to July 1974 (Van Gessel & Kendall unpublished). They used a combination of mist netting and cannon netting. Subsequently, cannon netting became the dominant trapping method.

4.4 Breeding Records

From their regular surveys during 1969-1976, Van Gessel & Kendall (unpublished) collated the breeding records for all species encountered during the surveys. They had records for five shorebird species:

- Masked Lapwing: breeding July-November with an estimate of 1-3 pairs
- Red-kneed Dotterel: breeding December-January with up to five pairs (but number of pairs variable)
- Black-fronted Dotterel: breeding October-December with up to three pairs (but number of pairs variable)
- Red-capped Plover: breeding August-April with up to 15 pairs (typical 4-7 pairs)
- Black-winged Stilt: breeding September-January with up to ten pairs.

4.5 Over-wintering Migratory Shorebirds

Table 4 shows the maximum winter counts for all shorebird species from the regular surveys by van Gessel and Kendall.

Table 4 Shorebird Winter Counts for the Hunter Estuary.

Species	**1969**	**1971**	**1972**	**73**	**74**	**75**	**76**	**77**	**82**	**83**	**84**
Aust. Pied Oystercatcher		11	9	3					8	2	
Sooty Oystercatcher											
Black-winged Stilt		2	220+	80		300+	350	600+	677	4	1,053
Red-necked Avocet			1			11			85		5
Pacific Golden Plover			1	13	3	1		9			
Red-capped Plover	4	80	30	60			20+	10+	6	55	10
Double-banded Plover		25	100	255	100	60	400+	30+	20	60	
Lesser Sand Plover			20	5	3	1	3				
Black-fronted Dotterel		17	3	50+		13			4		
Red-kneed Dotterel			25+	3		2			29		4
Banded Lapwing											
Masked Lapwing	5	21	10	8					34	8	19
Black-tailed Godwit			3	50	16	30	20	20+	53	40	15
Hudsonian Godwit										1	
Bar-tailed Godwit		82	70+	450	380	200+	300	800+	263	390	411
Whimbrel		21		22	25	25	22		30	2	22
Eastern Curlew		6	3	160	140	226	90+	150	152	290	82
Terek Sandpiper		1	1		5	12	10+	1			
Common Sandpiper											
Grey-tailed Tattler		17	12+	11	13	10	10+	5	13	15	13
Common Greenshank		35	6	15	6			22	51	5	4
Marsh Sandpiper					1			3	6		
Wood Sandpiper		3									
Ruddy Turnstone				2	5					3	5
Great Knot				3							
Red Knot				60	55	6		50+	8		
Red-necked Stint			50	100	30	20	40+			190	
Pectoral Sandpiper											
Sharp-tailed Sandpiper					1						
Curlew Sandpiper		50	250	350	350	36	90+	500+		580	90
Broad-billed Sandpiper										1	

Table 4 (Continued) Shorebird Winter Counts for the Hunter Estuary.

Species	**87**	**88**	**89**	**90**	**92**	**94**	**95**	**96**	**97**
Aust. Pied Oystercatcher			1			2		4	4
Sooty Oystercatcher									
Black-winged Stilt	302				105	50	301	377	87
Red-necked Avocet	2,000	1			480	1,300	3,000	2,517	
Pacific Golden Plover	4		2						
Red-capped Plover	15	55		12				1	
Double-banded Plover							3		
Lesser Sand Plover									
Black-fronted Dotterel		7	2						
Red-kneed Dotterel									
Banded Lapwing									
Masked Lapwing	10	6	8	8	8	4	12	6	7
Black-tailed Godwit	110	10	2		5	*	30	8	15
Hudsonian Godwit									
Bar-tailed Godwit	603	620	520	540	170	340*	250	335	363
Whimbrel	8	10		2	2	22	13	7	8
Eastern Curlew	162	140	95	114	65	133	258	130	85
Terek Sandpiper							1		
Common Sandpiper									3
Grey-tailed Tattler	1	4	3	3	1		2		
Common Greenshank		9			8		39	2	31
Marsh Sandpiper							1		
Wood Sandpiper									
Ruddy Turnstone	7					2			
Great Knot							8	6	13
Red Knot		1	2	5			5	28	30
Red-necked Stint	4							4	
Pectoral Sandpiper									
Sharp-tailed Sandpiper									
Curlew Sandpiper	50	1	84		1	62	91	31	18
Broad-billed Sandpiper									

5. CONCLUSIONS

There is limited information published prior to the 1960s about shorebird utilisation of the Hunter Estuary. The insights from the available material suggest that the Estuary hosted large numbers of many shorebird species in the 1940s. It seems a reasonable assumption that this had been the case for a long time prior to the 1940s. From the late 1960s, shorebirds in the Hunter Estuary began to be monitored more regularly and the counts reported. In each ensuing decade, there were periods of systematic surveying supplemented by many reports based on opportunistic sightings. From the combination of these two types of source, it has been possible to develop a self-consistent picture of shorebird utilisation of the Hunter Estuary prior to 1999.

The Estuary hosted many thousands of shorebirds each year:

- In the 1960s and 1970s, about 11,000 shorebirds on average visited annually (with around 90% of those being migratory birds). In peak years, around 15,000 individual birds were counted.
- In the 1980s, the counts of migratory shorebirds remained steady overall but with some species declining in number and others increasing. The numbers of resident shorebirds visiting the Estuary more than doubled, such that they comprised close to 20% of the 14,000-15,000 shorebirds recorded annually.
- In the 1990s, the numbers of migratory shorebirds began to decline, with substantial decreases in numbers for some species and other species remaining fairly stable. The numbers of Australian shorebirds continued to rise, such that the Estuary continued to host 13,000-14,000 shorebirds each year and with resident birds comprising around 30% of the total numbers.

Although the overall outcome was that there were approximately stable numbers of shorebirds utilising the Estuary, for individual species the outcomes varied markedly, as detailed below:

<u>Population stable or small changes only</u>

Australian Pied Oystercatcher, Sooty Oystercatcher, Red-capped Plover, Masked Lapwing, Whimbrel, Eastern Curlew, Common Sandpiper, Grey-tailed Tattler, Common Greenshank, Marsh Sandpiper, Ruddy Turnstone, Red Knot, Red-necked Stint, Pectoral Sandpiper, Curlew Sandpiper (albeit with considerable year-on-year variability).

<u>Population increased</u>

Red-necked Avocet: Substantial increase, beginning in the 1970s

Terek Sandpiper: 100-150 birds most years, with occasional influxes totalling 300-600 birds

Great Knot: Small numbers most years, but occasional greater counts

<u>Population decreased</u>

Pacific Golden Plover: 50-70% decline in numbers

Double-banded Plover: Very rarely present after mid 1980s

Lesser Sand Plover: >95% decline in numbers

Black-tailed Godwit: >50% decline in numbers

: > % decline in numbers

Broad-billed Sandpiper: >90% decline in numbers

Other Changes

Black-winged Stilt: Regular large influxes; long-tem stability

Red-kneed Dotterel: Regular influxes; long-tem stability

Bar-tailed Godwit: Population increased in the mid 1970s through to the late 1980s, then decreased substantially

Sharp-tailed Sandpiper: Regular large influxes; long-tem stability

Occasional Visitors (no pattern discernible)

Banded Stilt, Grey Plover, Ringed Plover, Greater Sand Plover *(probably declined)*, Oriental Plover, Banded Lapwing, Hudsonian Godwit, Little Curlew, Wandering Tattler, Wood Sandpiper, Asian Dowitcher, Sanderling, Buff-breasted Sandpiper, Ruff

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APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

INTRODUCTION

Tabulated data of pre-1999 records for all shorebirds which have been recorded in the Hunter Estuary are presented in the following pages. The data for each shorebird species are arranged into four categories:

- Records published in the annual NSW Bird Reports for the reporting period spanning 1972-1999;
- Records published in the annual Hunter Region Bird Reports for the reporting period spanning 1993-1999;
- Wader count data published in *Stilt* for the period spanning 1986-1997 (wader counts were not published in *Stilt* prior to 1986 – instead brief (and now mostly untraceable) summary reports were sent to surveyors);
- All other data that was found (including the source of the data).

In general, the species are presented in the current taxonomic order. Records for two species which do not appear in the current Hunter Region checklist are presented separately, at the end of the Appendix.

Australian Pied Oystercatcher *(Haematopus longirostris)*

1. NSW Bird Reports

There were no reports, except that birds were noted to have bred in "Stockton Bight" in 1984.

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	<5 birds recorded Oct 13
1995	6 birds recorded Nov 11 and <5 birds Oct 14 & Dec 30
1996	Several records of <5 birds
1997	3 birds recorded Feb 22
1998	8 birds recorded Aug 8
1999	6 birds recorded Dec 11, and several records of <5 birds

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	0	-	No winter survey
1987	6	0	
1988	0	0	
1989	2	1	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	0	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	4		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count
Barden pers. records (37)	1977	2 birds Oct 13
	1978	14 birds Aug 12
Surveys for AWSG (38)	1982	8 birds July 10-11
	1983	2 birds July
	1984	4 birds February
Kingsford *et al.* (39)	1994	2 birds Jul 20-22
	1995	15 birds Oct 24-26
	1996	4 birds Apr 18-20
	1997	4 birds May 7-9
Kendall, Van Gessel (40)	Max count of 23 birds 1969-1972. Recorded in 15% of year-round surveys over ~3 years.	
Van Gessel, Kendall (41, 42)	24 birds present April 1972	
Smith (43)	Max count 27 birds 1970-1990. Max count 6 birds 1986-89.	
Gosper (47)	Recorded all months 1970-1973, moderately common in lower estuary (regular Stockton): max count 24 birds; increasing late summer to winter	

Sooty Oystercatcher *(Haematopus fuliginosus)*

1. NSW Bird Reports 1971-1999

There were no reports.

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	<5 birds recorded Oct 13
1994	8 birds recorded Apr 8
1995	7 birds recorded Mar 6
1996	Up to 8 birds recorded regularly all year
1997	6 birds recorded Aug 9
1998	Up to 5 birds recorded regularly all year
1999	4 birds recorded Deb 3

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	0		No winter survey
1987	0	0	
1988	0	0	
1989	0	0	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	0	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	0		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Comments
Gosper (47)	Six records of 1-3 birds in 1970-1973

Black-winged Stilt *(Himantopus leucocephalus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	370 birds recorded Aug 12	Noted as "large number"
1983	200 birds recorded Feb 28	
1984	No specific numbers reported	3 pairs were reported to be nesting
1985	1,205 birds recorded February	Noted as being at "Hunter wetlands"
1993	250+ birds recorded Mar 6	
1996	372 birds recorded February	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	100+ birds recorded Feb 23
1994	100+ birds recorded Jan 23
1995	Up to 500+ birds recorded Jan-Mar, nesting Dec 21
1996	300+ birds recorded Apr 18, 10+ nests late January
1997	20+ birds recorded Dec 28
1998	60 birds recorded Jul 12
1999	694 birds recorded Apr 17

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	171		No winter survey
1987	1	302	
1988	72	7	
1989	191	0	
1990		0	No summer survey
1991		0	No surveys done

Year	Summer	Winter	Comments
1992	70	105	
1993		0	No summer survey
1994		0	No summer survey
1995		250	No summer survey
1996	2		No winter survey
1997	0		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	1,200 birds Aug 7	
	1978	800+ birds Aug 4	
	1979	Some birds Jun 25	Numbers were not noted
	1985	230 birds Jun 30	
Surveys for AWSG (38)	1982	677 birds Jul 10-11	15 birds Feb 13-14
	1983	83 birds February	4 birds July
	1984	1,053 birds June	24 birds February
Kingsford et al (39)	1994	66 birds Oct 18-20	
	1995	301 birds Jul 27-29	
	1996	1,659 birds Oct 18-20	
	1997	87 birds May 7-9	
Kendall, Van Gessel (40)	Max count of 350 birds 1969-1972. Recorded in 33% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	350 birds present May 1972		
Smith (43)	Max count over 1970-1990 was 1,209 birds in 1984. Max count 943 birds 1986-89 and several counts of 150-300 birds.		
Gosper (47)	Moderately common, to common at times: recorded most months with numbers fluctuating widely; 300+ in 1972 but absent/scarce in 1971		

Red-necked Avocet *(Recurvirostra novaehollandiae)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	Max 19 birds July-Aug, some birds present May - Nov	Described as a "notable series of records"
1973	Single bird recorded Jan 22 and Feb 1	
1975	11 birds recorded Apr 17	
1980	60 birds recorded Nov 8	
1981	90 birds recorded Jan 6	
1982	110 birds recorded Aug 1 and Nov 12	
1983	140 birds recorded Feb 26	
1984	53 birds recorded December	Present Jun-Dec
1985	1,200+ birds recorded Sep 1	Noted as present all year
1986	1,600+ birds recorded Jun 9, 860 birds Mar 9	
1987	1,000+ birds recorded Oct 15, 800+ birds Jan 3	
1988	No counts reported	Noted as nesting in January
1989	320 birds recorded Feb 20	
1990	40+ birds recorded Oct 28	
1991	440+ birds recorded Nov 23	Present Jun-Nov
1992	Birds present Apr 17 – Oct 25, max count of 2,000	
1993	2,500 birds recorded Jul 31	Present Feb-Dec
1994	Birds present Jan 20 – Nov 5, max count of 2,000+	
1995	Birds present all year, max count of 3,000 in July	Noted as "most ever for Kooragang Island, reasons unknown"
1996	4,500 birds recorded Jun 3	Present Mar-Sep

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	2,500 birds recorded in winter
1994	1,000-1,200 birds recorded Jan-Aug (check raw data)
1995	1,920 birds recorded Jan 17
1996	3,000 birds recorded May 30
1997	20+ birds recorded Jan 19
1998	600 birds recorded Jul 12
1999	40 birds recorded Feb 2

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	2		No winter survey
1987	550	2,000	
1988	0	1	
1989	320	0	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	190	480	
1993			No summer survey
1994			No summer survey
1995		3,000	No summer survey
1996	68		No winter survey
1997	0		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	1 bird Sep 21	
	1978	1 bird Aug 4	
	1985	100 birds Jun 30	
Surveys for AWSG (38)	1982	85 birds Jul 10-11	Not recorded in February
	1983	103 birds February	Not recorded in July
	1984	5 birds June	Not recorded in February
Kingsford et al (39)	1994	1,957 birds Sep 20-21	
	1995	1,875 birds Sep 30-Oct 1	
	1996	2,517 birds Sep 20-22	
	1997	1,707 birds Jan 13-15	
Kendall, Van Gessel (40)	Max count of 5 birds 1969-1972.		
Van Gessel, Kendall (41, 42)	Noted as being a casual visitor. 5 birds present may-Dec 1965 and 19 birds Aug 1972.		
Smith (43)	Max count over 1970-1990 was 2,000 birds in 1987. Other counts over 1986-89 ranged from 0 to 1,600 birds.		
Gosper (47)	1-19 birds present May-Nov 1972, and one bird Jan 1973		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Banded Stilt *(Cladorhynchus leucocephalus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	Single bird recorded Sep 9-23	Bird was an immature
1984	Single bird recorded Oct 7 – Dec 9	Bird was an immature

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1995	Two immature birds Dec 9-31
1996	Two immature birds Jan 1 – Feb 6

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	11		No winter survey
1987	0	0	
1988	0	0	
1989	0	0	
1990		0	No summer survey
1991		0	No surveys done

Year	Summer	Winter	Comments
1992	0	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	0		No winter survey

4. Additional Data

Source (ref)	Records/Comments
Van Gessel, Kendall (41, 42)	Single birds present May and Aug-Sep 1972
Gosper (47)	Single birds May 1972, Sep 1972 and Jan 1973

Pacific Golden Plover *(Pluvialis fulva)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1972	350 birds recorded Feb 27
1983	100 birds recorded Feb 28
1985	220 birds recorded February
1989	650-700 birds recorded February
1991	200+ birds recorded Nov 23
1994	40 birds recorded Mar 21
1995	145 birds recorded in summer count
1996	42 birds recorded February
1997	220 birds recorded February
1999	39 birds recorded February

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	100+ birds recorded Feb 15 and Dec 1
1994	100 birds recorded Jan 14
1995	145 birds recorded Feb 6
1996	60 birds recorded Nov 3
1997	300 birds recorded Feb 23
1998	94 birds recorded Jan 23
1999	46 birds recorded Mar 21

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	630		No winter survey
1987	510	4	
1988	220	0	
1989	420	2	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	148	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	42		No winter survey
1997	220		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count
Barden pers. records (37)	1977	13 birds Aug 7
	1978	Single bird Nov 16
	1979	400 birds Jan 17
Surveys for AWSG (38)	1982	130 birds Feb 13-14
	1983	500 birds February
	1984	800 birds February
Kingsford et al (39)	1994	46 birds Nov 8-10
	1995	71 birds Feb 2-4
	1996	47 birds Oct 18-20
	1997	219 birds Feb 26-28
Kendall, Van Gessel (40)	Max count of 250 birds 1969-1972. Recorded in 23% of year-round surveys over ~3 years.	
Van Gessel, Kendall (41, 42)	250 birds present March 1972	
Smith (43)	Max count 800 birds 1970-1990. Max count 630 birds 1986-89 and with the average count being of 445 birds	
Gosper (47)	Common visitor Oct-Apr, max count 370 birds during 1970-1973 and with 1-5 birds present May-Sep	
D'Ombrain (56)	In 1945, reported large flocks to be present at "Stockton and the upper reaches of Newcastle Harbour"	
Holmes (45)	Highest count in late 1960s was 100 birds.	

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Grey Plover *(Pluvialis squatarola)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1973	Single bird recorded Nov 24
1982	Single bird recorded Dec 27
1983	Single bird recorded Dec 14
1984	Two birds recorded November
1985	Single bird recorded Sep 15
1991	Single bird recorded Mar 17

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Van Gessel and Kendall (ref 48) reported single birds present November 1973 and January 1974.

Ringed Plover *(Charadrius hiaticula)*

1. NSW Bird Reports 1971-1999

No records.

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Van Gessel and Kendall (ref 41) reported a single bird present between February and December 1967.

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Red-capped Plover *(Charadrius ruficapillus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1994	38 birds recorded in summer count	
1995	50+ birds recorded in summer count	
1996	No specific count data	Birds had a nest + eggs Feb 10

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	100+ birds recorded Feb 15
1994	<20 birds recorded Jan 23 and May 22
1995	50+ birds recorded Feb 1
1996	~50 birds recorded Apr 20 and Jul 21
1997	75 birds recorded Jun 5. Pair + chick Sep 21
1998	~100 birds recorded Jun 26
1999	20+ birds recorded January. Pair + chick Jan 8

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	80		No winter survey
1987	70	15	
1988	20	55	
1989	110	0	
1990		12	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	0	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	0		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	13 birds Sep 21	
	1978	10 birds Jun 22	
	1985	6 birds Jun 30	
Surveys for AWSG (38)	1982	6 birds Jul 10-11	
	1983	55 birds July	6 birds February
	1984	10 birds June	3 birds February
Kingsford et al (39)	1996	1 bird May 4-6	
Kendall, Van Gessel (40)	Max count of 90 birds 1969-1972. Recorded in 34% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	90 birds present August 1971.		
Smith (43)	Max count 130 birds in 1970s. Max count 110 birds 1986-89 and several records of >50 birds		
Gosper (47)	Small numbers (1-20 birds) in spring & summer, increasing Mar-Aug with loose flocks: max count 130 birds 1970-1973		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Double-banded Plover *(Charadrius bicinctus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1973	Present Jul-Aug, maximum count 260 birds

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1996	2 birds recorded Jul 28
1997	28 birds recorded Jun 5
1998	20 birds recorded Jul 1

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Source (ref)	Year	Maximum Count
Barden pers. records (37)	1978	165 birds Jun 22
Surveys for AWSG (38)	1982	20 birds Jul 10-11
	1983	60 birds July
	1984	6 birds Jun 30
Kingsford et al (39)	1995	3 birds Jul 27-29
Kendall, Van Gessel (40)	Max count of 40 birds 1969-1972. Recorded in 10% of year-round surveys over ~3 years.	
Van Gessel, Kendall (41, 42)	40 birds present April 1972	
Smith (43)	Max count over 1970-1990 was 260 birds in 1973. No records over 1986-89	
Gosper (47)	Moderately common winter visitor 1970-1973, max count 85 birds	
Holmes (45)	Highest count in late 1960s was 50 birds.	

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Lesser Sand Plover *(Charadrius mongolus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1972	800 birds recorded Nov 30
1983	200 birds recorded Feb 28
1989	84 birds recorded Feb 20
1990	12 birds recorded Feb 25
1991	30 birds recorded Mar 17
1994	40 birds recorded Mar 21
1996	30 birds recorded February
1997	20 birds recorded February

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	<5 birds recorded Feb 6 and Oct 10
1994	6+ birds recorded Jan 23
1995	35 birds recorded Feb 6
1996	35 birds recorded Feb-Mar
1997	20-21 birds recorded Feb 23 and Mar 2
1998	10 birds recorded Jan 23
1999	4 birds recorded Jan 12

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	83		No winter survey
1987	3	0	
1988	16	0	
1989	84	0	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	42	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	30		No winter survey
1997	0		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	110 birds Dec 9	Winter count of 4 birds Jun 7
	1978	2 birds Nov 16	
	1985	25 birds Mar 20	
Surveys for AWSG (38)	1983	125 birds February	
	1984	135 birds February	
Kingsford et al (39)	1994	10 birds Dec 19-21	
	1995	13 birds Mar 1-3	
	1996	31 birds Mar 25-27	
	1997	68 birds Jan 13-15	
Kendall, Van Gessel (40)	Max count of 500 birds 1969-1972. Recorded in 22% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	500 birds present March 1972		
Smith (43)	Max count 800 birds 1970-1990. Max counts over 1986-89 were 84 birds in 1989 and 83 birds in 1985; <20 birds were present 1987-88		
Gosper (47)	Common visitor 1970-1973, max count 288 birds over Oct-Apr and with up to 70 birds present May-Sep		
McGill & Keast (55)	In 1945, reported large flocks to be "scattered over the flats" around the Estuary		
Holmes (45)	Highest count in late 1960s was 500 birds.		

Greater Sand Plover *(Charadrius leschenaultii)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1971	Some birds present	Noted as "small numbers"
1972	5 birds recorded Oct 14	4 birds present Sep 2 were noted as "early record"
1976	31 birds recorded Jan 31	
1983	3 birds recorded Feb 28	
1984	2 birds recorded Jan 20-22	
1997	23 birds recorded February	

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

There was a published record of 23 birds in the summer of 1997.

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count
Barden pers. records (37)	1984	Single bird Sep 26
Surveys for AWSG (38)	1983	2 birds February
Kendall, Van Gessel (40)	Max count of 2 birds 1969-1972.	
Van Gessel, Kendall (41, 42)	Three records – single birds Feb 1971 and Feb 1972, two birds Feb 1971	
Smith (43)	Max count 31 birds 1970-1990. No birds recorded 1986-89	
Gosper (47)	1-2 birds at Stockton Oct-Nov 1972	
Holmes (45)	Highest count in late 1960s was 10 birds.	

Oriental Plover *(Charadrius veredus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1980	Single bird recorded Dec 6
1981	16 birds recorded Jan 6

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Smith (ref 43) reported that 18 birds were present in 1981.

Black-fronted Dotterel *(Elseyornis melanops)*

1. NSW Bird Reports 1971-1999

There were no reports.

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	<20 birds often recorded.
1994	20+ birds recorded May 22
1995	<5 birds sometimes recorded
1996	<20 birds often recorded
1997	30 birds recorded Jun 25
1998	50 birds recorded Jun 26 and Jul 5
1999	54 birds recorded April

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	1		No winter survey
1987	0	0	
1988	0	0	
1989	0	2	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	2	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	0		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count
Barden pers. records (37)	1977	2 birds Jun 7
Surveys for AWSG (38)	1982	4 birds Jul 10-11
	1984	24 birds February
Kendall, Van Gessel (40)	Max count of 18 birds 1969-1972. Recorded in 30% of year-round surveys over ~3 years	
Van Gessel, Kendall (41, 42)	18 birds present May 1971.	
Smith (43)	Max count 31 birds 1970-1990. No birds recorded 1986-89	
Gosper (47)	Uncommon to moderately common, recorded all months 1970-1973 with up to 21 birds present in winter	

Red-kneed Dotterel *(Erythrogonys cinctus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	No specific count data	4 nests with eggs in January "may be 1st NSW coastal breeding record"
1974	No specific count data	Nest with eggs Dec 14
1975	14 birds recorded Mar 22	
1982	48 birds recorded Aug 8	
1985	63 birds recorded Apr 13	
1994	10 birds recorded July	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1994	20+ birds recorded Jun 22
1996	22 birds recorded May 5
1998	30 birds recorded Jun 26
1999	<5 birds recorded Apr 17

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	0		No winter survey
1987	0	0	
1988	0	0	
1989	2	0	
1990		0	No summer survey
1991			No surveys done
1992	0	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	0		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Surveys for AWSG (38)	1982	29 birds Jul 10-11	Also 6 birds Feb 13-14
	1984	4 birds June	
Kendall, Van Gessel (40)	Max count of 49 birds 1969-1972. Recorded in 9% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	50 birds present April 1972		
Gosper (47)	Irregular visitor. Up to 22 birds at Kooragang Nov 1969-May 1970, 6-7 birds Nov-Dec 1970/1971, up to 49 birds Mar-Dec 1972		

Banded Lapwing *(Vanellus tricolor)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1984	7-16 birds recorded during October	One pair bred
1985	11 birds recorded mid Sep	
1989	No records	A pair + 2 young were at Broadmeadow Newcastle Nov 14
1990	6+ adults & chicks recorded Nov 4	Also 3+ birds at Broadmeadow Oct 28
1992	2 adults and 4 young recorded Nov 21	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	7 birds recorded Oct 14
1994	9 birds recorded August; 2 pairs nested Aug-Sep

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Source (ref)	Record
Van Gessel, Kendall (41, 42)	Single bird present August 1970
Gosper (47)	Single bird Aug 1970, four birds Aug 1972

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Masked Lapwing *(Vanellus miles)*

1. NSW Bird Reports 1971-1999

There were no reports.

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1994	20+ birds recorded Jun 18
1997	20+ birds recorded Apr 1
1998	20+ birds recorded Jan 19 and Mar 21

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	6		No winter survey
1987	11	10	
1988	17	6	
1989	14	8	
1990		8	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	15	8	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	0		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	9 birds Nov 10	
	1978	3 birds Jul 14	
	1979	3 birds Jun 27	
	1985	4 birds Jun 30	
Surveys for AWSG (38)	1982	34 birds Jul 10-11	Also, 8 birds Feb 13-14
	1983	8 birds July	
	1984	19 birds June	Also, 14 birds February
Kingsford et al (39)	1994	4 birds Jul 20-22	
	1995	12 birds May 15-17	
	1996	7 birds Apr 18-20	
	1997	37 birds Apr 23-25	
Kendall, Van Gessel (40)	Max count of 60 birds 1969-1972. Recorded in 57% of year-round surveys over ~3 years.		
Smith (43)	Max count 147 birds 1970-1990. Counts of <20 birds recorded 1986-89		
Gosper (47)	Common resident, max count 53 birds 1970-1973		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Black-tailed Godwit *(Limosa limosa)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1971	200 birds recorded both summer seasons	
1972	400+ birds on several occasions	
1973	Max count of 700 birds in March	Up to 30 birds over-wintered
1982	Max count of 800 birds Dec 27	
1983	300+ birds recorded Feb 28	
1984	3,000 birds recorded Jan 7	Noted as "The highest NSW count on file"
1985	800-3,000 birds over Jan-Feb, 4,000 birds Nov 9 declining to 2,000 birds Dec	Noted: "Hunter wetlands is the most important site in NSW for this species"
1989	450 birds Feb 20	
1991	40+ birds March 17	
1995	300 birds in the summer count	Winter count of 30 birds
1996	379 birds Feb-Mar	
1997	350 birds in summer count	
1999	150 birds recorded in February	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	300-400 birds recorded over Feb-Mar, 400 birds Dec 1
1994	Around 400 birds recorded Jan 14
1995	Around 300 birds recorded Jan-Feb
1996	300+ birds Jan-Apr and Dec, peak count of 370 birds Feb 19
1997	Around 300 birds in Feb and Mar
1998	200 birds recorded Mar 21
1999	Around 200 birds recorded in April

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	550		No winter survey
1987	618	110	
1988	100	10	
1989	450	2	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	52	5	
1993		0	No summer survey
1994		0	No summer survey
1995		30	No summer survey
1996	370		No winter survey
1997	350		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	Some birds present	Included into the Bar-tailed Godwit counts
	1978	Some birds present	Included into the Bar-tailed Godwit counts
	1979	Some birds present	Included into the Bar-tailed Godwit counts
	1985	Some birds present	Included into the Bar-tailed Godwit counts
Surveys for AWSG (38)	1982	150 birds February	Winter count 53 birds
	1983	400 birds February	Winter count 40 birds
	1984	520 birds February	Winter count 53 birds
Kingsford et al (39)	1994	210 birds Nov 8-10	
	1995	264 birds Oct 24-26	
	1996	363 birds Feb 19-21	
	1997	350 birds Feb 26-29	
Kendall, Van Gessel (40)	Max count of 800 birds 1969-1972. Recorded in 16% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	800 birds present March 1972		
Smith (43)	Max count 4,000 birds 1970-1990. Max count 618 birds 1986-89. Max winter count 110 birds in 1987. Noted as the most important site in NSW for the species.		
Gosper (47)	Moderately common visitor, Up to 350+ birds Sep-Apr during 1970-1973 and up to 80 birds May-Aug		
Holmes (45)	Highest count in late 1960s was 100 birds.		

Hudsonian Godwit *(Limosa haemastica)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1982	1 bird recorded Dec 26-31	Noted as the first NSW and Australian record
1985	1 bird recorded Jan 5 and April 7	
1988	1 bird recorded Oct 15	Noted as being the 3rd NSW record if accepted

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Source (ref)	Year	Maximum Count
Surveys for AWSG (38)		
	1983	Single bird July
Smith (43)	Single birds recorded each year over 1982-1985	

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Bar-tailed Godwit *(Limosa lapponica)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1971	800 birds recorded Dec 7	
1972	800 birds recorded Jan 14	
1973	1,500 birds recorded Jan 9	Up to 400 birds over-wintered
1977	3,000 birds recorded Nov 5	
1982	3,500 birds recorded Dec 27	
1983	2,000+ birds recorded Feb 28	
1984	1,720 birds recorded Feb 3	
1985	2,000-4,000 birds over Jan-Feb, 3,000-4,000 birds Sep-Dec	
1989	2,400 birds Feb 20	
1994	5,000 birds recorded in summer count	260 birds over-wintered
1995	2,000+ birds recorded in summer count	250 birds over-wintered
1996	1,500 birds recorded in summer count	
1997	1,850 birds recorded in summer count	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	2,000 birds in Feb, 5000 birds Dec 1
1994	5,000 birds Jan 14, 400 birds over-wintering (Aug 7 count)
1995	1,000-2,000 birds Jan-Feb and Oct
1996	3,100 birds Dec 13, 1000+ birds Jan-Apr and Sep-Dec.
1997	2,000 birds recorded Mar 12
1998	770 birds recorded Mar 21
1999	1,000 birds recorded Feb 4

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	1,440		No winter survey
1987	1,212	603	
1988	2,400	620	
1989	2,400	520	
1990		540	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	970	170	
1993		0	No summer survey
1994		0	No summer survey
1995		250	No summer survey
1996	1,300		No winter survey
1997	1,850		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	1500+ birds Nov 10	Includes Black-tailed Godwit
	1978	600 birds July 14	No summer count data
	1979	~600 birds June 25	No summer count data
	1985	1,100 birds March 20	Includes Black-tailed Godwit
Surveys for AWSG (38)	1982	800 birds February	Winter count 263 birds
	1983	600 birds February	Winter count 390 birds
	1984	1,720 birds February	Winter count 411 birds
Kingsford et al (39)	1994	1,138 birds Dec 19-21	
	1995	1,130 birds Mar 1-3	
	1996	2,283 birds Oct 18-20	
	1997	1,800 birds Feb 26-28	
Kendall, Van Gessel (40)	Max count of 500 birds 1969-1972. Recorded in 35% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	800 birds present Dec 7 1971		
Smith (43)	Max count 4,000 birds 1970-1990. Max count 2,400 birds 1986-89 and with 500-600 birds over-wintering. Noted as the most important site in NSW for the species.		
Gosper (47)	Common visitor 1970-1973, up to 1,050 birds present Sep-Mar and up to 180 birds Apr-Aug		
D'Ombrain (56)	In 1945, reported large flocks to be present at "Stockton and the upper reaches of Newcastle Harbour"		
Holmes (45)	Highest count in late 1960s was 600 birds.		

Little Curlew *(Numenius minutus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1975	2 birds recorded Feb 15	
1984	32 birds recorded March 8	
1985	No records for Hunter Estuary	2 birds recorded at Wentworth Swamp (near Maitland) Jan
1991	No records for Hunter Estuary	2 birds recorded at Wentworth Swamp (near Maitland) Jan
1994	7 birds recorded Oct 16-29	A single and possibly additional bird was recorded Oct

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Comments
Kendall, Van Gessel (40)	Max count of 1 bird 1969-1972.
Van Gessel, Kendall (41, 42)	3 birds present Sep 1968 and 1 bird Dec 12 1969
Smith (43)	Max count of 32 birds in 1984

Whimbrel *(Numenius phaeopus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1974	57 birds recorded Sep 7	
1975	23+ birds recorded June 28, 32 birds recorded Nov 22	
1984	~60 birds recorded Jan 7	
1985	60+ birds recorded Dec 1	
1995	Summer count of 315 birds	Winter count of 15 birds
1996	Summer count of 75 birds	
1997	Summer count of 96 birds	
1999	50 birds recorded in February	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	~250 birds recorded Dec 1
1994	~250 birds recorded Jan 14
1995	~500 birds recorded Jan 22 and many counts of 200+ birds
1996	69 birds recorded Feb 19, 181 birds recorded Oct 18
1997	10 birds recorded August 10
1998	6+ birds recorded Mar 22. 20 birds over-wintered
1999	6 birds recorded Feb 4

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	0		No winter survey
1987	55	8	
1988	25	10	
1989	10		
1990		2	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	4	2	
1993			No summer survey
1994			No summer survey
1995		13	No summer survey
1996	69		No winter survey
1997	96		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	2 birds Oct 11	
	1978	3 birds Jul 7	
	1985	11 birds June 30	
Surveys for AWSG (38)	1982	30 birds Jul 10-11	None recorded in summer
	1983	39 birds in February	2 birds counted in winter (June)
	1984	37 birds in February	22 birds counted in winter (June)
Kingsford et al (39)	1994	220 birds Sep 20-21	
	1995	56 birds Oct 24-26	
	1996	70 birds Nov 2-4	
	1997	2 birds Mar 24-27	
Kendall, Van Gessel (40)	Max count of 21 birds 1969-1972. Recorded in 40% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	21 birds present July 27 1971		
Smith (43)	Max count over 1970-1990 was 105 birds in 1978. Max count 55 birds 1986-89 and 37 birds over-wintering in 1986.		
Gosper (47)	Uncommon visitor, max count 16 birds; recorded all months		
Holmes (45)	Highest count in late 1960s was 10 birds.		

Eastern Curlew *(Numenius madagascariensis)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1975	700+ birds recorded Nov 1	200+ birds over-wintered
1976	1,000+ birds recorded Nov 13	
1981	800+ birds recorded Dec 4	
1982	600+ birds recorded Jan 9	
1983	500+ birds recorded Feb 28	
1984	900+ birds recorded Jan 22, 653 birds Feb 3	
1985	650+ birds recorded Jan 12, 310 birds Feb, Sep and Dec	
1987	800+ birds recorded Oct 15	
1989	320 birds recorded Feb 20	
1991	300+ birds recorded Mar 17	
1993	900+ birds recorded in summer	Noted as being consistent with recent years
1994	146 birds over-wintered	
1995	Summer count of 400 birds, 330 birds recorded Sep 10	
1996	343 birds recorded in summer	There was also a winter count of 201 birds
1997	552 birds recorded in February	
1999	531 birds recorded in February	

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

2. Hunter Region Bird Reports 1993-April 1999 1993-2002

Year	Highest Reported Numbers Present
1993	900+ birds recorded Feb 6, ~250 birds over-wintered
1994	300+ birds recorded Jan 14
1995	~1000 birds recorded Oct 14, counts of up to 500 birds Jan-Mar
1996	600 birds recorded Nov 2
1997	250 birds recorded Dec 30
1998	~200 birds recorded Sep 23
1999	520 birds recorded Feb 4

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	520[#]		No winter survey
1987	436	162	
1988	240	140	
1989	320	95	
1990		114	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	58	65	
1993		0	No summer survey
1994		0	No summer survey
1995		230	No summer survey
1996	135		No winter survey
1997	520		No winter survey

[#] *Reported as 40 birds*

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	400 birds Nov 10	
	1978	400+ birds Nov 16	
	1979	90 birds Jun 25	No count in summer
	1985	210 birds Mar 20	
Surveys for AWSG (38)	1982	500 birds Feb 13-14	152 birds counted in winter (July)
	1983	500 birds February	290 birds counted in winter (June)
	1984	653 birds February	82 birds counted in winter (June)
Kingsford et al (39)	1994	303 birds Sep 20-21	
	1995	468 birds Feb 2-4	
	1996	917 birds Nov 2-4	
	1997	892 birds Jan 13-15	
Kendall, Van Gessel (40)	Max count of 300 birds 1969-1972. Recorded in 48% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	Max count 300 birds present Nov 1970. A pre-1970 record of 600 birds was noted.		
Smith (43)	Max count 1,000 birds 1970-1990. Max count 436 birds 1986-89 and up to 220 birds over-wintering. Noted as one of the most important sites in NSW for the species.		
Gosper (47)	Common visitor, recorded all months 1970-1973. Max counts 191 birds Sep-Apr and 94 birds May-Aug		
Holmes (45)	Highest count in late 1960s was 600 birds.		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Terek Sandpiper *(Tringa cinereus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	500 birds recorded Mar 18	
1973	No summer records reported. 5 birds over-wintered	
1983	100 birds recorded Feb 28	
1989	80 birds recorded Feb 20	
1990	40+ birds recorded Oct 28	
1991	30+ birds recorded Mar 17	
1992	350+ birds recorded Jan 19	Noted as the highest count for many years.
1995	154 birds recorded in summer	
1996	94 birds recorded in February	
1997	231 birds recorded in February	
1999	83 birds recorded in February	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	125 birds recorded in February, 55 birds on Dec 1
1994	55 birds recorded Jan 14
1995	154 birds recorded Feb 6
1996	94 birds recorded Feb 19 and 70 birds Dec 13
1997	10 birds recorded Nov 9
1998	~20 birds recorded during Jan-Feb
1999	54 birds recorded Jan 12

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	5		No winter survey
1987	70	0	
1988	110	0	
1989	80	0	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	0	0	
1993	0	0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	94		No winter survey
1997	231		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	3 birds Dec 9	
	1978	1 bird Jul 7	No summer count data were found
	1985	40+ birds Mar 20	
Surveys for AWSG (38)	1982	Not recorded	
	1983	70 birds February	
	1984	20 birds February	
Kingsford et al (39)	1994	53 birds Nov 8-10	
	1995	111 birds Feb 2-4	
	1996	23 birds Feb 19-21	
	1997	85 birds Feb 26-28	A report of 633 birds Jan 13-15 has been discounted
Kendall, Van Gessel (40)	Max count of 200 birds 1969-1972. Recorded in 19% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	Max count 600 birds present Jan 1970.		
Smith (43)	Max count 600 birds 1970-1990. Max count 110 birds 1986-89. Noted as one of the most important sites in NSW for the species.		
Gosper (47)	Moderately common visitor 1970-1973, recorded all months. Max counts 290 birds Oct-Apr and 5 birds May-Sep		
Holmes (45)	Highest count in late 1960s was 300-400 birds. A flock of 600 birds were at Stockton 1 Jan 1970		

Common Sandpiper *(Actitis hypoleucos)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	Single bird recorded Sep 9	
1973	Single bird over-wintered May-Aug	
1974	7 birds recorded Dec 29	
1982	Single bird recorded Apr 3	Text suggests bird may have been present all summer
1984	2 birds recorded Jan 7, 1 bird Oct 14	
1988	2 birds recorded Mar 6	
1989	Single bird recorded Feb 20	
1990	Single bird recorded Feb 25	
1991	3 birds recorded Dec 30	
1992	Single bird recorded Jan 26	
1993	Single birds recorded Feb 13 and Dec 13-17	
1997	Single bird recorded Mar 1	

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	Single birds recorded Feb 13 and Dec 1
1994	1-2 birds recorded Jan and Oct
1995	1-2 birds recorded Feb and Nov
1996	Single birds recorded Jan and Mar
1997	Single bird recorded Mar 1
1998	Single bird recorded Mar 1
1999	Single birds recorded Feb and Sep

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	0		No winter survey
1987	0	0	
1988	1	0	
1989	1	0	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	0	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	0		No winter survey
1997	0		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Kingsford et al (39)	1994	1 bird Nov 8-10	
	1995	1 bird Nov 13-15	
Kendall, Van Gessel (40)	Max count of 4 birds 1969-1972. Recorded in 3% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	Max count of 4 birds present Dec 1971.		
Smith (43)	Max count 11 birds in 1974		
Gosper (47)	Very uncommon visitor 1970-1973, max count 11 birds, mainly in the upper estuary		
Holmes (45)	Highest count in late 1960s was 10 birds.		

Grey-tailed Tattler *(Tringa brevipes)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1991	60+ birds recorded Mar 17
1992	80 birds recorded Jan 19
1994	20+ birds recorded in February
1995	Summer count of 38 birds
1996	10 birds recorded in February
1997	21 birds recorded in February
1999	27 birds recorded in February

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	20 birds recorded in February; 9 birds over-wintered
1994	<5 birds recorded in February and October
1995	38 birds recorded Feb 21
1996	20+ birds recorded Jan 21
1997	80 birds recorded Mar 12
1998	50+ birds recorded ; 14 birds over-wintered
1999	No reports were received.

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	55		No winter survey
1987	38	0	
1988	35	4	
1989	30	3	
1990		3	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	12	1	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	5		No winter survey
1997	21		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	3 birds Aug 12	
	1978	13 birds Jul 10-11	No observations in summer count
	1985	5 birds Mar 20	
Surveys for AWSG (38)	1983	30 birds February	Winter (June) count of 15 birds
	1984	96 birds February	Winter (June) count of 13 birds
Kingsford et al (39)	1994	16 birds Nov 8-10	
	1995	29 birds Feb 2-4	
Kendall, Van Gessel (40)	Max count of 19 birds 1969-1972. Recorded in 39% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	19 birds present Aug 1971		
Smith (43)	Max count 100 birds 1970-1990. Max count 55 birds 1986-89 and 1-4 birds over-wintering.		
Gosper (47)	Moderately common visitor, recorded all months 1970-1973, max count 45 birds		
Keast (54)	Up to 34 birds were at Throsby Creek during 1943-44		
Holmes (45)	Highest count in late 1960s was 100 birds.		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Wandering Tattler *(Tringa incana)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1974	Single bird recorded Sep 21	Noted as a first for the area
1980	Single bird recorded Dec 6	
1982	Single bird recorded Aug 8	

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

No further records found.

Common Greenshank *(Tringa nebularia)*

1. NSW Bird Reports 1971-1999 1971-1998

Year	Highest Reported Numbers Present	Additional Comments Made
1971	80 birds recorded Aug 26	Noted as “largest number for state”
1972	80+ birds recorded Oct 14	
1973	80 birds recorded in August and 140+ birds Dec 27	Noted that the August birds may have over-wintered
1974	200+ birds recorded Nov 23	
1983	~100 birds recorded Feb 28	
1984	177 birds recorded Feb 3	
1985	561 birds recorded in February	Noted as being in the “Hunter wetlands”
1987	120+ birds recorded Jan 3	
1989	35 birds recorded Feb 20	
1991	182 birds recorded Nov 13 and 50+ birds Mar 17	
1995	Summer count of 140 birds	
1996	100 birds recorded Mar 10	
1997	160 birds recorded in February	
1999	120 birds recorded in February	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	150-200 birds recorded often over Jan-Mar, 100+ birds Dec 1
1994	~100 birds recorded Jan 14
1995	208 birds recorded Mar 30
1996	350 birds recorded Mar 6 and Dec 13
1997	Few reports, all were of <5 birds.
1998	35 birds recorded Mar 21
1999	200 birds recorded early February

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	150		No winter survey
1987	45	1	
1988	58	9	
1989	35	0	
1990		0	No summer survey
1991			No surveys done
1992	58	8	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	100		No winter survey
1997	160		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	2 birds Sep 13	No summer count data found
	1978	2 birds Jul 7	No summer count data found
Surveys for AWSG (38)	1982	51 birds Jul 10-11	Summer count of 10 birds Feb 13-14
	1983	100 birds February	Winter count 5 birds in June
	1984	177 birds February	Winter count 4 birds in June
Kingsford et al (39)	1994	60 birds Sep 20-21	
	1995	79 birds Feb 2-4	
	1996	250 birds Mar 25-27	
	1997	129 birds Apr 23-25	
Kendall, Van Gessel (40)	Max count of 300 birds 1969-1972. Recorded in 48% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	Max count of 200 birds present Oct 1971.		
Smith (43)	Max count 561 birds 1970-1990. Max count 150 birds 1986-89 and with up to 25 birds over-wintering.		
Gosper (47)	Fairly common visitor 1970-1973, recorded all months: max count 70 birds		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Marsh Sandpiper *(Tringa stagnatilis)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	210 birds recorded Oct 14	Noted as "unprecedented numbers for NSW" over Oct-Nov
1974	160+ birds recorded Dec 14	
1975	500+ birds recorded Nov 22	Noted as far exceeding previous counts for the locality and for NSW
1982	1 bird present August 8 (over-wintering?)	
1983	50+ birds recorded Feb 28	
1984	50 birds recorded Feb 3	
1985	277 birds recorded in February	
1987	6 birds recorded Jan 3	
1989	115 birds recorded Feb 20	
1992	40-50 birds recorded Jan 19	
1993	300 birds recorded Feb 6	
1994	300+ birds recorded during late summer	
1995	Summer count of 433 birds	
1996	Summer count of 131 birds	
1997	Summer count of 180 birds	
1999	Summer (Feb) count of 184 birds	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	200-300 birds recorded in February, 6 birds over-wintered
1994	300+ birds recorded Dec 18
1995	433 birds recorded Feb 6
1996	131 birds recorded Feb 19
1997	30 birds recorded Mar 12
1998	30+ birds recorded Mar 8
1999	10 birds recorded Feb 4

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	12		No winter survey
1987	65	0	
1988	2	0	
1989	115	0	
1990		0	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	2	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	131		No winter survey
1997	180		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Surveys for AWSG (38)	1982	40 birds Feb 13-14	6 birds in July count
	1983	10 birds in Feb	No birds found in June count
	1984	50 birds in Feb	4 birds in June count
Kingsford et al (39)	1994	85 birds Nov 8-10	
	1995	121 birds Feb 2-4	
	1996	100 birds Feb 19-21	A report of 678 birds Nov 2-4 has been discounted
	1997	115 birds Feb 26-28	
Van Gessel, Kendall (41, 42)	210 birds present Oct 1972 and 150 birds Nov 1972, Few other records but noted as difficult to identify from Common Greenshank.		
Smith (43)	Max count 500 birds 1970-1990. Max count 115 birds 1986-89. Noted as one of the most important sites for the species in NSW.		
Gosper (47)	Scarce visitor 1970-1973; 2 birds Aug 1972, however, up to 103 birds present Oct 1972 to Jan 1973		

Wood Sandpiper *(Tringa glareola)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1974	Single birds recorded Feb 23 and Aug 24	
1975	Single birds recorded Jan 5 and Feb 22	
1980	No reports for Estuary	1-3 birds were at Hexham Nov-Dec
1981	Single bird recorded Jan 3	Single bird also recorded at Hexham Jan 24
1982	Single bird recorded – no date	
1990	Single bird recorded Nov 4	
1992	Single bird recorded Oct 25	

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Source (ref)	Records/comments
Kendall, Van Gessel (40)	Max count of 6 birds 1969-1972. Recorded in 3% of year-round surveys over ~3 years.
Van Gessel, Kendall (41, 42)	Records of 3 birds present Nov 1970 and May 1971, and 6 birds Feb 1972.
Smith (43)	Max count 6 birds 1972
Gosper (47)	1-3 birds Nov 1969 to Apr 1970, three birds Feb 1971

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Ruddy Turnstone *(Arenaria interpres)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
	No records reported 1971-1990 or 1998-1999
1997	2 birds recorded in February

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	Up to 20 birds recorded Mar 27, Sep 29 and Nov 20
1994	50+ birds recorded Apr 8
1995	6 birds recorded Dec 17
1996	40-50+ birds recorded Jan-Mar
1997	~30 birds sometimes recorded in Jan-Mar period
1998	20-25 birds recorded several times

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	40[#]		No winter survey
1987	7	7	
1988	13	0	
1989	21	0	
1990		0	No summer survey
1991		0	No surveys done

Year	Summer	Winter	Comments
1992	5	0	
1993		0	No summer survey
1994		0	No summer survey
1995		0	No summer survey
1996	1		No winter survey
1997	2		No winter survey

[#] *Reported as 520 birds*

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	2 birds Dec 9	
	1978	1 bird Jun 22	
Surveys for AWSG (38)	1983	8 birds February	3 birds in June
	1984	50 birds February	5 birds in June
Kingsford et al (39)	1994	4 birds Aug 16-18	
	1995	3 birds Mar 1-3	
	1996	7 birds Sep 20-22	A report of 401 birds Oct 18-20 has been discounted
	1997	4 birds Feb 26-28	
Kendall, Van Gessel (40)	Max count of 30 birds 1969-1972. Recorded in 29% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	30 birds present April 1972		
Smith (43)	Max count 520 birds 1970-1990. Max count 520 birds 1986 but 1987-1989 counts were of 7-21 birds, and with 3-7 birds over-wintering.		
Gosper (47)	Uncommon visitor 1970-1973, small numbers Oct-Apr, max count 24 birds		
Holmes (45)	Highest count in late 1960s was 20 birds.		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Asian Dowitcher *(Limnodromus semipalmatus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1985	Single bird recorded Apr 6-28	
1988	Single bird recorded Aug 2 and Oct 8	August record was noted as "3rd NSW record"

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

No further records found.

Great Knot *(Calidris tenuirostris)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1971	Some birds were recorded – check about numbers & date
1972	15+ birds recorded Mar 18
1974	9 birds recorded Dec 29
1978	2 birds recorded Sep 16
1983	3 birds recorded Dec 31
1987	5 birds recorded Jan 3
1989	8 birds recorded Feb 20
1991	6 birds recorded in March
1993	4 birds recorded Nov 13-14
1995	20 birds recorded in summer count, winter count of 5 birds
1996	40 birds recorded in summer count
1997	16 birds recorded Mar 12
1999	8 birds recorded in February

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	No records
1994	No records
1995	20 birds recorded Feb 6; 5 birds over-wintered (Jul 29 record)
1996	36 birds recorded Mar 7, 50 birds Oct 19
1997	16 birds recorded Mar 12
1998	10 birds recorded Mar 21
1999	7 birds recorded in April

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments	Year	Summer	Winter	Comments
1986	0		No winter survey	1992	0	0	
1987	0	0		1993		0	No summer survey
1988	1	0		1994		0	No summer survey
1989	8	0		1995		5	No summer survey
1990		0	No summer survey	1996	32		No winter survey
1991			No surveys done	1997	15		No winter survey

*Survey results either were not reported in *Stilt*, or the *Stilt* report had no Hunter Estuary data

4. Additional Data

Source (ref)	Year	Maximum Count
Surveys for AWSG (38)	1982	1 bird Feb 13-14
	1984	4 birds February
Kingsford et al (39)	1994	1 bird Oct 18-20
	1995	15 birds Mar 1-3
	1996	21 birds Feb 19-21
	1997	20 birds Mar 24-27
Kendall, Van Gessel (40)	Max count of 12 birds 1969-1972. Recorded in 4% of year-round surveys over ~3 years.	
Van Gessel, Kendall (41, 42)	Only known records were for Feb-Mar and Sep-Oct 1972, max count 12 birds March 18	
Smith (43)	Max count 30 birds 1970-1990. Max count 8 birds 1986-89.	
Gosper (47)	Uncommon summer visitor 1970-1973, max count 30 birds	
Holmes (45)	Highest count in late 1960s was 40 birds.	

Red Knot *(Calidris canutus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	400 birds recorded Sep 30 after increasing through the month, then declined	Noted as “apparent passage movement”
1973	500+ birds recorded Nov 17; up to 40 birds May-Aug	
1975	600+ birds recorded Sep 26	
1984	~1000 birds recorded Sep 26	Noted as “highest ever NSW count on file”
1985	~400 birds recorded Sep 15 and Nov 9	
1989	80 birds recorded Feb 20	
1995	80 birds recorded Sep 10; 15 birds in February	
1996	2000 birds recorded Sep 22	

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	100 birds recorded Oct 14; 15 birds Feb 4
1994	<5 birds recorded Jan 23
1995	~100 birds recorded Oct 14; <20 birds Jan-Mar
1996	2000 birds recorded Sep 22; up to 60 birds Jan-Apr
1997	36 birds recorded Mar 1
1998	50 birds recorded Mar 21
1999	No records for the nominated period

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	14		No winter survey
1987	2	0	
1988	9	1	
1989	80	2	
1990		5	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	5	0	
1993		0	No summer survey
1994		0	No summer survey
1995		2	No summer survey
1996	10		No winter survey
1997	30		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	160 birds Sep 13	
	1978	17 birds Jul 7	2 birds Nov 16
	1979		Present in summer, not counted
Surveys for AWSG (38)	1982	8 birds Jul 10-11	
	1983	20 birds February	
	1984	9 birds February	
Kingsford et al (39)	1994	3 birds Nov 8-10	
	1995	305 birds Oct 24-26	
	1996	1,567 birds Sep 20-22	
	1997	46 birds Mar 24-27	
Kendall, Van Gessel (40)	Max count of 30 birds 1969-1972. Recorded in 7% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	30 birds present Jan and Mar 1972		
Smith (43)	Max count 1,000 birds over 1970-1990 was in 1984, at the time of southward migration. Max count 80 birds 1986-89 and 1-2 birds over-wintering.		
Gosper (47)	Uncommon to moderately common visitor, mostly in small numbers (up to 50 birds) but up to 550 birds on passage between Sep and early Nov; recorded all months		
Holmes (45)	Highest count in late 1960s was 100 birds.		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Sanderling *(Calidris alba)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1973	Single bird recorded Nov 4
1995	Single bird recorded Nov 23

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Holmes (45)	Small numbers were present in the late 1960s.

Red-necked Stint *(Calidris ruficollis)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1989	136 birds recorded Feb 20
1995	51 birds recorded in summer count
1997	130 birds recorded in summer count

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	Single bird recorded Dec 1
1994	20+ birds recorded Jan 23 (check raw ABR number)
1995	400 birds recorded Dec 30; up to 50 birds Jan-Mar
1996	100 birds recorded Mar 7, 90 birds Oct 19 and Nov 2
1997	50+ birds recorded Jan 19; 61 birds over-wintered (Jun 5)
1998	278 birds recorded Dec 19
1999	150 birds recorded Jan 24

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	nr		No winter survey
1987	178	nr	
1988	140	nr	
1989	136	nr	
1990		nr	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	nr	nr	
1993		nr	No summer survey
1994		nr	No summer survey
1995		nr	No summer survey
1996	20		No winter survey
1997	30		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	40 birds Dec 9	
	1978	24 birds Aug 4	
	1985	3 birds Mar 20	
Surveys for AWSG (38)	1982	9 birds Feb 13-14	
	1983	190 birds winter	107 birds summer (February)
	1984	34 birds February	
Kingsford et al (39)	1994	21 birds Dec 19-21	
	1995	32 birds Sep 30-Oct 1	
	1996	65 birds Mar 25-27	
	1997	150 birds Feb 26-28	
Kendall, Van Gessel (40)	Max count of 500 birds 1969-1972. Recorded in 37% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	500 birds present Jan 1972		
Smith (43)	Max count 540 birds 1970-1990. Max count 178 birds 1986-89.		
Gosper (47)	Common visitor, recorded all months 1970-1973. Max counts 540 birds Sep-Apr and 30 birds May-Aug		
Holmes (45)	Birds were very numerous in the late 1960s.		

Pectoral Sandpiper *(Calidris melanotos)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	25 birds recorded Dec 30	
1973	2 birds recorded Dec 22	
1974	2 birds recorded Nov 2, 1 bird Dec 14	
1975	5 birds recorded Feb 9, 4 birds Feb 15, 1 bird Nov 22	
1976	Single birds recorded Feb 14 and Sep 12	
1977	4 birds recorded during January	
1978	Single bird recorded Sep 16	
1981	Single bird recorded Jan 3	
1982	Single bird recorded Nov 2	
1983	10+ birds recorded Oct 23, 1 bird Dec 9	
1985	1-2 birds recorded Apr 13-14 and Dec 1	
1989	5 birds recorded Nov-Dec; 1 bird Mar 11	
1991	Single bird recorded Oct 27 – Nov 2	
1997	Up to 10 birds recorded Feb 23 – Mar 16	
1998	2 birds recorded Jan 7-18, 1 bird Feb 8-22	January record was at Shortland Wetlands Centre

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1995	Single bird recorded Dec 16-31
1996	Single bird recorded through January; 5 birds Nov 17
1997	Up to 10 birds recorded Feb 23 – Mar 16
1998	1 bird recorded Feb 8-22, and 2 birds at Wetlands Centre Jan 7-18
1999	Single bird recorded Jan 13

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Source (ref)	Records/Comments
Kendall, Van Gessel (40)	Max count of 1 birds 1969-1972.
Van Gessel, Kendall (41, 42)	Single bird present Sep 1971.
Smith (43)	10+ birds present in 1983
Holmes (45)	Small numbers were present in the late 1960s.

Sharp-tailed Sandpiper *(Calidris acuminata)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present
1989	1,065 birds recorded Feb 20
1995	218 birds recorded in summer count

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	1,200 birds recorded Nov 6; 200 birds Feb 23
1994	1,000 birds recorded Jan 14
1995	465 birds recorded Jan 11, 600 birds Dec 30
1996	228 birds recorded Apr 20, 400 birds Dec 21
1997	360 birds recorded Feb 1
1998	300+ birds recorded Apr 5
1999	250 birds recorded during January

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	940		No winter survey
1987	2	nr	
1988	12	nr	
1989	1,065	nr	
1990		nr	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	nr	nr	
1993		nr	No summer survey
1994		nr	No summer survey
1995		nr	No summer survey
1996	nr		No winter survey
1997	nr		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count
Barden pers. records (37)	1977	71 birds Nov 10
	1978	10 birds Nov 16
Surveys for AWSG (38)	1982	40 birds Feb 13-14
	1983	100 birds February
	1984	3 birds February
Kingsford et al (39)	1994	3 birds Oct 18-20
	1995	4 birds Sep 30-Oct 1
	1996	223 birds Apr 18-20
Kendall, Van Gessel (40)	Max count of 450 birds 1969-1972. Recorded in 34% of year-round surveys over ~3 years.	
Van Gessel, Kendall (41, 42)	Max counts of 400 birds Dec 1969 and Sep 1971.	
Smith (43)	Max count 1,065 birds 1970-1990. Counts of 940 birds 1986 and 1,065 birds 1989, <20 birds in 1987-88.	
Gosper (47)	Common visitor Sep-Mar 1970-1973, max count 540 birds	
Holmes (45)	Birds were very numerous in the late 1960s.	

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Curlew Sandpiper *(Calidris ferruginea)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1973	3,500 birds recorded Dec 1	
1984	1,366 birds recorded Feb 3	
1985	4,000 birds recorded Nov 9 and 1,900 birds in February	
1987	2,000+ birds recorded Jan 3	
1989	950 birds recorded Feb 20	
1995	1,520 birds recorded in summer count	
1996	2,637 birds recorded in February	Noted "the Hunter Estuary is a very important feeding site in NSW"
1997	1,800 birds recorded in February	
1999	570 birds recorded in February	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1993	1,500 birds recorded Feb 6 and Oct 14
1994	800 birds recorded Jan 14
1995	1,500 birds recorded Jan 17; up to 600 birds Oct-Dec
1996	2,600 birds recorded Feb 19 and 1,000 birds Dec 13
1997	60 birds recorded March
1998	300 birds recorded Mar 21
1999	1,000 birds recorded Jan 13

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	2,200		No winter survey
1987	1,506	50	
1988	1,600	1	
1989	950	84	
1990		nr	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	450	1	
1993		nr	No summer survey
1994		nr	No summer survey
1995		nr	No summer survey
1996	2,600		No winter survey
1997	1,800		No winter survey

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Barden pers. records (37)	1977	450 birds Aug 7	
	1978	93 birds Jun 22	
	1979	150 birds Jan 17	
	1985	800 birds Sep 26	
Surveys for AWSG (38)	1982	900 birds Feb 13-14	
	1983	2,000 birds February	Winter (July) count 580 birds
	1984	1,366 birds February	Winter (June) count 90 birds
Kingsford et al (39)	1994	783 birds Dec 19-21	
	1995	1,189 birds Feb 2-4	
	1996	2,600 birds Jan 26-28	Also 850 birds Mar 25-37
	1997	1,406 birds Jan 13-15	
Kendall, Van Gessel (40)	Max count of 900 birds 1969-1972. Recorded in 40% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	900 birds present Jan 1972.		
Smith (43)	Max count 4,000 birds 1970-1990. Max count 2,200 birds 1986-89 and 387 birds over-wintering in 1986 (<100 birds over-wintering 1987-89). Noted as the most important site in NSW for the species.		
Gosper (47)	Common visitor, recorded all months: max counts >1,200 birds Sep-Apr and 120 birds May-Aug		
Holmes (45)	Birds were very numerous in the late 1960s.		

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

Buff-breasted Sandpiper *(Tryngites subruficollis)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1979	Single bird recorded Mar 10	Bird was caught and then banded

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

No further records found.

Broad-billed Sandpiper *(Limicola falcinellus)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	~180 birds recorded Feb 26	
1978	Single bird recorded Apr 7	
1980	Some birds recorded Dec 6 (numbers were not noted)	
1982	3 birds recorded Jan 9	
1983	15 birds recorded Feb 28; single bird Dec 14	Noted as “few reports”
1984	Up to 9 birds recorded Jan-Feb	Noted as the “lowest count in years”
1985	3 birds recorded Mar 23; 1-2 birds Jan-Feb	Noted as “In this area, numbers have declined since the mid 1970s ….”
1988	2 birds recorded Mar 5	
1989	Single bird recorded Mar 11	
1990	Two birds recorded Feb 25, single bird Jan 26	
1994	3 birds recorded Nov 5-6, 2 birds Jan 26	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1994	Two birds recorded Jan 26 and Nov 6
1995	Two birds recorded Mar 5

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

3. National Wader Counts 1986-1997 as published in Stilt

Year	Summer	Winter	Comments
1986	2		No winter survey
1987	nr	nr	
1988	nr	nr	
1989	nr	nr	
1990		nr	No summer survey
1991			No surveys done

Year	Summer	Winter	Comments
1992	nr	nr	
1993		nr	No summer survey
1994		nr	No summer survey
1995		nr	No summer survey
1996	nr		No winter survey
1997	nr		No winter survey

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Surveys for AWSG (38)	1983	8 birds February	1 bird July
	1984	5 birds February	
Kendall, Van Gessel (40)	Max count of 180 birds 1969-1972. Recorded in 15% of year-round surveys over ~3 years.		
Van Gessel, Kendall (41, 42)	180 birds present Feb 1972		
Smith (43)	Max count 180 birds 1970-1990. Counts of up to 100 birds in 1960s noted. Also noted that numbers have declined since the 1980s.		
Gosper (47)	Uncommon visitor Oct-Apr in 1970-1973; max count 58+ birds		
Holmes (45)	Highest count in late 1960s was 60-100 birds.		

Ruff *(Philomachus pugnax)*

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1972	Single bird recorded Jan 14	Noted as “second confirmed record for NSW”
1973	Single bird recorded Dec 1	
1974	Single birds recorded Jan 5, Nov 30, Dec 15	
1977	Single bird recorded Jan 3	
1983	Single bird recorded Dec 14	

2. Hunter Region Bird Reports 1993-April 1999

Year	Highest Reported Numbers Present
1995	Single birds recorded Dec 18 & Dec 21
1998	Single birds recorded several times in February

3. National Wader Counts 1986-1997 as published in Stilt

No records.

APPENDIX: TABULATED DATA FOR INDIVIDUAL SPECIES

4. Additional Data

Source (ref)	Year	Maximum Count	Comments
Kendall, Van Gessel (40)	Max count of 1 bird 1969-1972.		
Van Gessel, Kendall (41, 42)	Single birds were present Nov 1967 and Feb 1972		
Smith (43)	Max count 1970-1990 was 2 birds in 1974		
Gosper (47)	Single bird at Stockton Feb 1972		
Holmes (45)	One bird present Nov 1967.		

OTHER RECORDS *(for completeness)*

Cox's Sandpiper *(Calidris paramelanotos)* ***Not treated as a species in the modern checklist***

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1988	Single birds recorded Jan 26, Mar 6 and Mar 12	Presented as unconfirmed records

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

Smith (ref 43) describes a single bird that was captured and photographed in 1981, and also a single bird – bearing a band and presumed therefore to be the same bird from 1981 –present in 1988.

Little Stint *(Calidris minuta)* ***Not on the current Hunter Region checklist***

1. NSW Bird Reports 1971-1999

Year	Highest Reported Numbers Present	Additional Comments Made
1991	Single bird recorded Nov 2	Bird was in partial breeding plumage

2. Hunter Region Bird Reports 1993-April 1999

No records for this period.

3. National Wader Counts 1986-1997 as published in Stilt

No records.

4. Additional Data

No further records found.