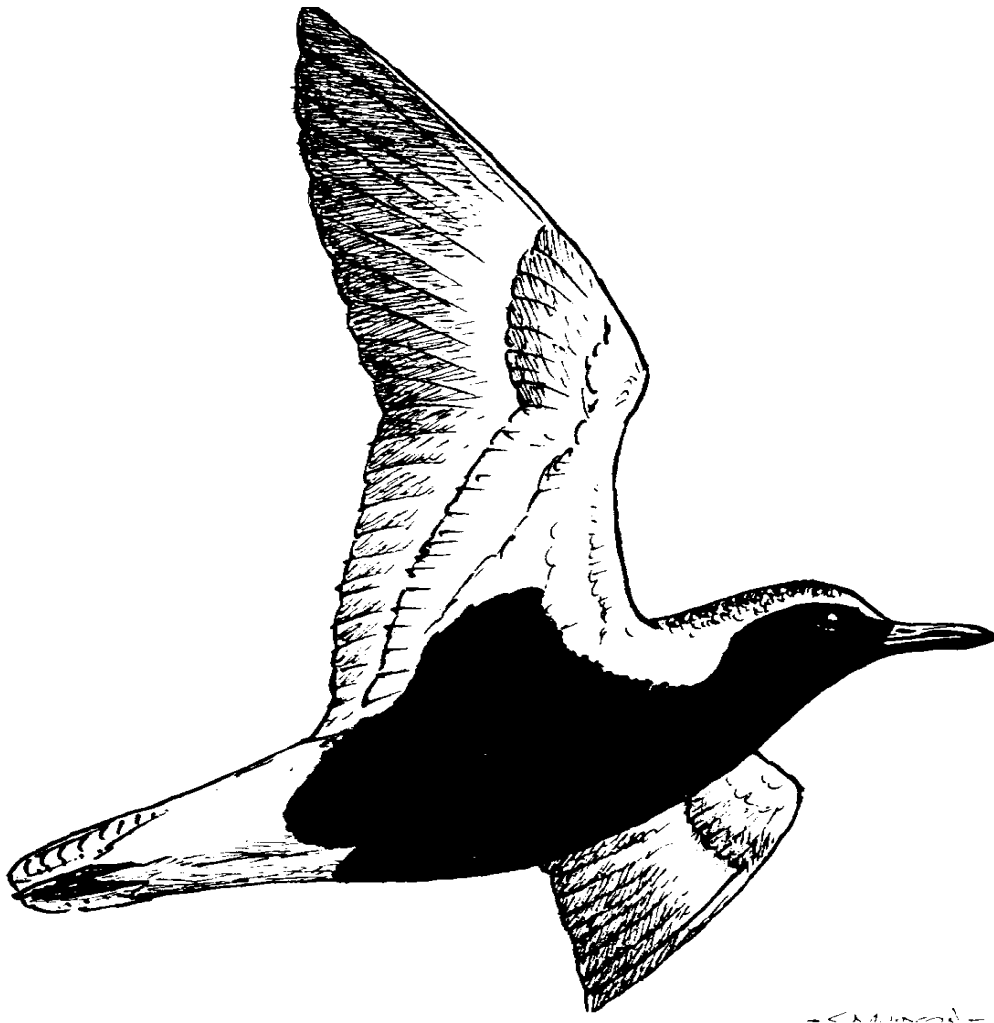


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VICTORIAN WADER STUDY GROUP INC.

MISSION STATEMENT

The principal aim of the Victorian Wader Study Group is to gather, through extensive planned fieldwork programs, comprehensive data on waders and terns throughout Victoria on a long-term basis.

This scientifically collected information is intended to form a factual base for conservation considerations, to be a source of information for education of a wider audience, to be a means of generating interest of the general community in environmental and conservation issues, and to be a major contribution to the East-Asian Australasian Flyway and Worldwide knowledge of waders and terns.

FORMATION/BACKGROUND

The wader banding fieldwork, which led to the formation of the Victorian Wader Study Group, commenced in December 1975. The Group was formally named in late 1978 and incorporated in 1986.

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VWSG WEB SITE www.vicnet.net.au/~vwsg

Our web site is maintained by Roger Standen

Summary of VWSG Activities in 2012/13

Clive Minton

Introduction

Another year has gone by, another year of fieldwork on waders and terns has been completed and more valuable and exciting data has been generated. Each year we try and summarise this in an annual Bulletin so that all VWSG members, and those individuals and organisations with whom we interface, can see a comprehensive summary of what their efforts and financial and other support have achieved. The VWSG is so dependent on so many different people, ranging from land owners who provide access to our banding and counting locations, to those who provide the finance necessary to cover the costs of our activities and to VWSG members and many others who take part in fieldwork and assist in so many different ways. We thank them all and hope that they will enjoy seeing some of the outcomes brought together in this, the 36th issue of the VWG Bulletin, 2013.

As usual this summary covers a range of different aspects of our activities. The tabular data covers calendar year 2012 but some of the descriptions of activities and all of the recoveries and flag-sightings cover to the end of June 2013.

Fieldwork

Waders

As usual cannon-netting waders at various coastal locations in Victoria, the south-east of South Australia and on King Island (Tasmania) was the main fieldwork activity. A total of 4467 waders were caught in 59 separate catches with a total of 76 days spent in the field (wader and tern activities). This gave an average cannon-net catch size in 2012 of 76 birds – well below our long-term average of 148 birds per catch. This is because of the increasing concentration in recent years or specialist catches of targeted species or of birds carrying geolocators.

A particular highlight of the wader banding was a good catch of Red-necked Avocets (69) and Banded Stilts (18) at Yallock Creek, on 6 January 2013. This was followed by a further 14 Red-necked Avocets and 84 Banded Stilts at Stockyard Point on 9 May. This latter catch was made when the birds chose to land with our Pied Oystercatcher decoys! Red-necked Avocets and Banded Stilts have been particularly numerous and widespread on the Victorian coast in the last two years following successful inland breeding in the wet years 2010/12.

We continue to find Bar-tailed Godwit and Red Knot difficult to catch in the numbers we would like. This may get even harder in the future as the sandbank which attracted Bar-tailed Godwits to roost in a most catchable location at Barwon Heads over the last three years has now been washed away following the removal of a temporary protective barrier erected during construction of the new bridge.

Another positive outcome of the 2012/13 wader catching season was that Red-necked Stint and Curlew Sandpipers returned to roost again in good numbers at Yallock Creek after a two-year absence. Twelve hundred birds were caught in two catches in January 2013.

The 2011/12 season for catching Oystercatchers finished up with particularly good totals of 305 Pied Oystercatcher and 66 Sooty Oystercatcher. The current (2012/13) season is progressing satisfactorily with 141 Pied Oystercatcher and 23 Sooty Oystercatcher caught to the end of June. Our annual target is a minimum of 150 Pied and 50 Sooty Oystercatchers.

In South Australia the banding at Yanerbie on the Eyre Peninsula, commenced in 2011, was successfully continued by Maureen Christie. An exploratory visit to Thompsons Beach, 50km north of Adelaide, was not successful in catching the prime target, Red Knot, but some useful small catches were made and a return visit is planned for November 2013. Reece Pedler's Ph.D. studies on Banded Stilt continued successfully, with more birds equipped with satellite transmitters and considerable further data on movements of individuals obtained. His data has clearly further demonstrated that there is some interchange between the South Australian and Western Australian Banded Stilt populations, at one time thought to be discreet. Reece has been blessed with yet another Banded Stilt breeding event – this time a small-scale (9000 pairs) laying eggs at Lake Torrens in June 2013. This occurred even though the lake only contained deep pools rather than being completely flooded. A chick banding visit is planned for late July.

Terns

Tern fieldwork again mainly centred on monitoring breeding populations, banding tern chicks and recapturing previously banded adult breeding Crested Terns. It was a very poor year for Crested Tern breeding at Mud Islands and The Nobbies but, in contrast, an exceptional one for breeding Crested Terns in Corner Inlet.

Other notable tern results were 278 adult Whiskered Terns caught at Werribee Sewage Farm in late December and four Gull-billed Terns at Yallock Creek in early January. One of the latter was recaptured in Corner Inlet in mid-June in a further catch (15) of Gull-billed Terns. This is the first movement we have had of a Gull-billed Tern banded by the VWSG.

A new addition to the fieldwork programme was trying to obtain monthly samples of 20 – 30 Crested Terns in the Gippsland Lakes each month between October and February. This was requested by Monash University to assist their studies of blue-green algae (a major problem in the Gippsland Lakes) via the changes occurring internally in fish-eating birds during blue-green algae outbreaks. With three catches made, one before and two after this year's blue-green algal bloom, Monash were more than satisfied with the results achieved.

Recoveries, Retraps and Flag-sightings

There has been a plethora of reports of VWSG-flagged birds subsequently seen at various overseas locations during the past year. Most numerous have been Red Knot seen at Bohai Bay in the Yellow Sea and Bar-tailed Godwits found in New Zealand. These results derive from intensive flag-sighting activities by Chris Hassell's team and the Global Flyway Network in China and by various New Zealand waderologists (particularly Tony Habraken).

The formal processing of flag-sightings during the last two years has not kept up with the rate at which they have been reported and so comprehensive detailed lists are

not available for incorporation in this year's VWSG Bulletin. But most valuable of all have probably been the sightings of Victorian Red Knot by Pavel Tomkovich on their breeding grounds in the Chukotsk Peninsula in north-east Siberia. The amazing photograph below, showing a raven stealing a Red Knot's egg, was taken in late May 2013. The bird which had laid this clutch of eggs had been banded as a chick in Siberia in 2003 and recaptured in Victoria as a one-year-old bird in June 2004.

The Chukchi Peninsula, Chukotka Peninsula or Chukotski Peninsula, at about 66°N 172°W, is the north eastern extremity of Asia. Its eastern end is at Cape Dezhnev near the village of Uelen (editor)

Breeding Success

The latest article prepared for publication in "Arctic Birds" is reproduced in this VWSG Bulletin. It covers the results of our "percentage juvenile" monitoring during the 2012/13 austral summer. The results show that most species again had poor breeding outcomes in the arctic summer of 2012. This is the second successive poor breeding year. The two previous years had generally good breeding outcomes in terms of the number of fledged young produced and surviving their first journey to Australia. Let us hope 2013 is a good breeding year.

Geolocators

Two papers published by the VWSG during the past year on the results of the geolocator work are also reproduced in this Bulletin.

Particularly good results were obtained in retrieving geolocators during the 2012/13 wader season. After considerable effort, with repeated visits, a further five geolocators were retrieved from Eastern Curlew with a catch of 18 birds at Inverloch in October 2012. Since the geolocators were deployed in February 2011 there have been 11 catching attempts, only two of which were successful. Eight geolocators have now been retrieved. Fortunately in two of these the batteries lasted sufficiently to give two years of migration data.

A remarkable 16 geolocators were retrieved from 340 Sanderling caught in Canunda National Park in South Australia in November 2012. All of these provided downloadable data and one again had two consecutive years of information stored in it. A special visit to King Island in November 2012 also successfully retrieved nine geolocators from Ruddy Turnstone.

It was decided to concentrate efforts on Turnstone alone in geolocator deployments in March/April 2013. Thirty units were put on in South Australia (with finance obtained by Maureen Christie) and 34 in King Island (with finance provided by Deakin University). Retrieval is planned at both locations for November 2013.

Equipment

Our equipment continues to be maintained in excellent condition by Paul Buckhorn and Rod MacFarlane. However when our trailer suffered a major breakdown in winter 2012 it was Paul van Loon who most kindly made arrangements, and put in the effort, for it to be retrieved from Roussac's Farm, adjacent to Corner Inlet, and to have a new axle and wheel bearings installed. We are particularly grateful for the contributions of these people to our fieldwork through keeping our equipment in such a well-serviced condition.

Finances

The financial report at the end of this Bulletin shows that the VWSG's financial position is better than at any time in its history. This is due to a range of most generous contributions from a variety of sources, all fully acknowledged in the notes accompanying the financial table.

Book Publication

A milestone was achieved in November 2012 with the publication of "Waders – The Shorebirds of Australia" by David Hollands and Clive Minton (both VWSG members). This book had taken 13 years to write and to amass the photographs, mostly taken by David himself and with most of the text written by him too. The book draws on VWSG (and AWSG) data and covers 370 pages with nearly 400 photographs. Two thousand copies were printed and there are only about 300 copies still unsold. Copies can be obtained direct from David and Clive or from local booksellers (including Andrew Isles).

Acknowledgements

Acknowledgements of people who have helped the VWSG's activities in various ways have been made in various parts of this introductory summary and elsewhere in this Bulletin. Those who have helped financially are also listed and thanked in the Financial Report at the end of this Bulletin. The VWSG's achievements are very much a team effort. Very little could be achieved by individuals operating alone. The end result, as indicated in this Bulletin for example, has derived from efforts over the year of more than a hundred individuals. Those who help in the field are absolutely vital, but those who help at home or behind the scenes are equally important contributors to our achievements. Thank you everyone.



This wonderful picture was sent to Clive by Pavel Tomkovich from his study area on the Chukotsk Peninsula in north-east Siberia. It shows a Raven stealing an egg from the first clutch of Red Knot eggs laid in his study area. It was taken by an automatic nest camera. It shows the beautiful Arctic tundra on which the birds nest and the snow-covered mountains in the background. You may be able to possibly see the Knot nest with other eggs in it between the Raven and the camera.

**Total Number of Waders Caught by Species
VWSG 2012**

| SPECIES | New | Retrap | Total |
|------------------------|-------------|---------------|--------------|
| Bar-tailed Godwit | 205 | 57 | 262 |
| Whimbrel | 2 | 0 | 2 |
| Eastern Curlew | 9 | 9 | 18 |
| Ruddy Turnstone | 172 | 151 | 323 |
| Great Knot | 5 | 0 | 5 |
| Red Knot | 76 | 4 | 80 |
| Sanderling | 284 | 197 | 481 |
| Red-necked Stint | 1927 | 297 | 2224 |
| Sharp-tailed Sandpiper | 100 | 2 | 102 |
| Curlew Sandpiper | 235 | 49 | 284 |
| Pied Oystercatcher | 219 | 86 | 305 |
| Sooty Oystercatcher | 53 | 13 | 66 |
| Banded Stilt | 15 | 0 | 15 |
| Red necked Avocet | 200 | 1 | 201 |
| Pacific Golden Plover | 1 | 0 | 1 |
| Red-capped Plover | 21 | 1 | 22 |
| Double-banded Plover | 72 | 1 | 73 |
| Masked Lapwing | 2 | 1 | 3 |
| | | | |
| 18 Species | 3598 | 869 | 4467 |

As usual, approximately half the total number of waders caught during the year was Red-necked Stints. Whilst some sampling of this species is deliberate, many are also caught when targeting other species (e.g. Curlew Sandpiper).

The totals for Sanderling, Ruddy Turnstone, Bar-tailed Godwit and Curlew Sandpiper were again very satisfactory, and there was also a slight improvement over other recent years in the total of Red Knot.

A particularly good total of Pied Oystercatchers was achieved – the highest for some years – and Sooty Oystercatchers met their ‘50 minimum’ target. A particularly welcome total was the 201 Red-necked Avocets – the highest ever by VWSG in a calendar year.

**Total Waders Caught by Species
1975 to 31 December 2012 – VWSG**

| Species | New | Retrap | Total |
|--------------------------|---------------|---------------|---------------|
| Latham's Snipe | 347 | 14 | 361 |
| Australian Painted Snipe | 1 | 0 | 1 |
| Black-tailed Godwit | 4 | 0 | 4 |
| Bar-tailed Godwit | 5373 | 728 | 6101 |
| Short-billed Dowitcher | 1 | 0 | 1 |
| Whimbrel | 49 | 6 | 55 |
| Eastern Curlew | 869 | 89 | 958 |
| Marsh Sandpiper | 2 | 0 | 2 |
| Common Greenshank | 535 | 64 | 599 |
| Terek Sandpiper | 37 | 1 | 38 |
| Grey-tailed Tattler | 38 | 3 | 41 |
| Ruddy Turnstone | 4965 | 2283 | 7248 |
| Great Knot | 698 | 89 | 787 |
| Red Knot | 5166 | 743 | 5909 |
| Sanderling | 5313 | 2000 | 7313 |
| Little Stint | 9 | 0 | 9 |
| Red-necked Stint | 120074 | 32230 | 152304 |
| Long-toed Stint | 1 | 0 | 1 |
| Pectoral Sandpiper | 2 | 0 | 2 |
| Sharp-tailed Sandpiper | 9871 | 441 | 10312 |
| Curlew Sandpiper | 25983 | 4918 | 30901 |
| Cox's Sandpiper | 1 | 0 | 1 |
| Broad-billed Sandpiper | 5 | 0 | 5 |
| Pied Oystercatcher | 3024 | 1527 | 4551 |
| Sooty Oystercatcher | 1007 | 365 | 1372 |
| Black-winged Stilt | 46 | 0 | 46 |
| Banded Stilt | 887 | 0 | 887 |
| Red-necked Avocet | 568 | 6 | 574 |
| Pacific Golden Plover | 267 | 26 | 293 |
| Grey Plover | 177 | 30 | 207 |
| Red-capped Plover | 719 | 186 | 905 |
| Double-banded Plover | 3806 | 1006 | 4812 |
| Lesser Sand Plover | 115 | 11 | 126 |
| Greater Sand Plover | 31 | 3 | 34 |
| Black-fronted Plover | 57 | 4 | 61 |
| Hooded Plover | 38 | 2 | 40 |
| Red-kneed Dotterel | 136 | 11 | 147 |
| Masked Lapwing | 189 | 5 | 194 |
| | | | |
| 38 Species | 190411 | 46791 | 237202 |

Table prepared by Helen Vaughan and Clive Minton

Particularly notable increases in the cumulative totals for species were 54% in Red-necked Avocet and 7% in Sanderling and Pied Oystercatcher.

New and Retrapped Waders Caught Each Calendar Year by VWSG

| Calendar Year | New | Retrap | Total |
|---------------------------|---------------|--------------|---------------|
| * 1975 | 9 | | 9 |
| * 1976 | 616 | 4 | 620 |
| * 1977 | 482 | 12 | 494 |
| * 1978 | 1296 | 42 | 1338 |
| 1979 | 7436 | 486 | 7922 |
| 1980 | 6121 | 1206 | 7327 |
| 1981 | 4561 | 869 | 5430 |
| 1982 | 3774 | 796 | 4570 |
| 1983 | 2875 | 628 | 3503 |
| 1984 | 4272 | 1045 | 5317 |
| 1985 | 4073 | 1051 | 5124 |
| 1986 | 7144 | 2057 | 9201 |
| 1987 | 5350 | 1559 | 6909 |
| 1988 | 8019 | 2697 | 10716 |
| 1989 | 5437 | 1584 | 7021 |
| 1990 | 4094 | 1950 | 6044 |
| 1991 | 3224 | 850 | 4074 |
| 1992 | 4652 | 861 | 5513 |
| 1993 | 8831 | 2588 | 11419 |
| 1994 | 4839 | 1753 | 6592 |
| 1995 | 2708 | 625 | 3333 |
| 1996 | 5263 | 1035 | 6298 |
| 1997 | 4366 | 1050 | 5416 |
| 1998 | 8083 | 1408 | 9491 |
| 1999 | 6515 | 1591 | 8106 |
| 2000 | 10350 | 2594 | 12944 |
| 2001 | 4839 | 1320 | 6159 |
| 2002 | 10421 | 2162 | 12583 |
| 2003 | 8495 | 2854 | 11349 |
| 2004 | 5110 | 1224 | 6334 |
| 2005 | 6320 | 1893 | 8213 |
| 2006 | 6676 | 1467 | 8143 |
| 2007 | 4689 | 924 | 5613 |
| 2008 | 4611 | 1317 | 5928 |
| 2009 | 3965 | 831 | 4796 |
| 2010 | 3006 | 759 | 3765 |
| 2011 | 4291 | 830 | 5121 |
| 2012 | 3598 | 869 | 4467 |
| Totals to end 2012 | 190411 | 46791 | 237202 |

The overall total of 4467 birds caught in 2012 was the fifth lowest in the last 34 years. This is not the result of a higher failure rate in catching or a lower fieldwork activity level (just the opposite in fact). It is principally the effect of a greater targeting of catching effort toward particular species, often the less frequently/harder to catch species, and also the time spent trying to recapture individual birds carrying geolocators. The retrap rate, at 19.4%, was almost the same as in 2011 and very similar to that of other recent years.

Average annual total for 1979 – 2012 = 6904 (* excluded)
Table prepared by Helen Vaughan and Clive Minton

**Total Waders Caught Each Six Months
1979-2012 – VWSG**

| Calendar Year | January to June | July to December | Total |
|---------------------------|-----------------|------------------|---------------|
| 1975 | | | 9 |
| 1976 | | | 620 |
| 1977 | | | 494 |
| 1978 | | | 1338 |
| 1979 | 4289 | 3633 | 7922 |
| 1980 | 4127 | 3200 | 7327 |
| 1981 | 2113 | 3317 | 5430 |
| 1982 | 2394 | 2176 | 4570 |
| 1983 | 2882 | 621 | 3503 |
| 1984 | 2654 | 2663 | 5317 |
| 1985 | 3972 | 1152 | 5124 |
| 1986 | 5000 | 4201 | 9201 |
| 1987 | 3135 | 3774 | 6909 |
| 1988 | 5235 | 5481 | 10716 |
| 1989 | 3854 | 3167 | 7021 |
| 1990 | 1661 | 4383 | 6044 |
| 1991 | 2376 | 1698 | 4074 |
| 1992 | 3357 | 2156 | 5513 |
| 1993 | 5287 | 6132 | 11419 |
| 1994 | 2789 | 3803 | 6592 |
| 1995 | 1521 | 1812 | 3333 |
| 1996 | 1802 | 4496 | 6298 |
| 1997 | 1913 | 3503 | 5416 |
| 1998 | 5568 | 3923 | 9491 |
| 1999 | 4142 | 3964 | 8106 |
| 2000 | 5987 | 6957 | 12944 |
| 2001 | 3851 | 2308 | 6159 |
| 2002 | 8174 | 4409 | 12583 |
| 2003 | 3033 | 8316 | 11349 |
| 2004 | 1288 | 5046 | 6334 |
| 2005 | 5003 | 3210 | 8213 |
| 2006 | 5192 | 2951 | 8143 |
| 2007 | 3646 | 1967 | 5613 |
| 2008 | 3812 | 2116 | 5928 |
| 2009 | 2726 | 2070 | 4796 |
| 2010 | 2136 | 1629 | 3765 |
| 2011 | 1967 | 3154 | 5121 |
| 2012 | 3199 | 1268 | 4467 |
| Totals to end 2012 | 120085 | 114656 | 237202 |

Table prepared by Helen Vaughan and Clive Minton
Note: Six month data are not available for years 1975 - 1978.

The relatively high catch total in the first half of the year was mainly the result of a large catch of 1881 Red-necked Stints and Curlew Sandpipers on Barrallier Island on 1 February. The low total in the second half of the year was because much time was expended in trying to retrieve geolocators from Turnstone, Sanderling and Eastern Curlew.

Location of Waders Caught in Victoria, South Australia & Tasmania

| Victoria | To Dec 2011 | 2012 | Total |
|---------------------------|--------------------|-------------|---------------|
| Werribee | 66576 | 242 | 66818 |
| Western Port/Flinders | 58707 | 2485 | 61192 |
| Queenscliff/Swan Bay | 31975 | 0 | 31975 |
| Corner Inlet | 30279 | 510 | 30789 |
| Anderson Inlet(Inverloch) | 22264 | 38 | 22302 |
| Sandy Point/Shallow Inlet | 2753 | 35 | 2788 |
| Laverton | 956 | 0 | 956 |
| Mud Islands | 757 | 0 | 757 |
| Killarney Beach | 426 | 0 | 426 |
| Barwon Heads | 690 | 155 | 845 |
| *Other | 628 | | 628 |
| | | | |
| South Australia | 15180 | 751 | 15931 |
| | | | |
| Tasmania | 1634 | 251 | 1885 |
| | | | |
| Total | 232825 | 4467 | 237292 |

*Other includes Geelong (Point Henry/Belmont), Bendigo Sewerage Farm, Seaford Swamp, Braeside/Croyden, Gippsland Lakes and Toowong
Table prepared by Helen Vaughan and Clive Minton

The South Australian and Tasmanian catch totals from a range of sites have each been consolidated in this year's tables. The South Australian data contains catches from the VWSG's first catching visit to Yanerbie on the Eyre Peninsula (November 2012). Most of the Tasmanian birds were Ruddy Turnstone on King Island.

It should be noted that the pattern of totals for Victoria does not represent the current catching pattern. For example no birds were caught at Queenscliff/Swan Bay in 2012 because of the absence of any suitable catching site at Swan Island. Many of the Bar-tailed Godwits and Red Knot had moved to a new site at Barwon Heads. However this is not likely to be available in future years as the sandbank on which they roosted has been washed away following removal of the temporary barriers installed whilst building the new bridge.

Also, at Inverloch recent visits have been targeted only at Eastern Curlew rather than the large flocks of Red-necked Stints which were regularly caught there 10 or more years ago. Visits in recent years to Sandy Point have been particularly unsuccessful, mainly due to adverse weather conditions (wind-blown sand).

So currently the majority of birds caught by VWSG are from various sites on Western Port and Corner Inlet and from Western Treatment Plant (Werribee).

Numbers of waders processed by the VWSG each month to December 2012.

| | J | F | M | A | M | J | J | A | S | O | N | D | TOTAL |
|--------------------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|
| Latham's Snipe | 51 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 99 | 35 | 61 | 396 |
| Australian Painted Snipe | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Short-billed Dowitcher | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Black-tailed Godwit | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 4 |
| Bar-tailed Godwit | 889 | 1268 | 777 | 99 | 24 | 771 | 127 | 286 | 77 | 335 | 288 | 566 | 5507 |
| Whimbrel | 3 | 2 | 41 | 0 | 0 | 1 | 0 | 0 | 1 | 4 | 3 | 0 | 55 |
| Eastern Curlew | 23 | 177 | 24 | 0 | 24 | 18 | 21 | 76 | 175 | 149 | 180 | 100 | 967 |
| Common Greenshank | 69 | 135 | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 176 | 60 | 599 |
| Marsh Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Terek Sandpiper | 17 | 2 | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 1 | 12 | 39 |
| Grey-tailed Tattler | 31 | 0 | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 41 |
| Ruddy Turnstone | 440 | 587 | 2557 | 1349 | 39 | 23 | 77 | 82 | 114 | 165 | 979 | 636 | 7048 |
| Great Knot | 197 | 87 | 26 | 0 | 0 | 30 | 21 | 6 | 16 | 116 | 78 | 130 | 707 |
| Red Knot | 928 | 399 | 302 | 201 | 2 | 430 | 469 | 139 | 93 | 1000 | 546 | 284 | 4838 |
| Sanderling | 376 | 1654 | 2060 | 385 | 0 | 0 | 1 | 5 | 0 | 265 | 893 | 661 | 6300 |
| Little Stint | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 9 |
| Red-necked Stint | 2735 | 1694 | 7046 | 2520 | 546 | 749 | 1032 | 899 | 997 | 2140 | 3633 | 3825 | 27816 |
| Long-toed Stint | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Pectoral Sandpiper | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Sharp-tailed Sandpiper | 1821 | 942 | 240 | 2 | 0 | 0 | 0 | 16 | 635 | 563 | 742 | 2871 | 7832 |
| Curlew Sandpiper | 1516 | 1700 | 1727 | 231 | 223 | 128 | 266 | 514 | 348 | 1139 | 936 | 1435 | 10163 |
| Broad-billed Sandpiper | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 |
| Pied Oystercatcher | 119 | 218 | 407 | 588 | 738 | 938 | 782 | 369 | 187 | 38 | 22 | 61 | 4467 |
| Sooty Oystercatcher | 13 | 100 | 86 | 197 | 217 | 366 | 291 | 106 | 0 | 1 | 2 | 3 | 1382 |
| Black-winged Stilt | 1 | 9 | 0 | 0 | 0 | 0 | 1 | 12 | 0 | 4 | 2 | 17 | 46 |
| Banded Stilt | 3 | 0 | 12 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151 | 188 |
| Red-necked Avocet | 212 | 0 | 0 | 0 | 0 | 11 | 3 | 67 | 78 | 65 | 47 | 89 | 569 |
| Pacific Golden Plover | 40 | 27 | 62 | 2 | 0 | 0 | 0 | 0 | 0 | 28 | 63 | 65 | 287 |
| Grey Plover | 38 | 14 | 4 | 6 | 0 | 9 | 0 | 0 | 2 | 92 | 42 | 1 | 208 |
| Red-capped Plover | 44 | 89 | 64 | 120 | 210 | 110 | 77 | 28 | 12 | 23 | 34 | 22 | 833 |
| Double-banded Plover | 0 | 2 | 229 | 311 | 757 | 956 | 1053 | 964 | 1 | 0 | 0 | 0 | 4273 |
| Lesser Sand Plover | 54 | 5 | 13 | 7 | 3 | 2 | 2 | 0 | 0 | 1 | 15 | 12 | 114 |
| Greater Sand Plover | 21 | 3 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 33 |
| Black-fronted Dotterel | 0 | 7 | 1 | 0 | 11 | 16 | 7 | 9 | 2 | 0 | 4 | 8 | 65 |
| Hooded Plover | 0 | 0 | 1 | 3 | 0 | 15 | 0 | 0 | 0 | 0 | 5 | 0 | 24 |
| Red-kneed Dotterel | 0 | 10 | 0 | 20 | 0 | 44 | 11 | 17 | 12 | 8 | 23 | 1 | 146 |
| Masked Lapwing | 5 | 8 | 93 | 14 | 4 | 13 | 4 | 1 | 1 | 5 | 21 | 19 | 189 |
| Cox's Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| TOTAL | 9650 | 9189 | 15902 | 6082 | 2846 | 4626 | 4255 | 3597 | 2857 | 6280 | 8775 | 11099 | 85158 |

Table prepared by Helen Vaughan and Clive Minton

Numbers of Waders Leg-flagged in Victoria (orange)

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Latham's Snipe | 0 | 0 | 0 | 0 | 0 | 0 | 278 |
| Australian Painted Snipe | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Black-tailed Godwit | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Bar-tailed Godwit | 186 | 268 | 351 | 308 | 243 | 207 | 3920 |
| Whimbrel | 0 | 1 | 0 | 0 | 0 | 2 | 46 |
| Eastern Curlew | 0 | 0 | 8 | 0 | 38 | 9 | 599 |
| Marsh Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Common Greenshank | 0 | 0 | 25 | 0 | 0 | 0 | 456 |
| Terek Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| Grey-tailed Tattler | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Ruddy Turnstone | 328 | 497 | 238 | 348 | 455 | 170 | 3646 |
| Great Knot | 36 | 1 | 7 | 0 | 4 | 5 | 394 |
| Red Knot | 248 | 5 | 136 | 17 | 50 | 75 | 3960 |
| Sanderling | 506 | 261 | 89 | 277 | 439 | 280 | 3648 |
| Little Stint | 0 | 0 | 0 | 0 | 1 | 0 | 7 |
| Red-necked Stint | 1727 | 2754 | 2055 | 1496 | 2043 | 497 | 64004 |
| Pectoral Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Sharp-tailed Sandpiper | 285 | 276 | 496 | 11 | 110 | 99 | 5699 |
| Curlew Sandpiper | 94 | 308 | 122 | 382 | 47 | 235 | 11168 |
| Cox's Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Broad-billed Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Black-winged Stilt | 0 | 6 | 0 | 0 | 2 | 0 | 28 |
| Banded Stilt | 0 | 0 | 0 | 54 | 332 | 15 | 553 |
| Red-necked Avocet | 0 | 0 | 0 | 0 | 0 | 199 | 339 |
| Pacific Golden Plover | 0 | 0 | 0 | 0 | 2 | 1 | 67 |
| Grey Plover | 5 | 0 | 16 | 0 | 1 | 0 | 108 |
| Red-capped Plover | 1 | 6 | 3 | 5 | 7 | 21 | 141 |
| Double-banded Plover | 10 | 45 | 2 | 11 | 37 | 72 | 544 |
| Lesser Sand Plover | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| Greater Sand Plover | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Hooded Plover | 1 | 0 | 1 | 1 | 7 | 0 | 10 |
| Black-fronted Dotterel | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Red-kneed Dotterel | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Masked Lapwing | 1 | 5 | 0 | 0 | 1 | 2 | 40 |
| | | | | | | | |
| Total | 3428 | 4433 | 3549 | 2910 | 3820 | 1889 | 99761 |

*Includes Ruddy Turnstone and Sanderling flagged with orange (only) in the south east of South Australia between 1993 and 1998. Table prepared by Helen Vaughan and Clive Minton.

This table has now grown too large to give details for every year back to when flagging was commenced by the VWSG in December 1989. Details for earlier years can be obtained from past VWSG bulletins (comprehensive up to that in the 2009 Bulletin).

Numbers of Waders Leg-flagged in South Australia (orange/yellow)

| Species | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|------------------------|------------|-------------|------------|-------------|------------|------------|------------|-------------|------------|------------|------------|------------|-------------|------------|-------------|
| Latham's Snipe | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Grey-tailed Tattler | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Bar-tailed Godwit | 0 | 0 | 0 | 3 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 23 |
| Ruddy Turnstone | 234 | 226 | 73 | 193 | 76 | 141 | 74 | 258 | 84 | 141 | 96 | 109 | 268 | 45 | 2018 |
| Great Knot | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Red Knot | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 13 |
| Sanderling | 63 | 420 | 2 | 315 | 328 | 76 | 220 | 250 | 506 | 244 | 87 | 261 | 439 | 268 | 3479 |
| Red-necked Stint | 126 | 383 | 22 | 319 | 163 | 93 | 174 | 465 | 54 | 90 | 179 | 208 | 356 | 92 | 2724 |
| Sharp-tailed Sandpiper | 0 | 2 | 0 | 27 | 7 | 73 | 27 | 21 | 0 | 15 | 0 | 0 | 74 | 40 | 286 |
| Curlew Sandpiper | 24 | 11 | 0 | 190 | 13 | 2 | 103 | 8 | 21 | 33 | 1 | 4 | 15 | 0 | 425 |
| Banded Stilt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 334 | 0 | 0 | 0 | 54 | 332 | 12 | 732 |
| Pacific Golden Plover | 0 | 2 | 0 | 0 | 1 | 0 | 16 | 13 | 0 | 0 | 0 | 0 | 2 | 1 | 35 |
| Red-capped Plover | 0 | 0 | 1 | 7 | 5 | 0 | 7 | 4 | 1 | 0 | 0 | 2 | 3 | 8 | 38 |
| Double-banded Plover | 0 | 0 | 4 | 5 | 1 | 0 | 0 | 27 | 2 | 0 | 1 | 5 | 29 | 12 | 86 |
| Black-fronted Plover | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Hooded Plover | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 5 | 0 | 9 |
| Masked Lapwing | 0 | 0 | 0 | 0 | 4 | 2 | 2 | 4 | 1 | | 0 | 0 | 1 | 0 | 14 |
| Total | 447 | 1045 | 106 | 1062 | 599 | 396 | 623 | 1395 | 670 | 523 | 365 | 644 | 1524 | 495 | 9894 |

Table prepared by Helen Vaughan and Clive Minton

VWSG FIELDWORK PROGRAM January to December 2013

| DATE | PLACE AND OBJECTIVES | HIGH TIDE | |
|--------------------------------------|--|-------------------|--------------|
| Fri 4 Jan to Mon 6 Jan | Yallock Creek & Stockyard Point - Red-necked Stint and Curlew Sandpiper Stay overnight at Harewood House, Tooradin | 18.30 to 07.15 | 2.63 to 2.81 |
| Tues 15 Jan | Barwon Heads Bar-tailed Godwit and Red Knot | 15.21 | 1.49 |
| Fri 1 Feb | Sandy Point - Sanderling | 16.34 | 1.45 |
| Wed 6 to Sat 9 Feb | Corner Inlet Small to medium waders (stay at Manns Beach Hall) | 08.40 11.11 | 2.67 2.58 |
| Mon 11 Feb | Rhyll Bar-tailed Godwit | 14.10 | 2.56 |
| Mon 18 Feb | Barralliar Island – Red-necked Stint and Curlew Sandpiper | 07.00 | 2.74 |
| 23 Feb to 16 Mar | AWSG Expedition Broome WA | | |
| Sat 9 Mar | Barry Beach Red-necked Stint | 10.03 | 2.52 |
| Thurs 21 Mar | Flinders Sooty Oystercatcher | 06.37 | 1.34 |
| Wed 27 Mar to Thurs 4 April (Easter) | King Island Ruddy Turnstone | 12.48 to 18.21 | 1.30 to 1.58 |
| Tues 9 April to Wed 17 April | South Australia – Ruddy Turnstone and Sanderling | 13.24 to 15.41 | 1.01 to 1.18 |
| Fri 26 April | Fairhaven – French Island Pied Oystercatcher | 13.10 | 2.82 |
| Sat 27 April | Stockyard Point Pied Oystercatcher | 14.09 | 3.01 |
| Thurs 9 May | Inverloch Oystercatchers | 11.45 | 1.49 |
| Sat 11 May | Rhyll Pied Oystercatcher or Bar-tailed Godwit | 14.13 | 2.97 |
| Sat 25 to Mon 27 May | Barry Beach, Roussac Point and Charles Hall Road Pied and Sooty Oystercatchers Stay at Rosemary Davidson's, Yanakie | 12.40 to 15.02 | 2.40 to 2.68 |
| Sat 22 June to Tues 25 June | Corner Inlet - Nooramunga Bar-tailed Godwit, Pied & Sooty Oystercatcher Stay at Rosemary Davidson's, Yanakie | 10.57 to 14.35 | 2.42 to 2.69 |
| Sun 7 Jul | Stockyard Point Pied Oystercatchers & overwintering migratory waders | 12.15 | 2.71 |
| Tue 23 Jul to Wed 24 Jul | Barry Beach, Roussac Point, Charles Hall Rd Pied & Sooty Oystercatchers | 12.54 14.06 | 2.53 2.60 |
| Sat 10 Aug | Inverloch - Sooty Oystercatchers | 14.24 | 1.58 |
| Sat 17 Aug | VWSG Annual General Meeting at Clive's house, 165 Dalgetty Rd, Beaumaris 10am net-mending, 4pm AGM 5.30pm BBQ, 7-10pm Talks-Pictures | - | - |
| Sat 21 Sept | Stockyard Point Pied Oystercatchers & newly arrived migratory waders | 14.00 | 2.84 |
| Sun 20 Oct | Queenscliff, Mud Island Red Knot & Bar-tailed Godwit | 13.28 | 1.43 |
| Fri 1 Nov to Wed 6 Nov | Nene Valley / Blackfellows Caves (SA) Retrieving geolocators from Ruddy Turnstone [Stay at Maureen & Ian's place at Carpenter Rocks] (dates include travel) | 12.17 to 14.41 | 0.79 0.67 |
| Thurs 7 Nov | Mud Islands Crested & Caspian Tern chicks | 15.15 | 1.47 |
| Fri 15 Nov to Wed 20 Nov | Eyre Peninsula (SA) Sanderling, Ruddy Turnstone & Oystercatcher chicks (dates include travel) | | |
| Sun 17 Nov to Mon 25 Nov | Thompsons Beach (SA) Red Knot (first catching day 20 th Nov) (dates include travel) | 06.13 to 08.28 | 2.62 2.14 |
| Mon 18 Nov to Sun 24 Nov | King Island – retrieving geolocators from Ruddy Turnstone | 12.54 16.54 | 1.34 1.34 |
| Sat 7 Dec | Yallock Creek Red-necked Stint & Curlew Sandpiper | 16.48 | 2.76 |
| Thurs 12 Dec | Mud Islands Crested & Caspian Tern chicks | 13.36 Low-tide | 0.34 |
| Fri 20 Dec | Corner Inlet Crested & Caspian Tern chicks | 10.02 Low-tide | 1.15 |
| Mon 23 Dec | The Nobbies, Phillip Island Crested Tern chicks | 10.29 Low-tide | 0.49 |
| Sat 28 Dec to Mon 30 Dec | Werribee SF Small waders | 10.25 to 11.59 | 0.87 to 0.85 |

Recoveries of Waders

Clive Minton, Roz Jessop and Maureen Christie

Traditionally recoveries of birds were usually the result of a member of the public, at home or overseas, finding a dead bird and sending the band number to the address on the band – in Australia the Bird Banding Office in Canberra. Worldwide there has been a steady decrease in the proportion of birds reported in this way, for reasons which are not fully understood. It may be that it is no longer a novelty to find a banded bird. People may also think that enough information on bird movements already may exist and so they are less inclined to report it.

There are two main factors which have traditionally made the recovery rate of Australian-banded waders particularly low. Firstly the actual mortality rate of waders when they are in Australia seems to be much lower than in other parts of the world. This is probably mainly associated with the more equitable climate e.g. the absence of freezing conditions encountered in some winters in the Northern Hemisphere. Mortality of waders within Australia probably mostly occurs from predation, with little of the remains being left for anyone to casually find. Furthermore when our waders are on migration through Asia or on their breeding areas in Siberia they are largely travelling through places where the language and script are different or they inhabit remote areas – both of which would tend to reduce reporting rates. Also in the East Asian/Australasian Flyway the hunting of waders is not as prevalent as it traditionally has been in the European flyways.

Increasingly all over the world, and especially in our Flyway, most recoveries of birds which have moved relate to live birds caught by other banders or with individually identifiable engraved flags or colour-band combinations which can be read in the field. Thus in the lists below only one bird was not alive when reported.

Detailed are all reports of birds which have moved a significant distance (over 200km) and which were formally reported during the past year.

Ruddy Turnstone

| Band No. | Banding details | | | Recovery details | | | |
|---------------|----------------------|--------------------------------------|---------------------|--|----------------------------------|-------------------|------------|
| | Age | Date | Location | Date | Location | Condition of bird | Movement |
| China F064922 | Adult | 7/5/09 | Bohai Bay, CHINA | 18/11/12} 2/4/13 } | Currie, King Island, TAS | Alive | 8943km SSE |
| 052-03817 | Juv | 11/12/00 | Port MacDonnell, SA | 21/3/07 13/3/08 31/3/09 12/4/11 2/4/13 | Currie, King Island, TAS | Alive | 333km SE |
| 052-22383 | 2 nd Year | 9/8/11 | Nene Valley, SA | 31/3/13 | Whistler Point, King Island, TAS | Alive | 346km SE |
| 052-60513 | Juv | 21/3/11 | Port MacDonnell, SA | 1/12/11 7/4/12 28/3/13 | Manuka, King Island, TAS | Alive | 329km SE |
| 052-49639 | Adult | 16/04/06 (Also retrapped 25/3/11) | Nene Valley, SA | 12/10/12 | Kangaroo Island, SA | Alive | 341km NW |
| 052-59804 | Juv | 1/11/10 | Flinders | 27/8/12 | Sakhalin, RUSSIA | Alive | 9550km N |

This is a nice mixture of recoveries, with four involving King Island which is the main banding location for VWSG Turnstone. Three of the movements involve exchanges of birds with the South Australian population and it is notable that all of these were originally banded as immature birds.

Overseas reports include a Flinders bird in Eastern Siberia and a Chinese bird recaptured (twice) on King Island.

Note that the list does not include engraved flag sightings in Taiwan this year, as this data has not yet been processed into our recoveries and flag-sightings files.

Sanderling

| | | | | | | | |
|-----------|-------|----------|----------------------|---------|----------------|-------|--------------|
| 042-68689 | Adult | 11/11/11 | Canunda N.P. , SA | 2/11/12 | Yanerie, SA | Alive | 755km WNW |
|-----------|-------|----------|----------------------|---------|----------------|-------|--------------|

Only one report again this year. This relates to a Canunda bird which was retrapped at our new Sanderling banding site at Yanerie (Eyre Peninsula) almost exactly a year later. Sanderling are notoriously mobile between different non-breeding flocks/locations, i.e. they are not particularly site-faithful.

Red-necked Stint

| | | | | | | | |
|-----------|-------|----------|------------------|---------|--------|-------|---------------|
| 036-53506 | Adult | 29/12/08 | Werribee S.F. | 20/5/12 | TAIWAN | Alive | 7325km NNW |
|-----------|-------|----------|------------------|---------|--------|-------|---------------|

Only one recovery this year – a bird from Werribee Treatment Plant which was reported on northward migration in Taiwan.

Pied Oystercatcher

| | | | | | | | |
|-----------|----------------------|----------|--------------------------------|--|--|----------------------|--------------|
| 101-24109 | 2 nd Year | 13/8/06 | Barry Beach | 24/12/12 | Wynyard, TAS | Killed by vehicle | 263km S |
| 101-07466 | Juv | 22/7/01 | Barry Beach | 17/12/12 | Bengunnu Point, NSW | Alive | 397km NE |
| 101-23675 | 2 ND Year | 12/7/06 | Roussac's, Corner Inlet | 16/12/12 | Coorong, SA | Alive | 685km WNW |
| 100-99413 | Adult | 29/6/91 | Fairhaven, French Island | 17/7/00 18/7/12 | Fairhaven | Alive | (21 years) |
| 101-24159 | Juv | 15/7/07 | Barry Beach | 30/11/08 3/8/09 5/9/09 9/10/10 25/10/11 12/8/12 | Wallagoot Lake, NSW " " Tura Beach, NSW " " | Alive | 378km NE |
| 101-29113 | Chick | 29/11/11 | Piccaninnie Ponds, SA | 28/11/12 | Thompsons Beach, SA | Alive | 458km NW |

The list again only contains interstate movements. The Corner Inlet bird which travelled to The Coorong is as far west as any Victorian-marked Pied Oystercatcher has ever been reported. The Piccaninnie Ponds chick which moved to Thompsons Beach (north of Adelaide) is the longest movement so far of a South Australian-banded Pied Oystercatcher. Amazingly it happened to turn up on a beach where the VWSG was trying, for the first time, to catch Red Knot.

Sooty Oystercatcher

| | | | | | | | |
|-----------|-------|---------|----------------|--------|-------------------------|-------|---------|
| 101-07139 | Adult | 11/6/05 | Barry Beach | 8/1/13 | Picnic Beach, TAS | Alive | 253km S |
|-----------|-------|---------|----------------|--------|-------------------------|-------|---------|

Most movements of Sooty Oystercatchers banded on the Victorian coast occur in a southward direction with birds moving out to the Bass Strait Islands and Tasmania (mainly the north coast).

Sightings of Waders Leg-flagged in Victoria, South Australia and King Island, Tasmania

**Clive Minton, Roz Jessop, Maureen Christie, Iain Stewart,
Margaret Bennett and Roger Standen**

One of the most exciting components of our wader banding activities is the steady inflow of sightings of birds we have flagged. Whilst most of these are now serving to confirm the migration routes and stopover locations of our main study species, and to provide increasingly quantitative data on these, there is always a proportion which breaks new ground or shows some exciting aspect of wader movements.

In the annual VWSG Bulletin we normally aim to summarise flag sightings reported during the past year, broken down by species and country. This gives a visual impression of the country's most important to each species on migration and also a measure of the volume of on-going flagging and flag-sighting/reporting. Selected individual flag-sightings of special note or interest are also detailed.

In the last two years we have been considerably hampered in meeting the above objectives because, as reported in last year's Bulletin, the volume of flag-sightings grew to a level which was greater than we had the capacity to deal with. But then, in November 2012, we had the tragic loss of Heather Gibbs who had been the data-base manager for the last seven years. She was the brains behind the systems as well as the hands which actually processed all the incoming records.

The ensuing hiatus has set us back even further, although Roger Standen is now doing an excellent job of getting the ship back on an even keel and making up the backlog. But this year's report, like last year's, is lacking considerable data and is therefore far from complete or representative. In particular, large numbers of flag-sightings made over the past two years in Taiwan and New Zealand are not included, nor any of the large number of flag-sightings made at Bohai Bay in China, or in Japan, during the past year. So apologies to VWSG members for the inadequacies of the flag-sighting reports in this Bulletin.

Hopefully by next year we will be up to date again and a more accurate and comprehensive flag-sightings report can be included.

Sighting of SA Sanderling in Japan



Species : Sanderling
Number : One in a flock of about 80 birds.
Date : 2/08/2012
Place : Kizu beach, Kahoku-shi, Ishikawa-ken, Japan
Coordinates : 36d49mN/136d45mE
Observer : NAKAMURA Masao

Victoria

Sightings of Vic-flagged birds

| Species | Australia | China (mainland) | Hong Kong (China) | Indonesia | Japan | New Zealand | Russia | South Korea | USA | Total |
|------------------------|------------|---------------------|----------------------|-----------|-----------|----------------|----------|----------------|----------|------------|
| Bar-tailed Godwit | 120 | 249 | | | 21 | 61 | | 72 | 1 | 524 |
| Red Knot | 117 | 7 | | | | 28 | | | | 152 |
| Red-necked Stint | 25 | 2 | 6 | | 1 | | | | | 34 |
| Curlew Sandpiper | 20 | | 3 | 1 | | | | | | 24 |
| Sanderling | 2 | | | | 2 | | | | | 4 |
| Eastern Curlew | 2 | 4 | | | | | | | | 6 |
| Ruddy Turnstone | 5 | | | | | 1 | | | | 6 |
| Sharp-tailed Sandpiper | 4 | | | | | | | | | 4 |
| Great Knot | 7 | 2 | | | | | 1 | | | 10 |
| Grey Plover | 1 | | | | | | | | | 1 |
| Total | 303 | 264 | 9 | 1 | 24 | 90 | 1 | 72 | 1 | 765 |

NB. Includes all engraved flags

The total is less than half the number of flag-sightings included in the corresponding table last year. Quantitative comparisons in relation to species' occurrence in the different countries is not therefore possible from the above, incomplete, data.

The most notable sightings are detailed below:

- A Bar-tailed Godwit was seen on 25 May 2013 in the Pribilof Islands, south-west of Alaska. The bird clearly landed prematurely on its flight from the Yellow Sea to mainland Alaska. This bird carried an engraved flag and so was individually identifiable as having been banded as an adult in Corner Inlet on 7 Feb 2009. The Pribilofs are 11,390km from Corner Inlet.
- The Great Knot reported in Russia on 4 August 2012, had just commenced its southward migration from the breeding grounds in north-eastern Siberia. It was on mudflats at the north end of the Sea of Okhotsk, some 10,630km north of Victoria.
- An amazing recent sighting was a Red-necked Avocet seen in a flock of 150 on the shore at Broome, north-west Australia, on 20 July 2013. This is 3,166km north-west of the flagging site at Yallock Creek in Western Port (on 2 Jan 2013). No-one previously had any idea that the roaming of Avocets within Australia could extend to such lengths.
- Another 11 sightings of Red-necked Avocets, with engraved flags from Western Port, have been reported in the last year from the Hunter Estuary near Newcastle in New South Wales. This is a movement of nearly 1000km. This is an indication of the wide movements of these birds in Australia.

South Australia

Sightings of SA-flagged birds

NB. Includes all engraved flags

| Species | Australia | China (mainland) | Hong Kong (China) | Japan | New Zealand | South Korea | Taiwan (China) | Indonesia | Total |
|------------------------|-----------|------------------|-------------------|-----------|-------------|-------------|----------------|-----------|-----------|
| Sanderling | 23 | 3 | | 16 | | 1 | | | 43 |
| Red-necked Stint | 6 | | 2 | 1 | | | | 2 | 11 |
| Bar-tailed Godwit | | 3 | | | 4 | | | | 7 |
| Sharp-tailed Sandpiper | 1 | | | | | | | | 1 |
| Ruddy Turnstone | 14 | 7 | | | | | 7 | | 28 |
| Curlew Sandpiper | 2 | | 1 | | | | | | 3 |
| Red Knot | 1 | | | | | | | | 1 |
| Great Knot | | 1 | | | | | | | 1 |
| Total | 47 | 14 | 3 | 17 | 4 | 1 | 7 | 2 | 95 |

As usual the majority of sightings of waders flagged in South Australia relate to the main study species, Sanderling and Ruddy Turnstone. The majority of sightings of the former come from Japan and of the latter from Taiwan and mainland China.

The list contains the first movement of a Great Knot flagged in South Australia. Only four have been flagged – all during our first visit to a new site, Thompsons Beach, 50km north of Adelaide, in November 2012. A nice return on our initial investment in visiting that area!

Tasmania

Sightings of Tasmanian - flagged birds

| Species | Australia | China (mainland) | South Korea | Taiwan (China) | Hong Kong (China) | Total |
|-----------------|-----------|------------------|-------------|----------------|-------------------|-------|
| Ruddy Turnstone | 6 | 3 | 1 | 1 | 2 | 13 |

NB. Includes all engraved flags

Almost all the birds marked in Tasmania during VWSG banding visits have been Ruddy Turnstone. With none of the sightings from Taiwan during the past two years incorporated into our flagging database yet the above table is a considerable under-representation of the data generated from our banding and flagging activities on King Island.

Sightings of Waders Leg-flagged elsewhere and then seen in Victoria, South Australia or King Island, Tasmania

Clive Minton, Roz Jessop, Maureen Christie, Margaret Bennett and Roger Standen

The inward flag-sightings detailed in the tables below are generally up to date because, with the lower volume of such sightings, they have been processed first by the database manager.

Victoria

Sightings in Vic of birds flagged elsewhere

| Species | Australia | China (mainland) | New Zealand | Russia | USA | Total |
|------------------------|-----------|---------------------|----------------|----------|----------|-----------|
| Bar-tailed Godwit | 1 | | | | 1 | 2 |
| Eastern Curlew | 1 | | | | | 1 |
| Grey-tailed Tattler | 1 | | | | | 1 |
| Ruddy Turnstone | 1 | | | | | 1 |
| Great Knot | 1 | | | | | 1 |
| Red Knot | | | 1 | 1 | | 2 |
| Sanderling | 3 | | | | | 3 |
| Red-necked Stint | 1 | | | | | 1 |
| Sharp-tailed Sandpiper | 1 | | | | | 1 |
| Curlew Sandpiper | 5 | 1 | | | | 6 |
| Total | 15 | 1 | 1 | 1 | 1 | 19 |

The list contains a much greater variety of species than in previous years. This may be a reflection of the deliberate intention to increase flag-sighting efforts, coordinated during the past year by Debbie King. Most notable in the above table were

- a) The first Eastern Curlew flagged in north-west Australia to be seen in south-east Australia.
- b) Red Knots flagged in both Russia and in New Zealand. Adrian Riegen, the leader of wader studies in New Zealand, was part of the team which saw the New Zealand bird in Corner Inlet on 12 October 2012. Some 2000 Knot were present in the flock being observed and almost all were probably making a migratory stopover in Corner Inlet on their way back to New Zealand again.
- c) A Great Knot and a Grey-tailed Tattler which had both been banded in Queensland just a few weeks before they were seen in Victoria.

South Australia

Sightings in SA of birds flagged elsewhere

| Species | Australia | China (mainland) | Japan | Russia | Total Overseas |
|------------------------|-----------|------------------|----------|----------|----------------|
| Red-necked Stint | 9 | | 1 | 3 | 13 |
| Curlew Sandpiper | 2 | | | | 2 |
| Red Knot | 1 | | | | 1 |
| Bar-tailed Godwit | 1 | | | | 1 |
| Ruddy Turnstone | 9 | | | | 9 |
| Great Knot | 1 | 1 | | | 2 |
| Sanderling | 4 | | | | 4 |
| Sharp-tailed Sandpiper | 3 | | | | 3 |
| Greater Sand Plover | 1 | | | | 1 |
| Banded Stilt | 15 | | | | 15 |
| Total | 46 | 1 | 1 | 3 | 51 |

Yet again South Australian observers have produced a long list of species observed carrying flags put on elsewhere. This year's list of 51 birds is the largest ever. Notable were a Great Knot from the Yellow Sea, China, and a Red Knot from Victoria (at Thompsons Beach, 50km north of Adelaide). Three sightings of Red-necked Stints from Sakhalin, east Siberia, were also notable. The Greater Sand Plover from north-west Australia was also a first. It had been banded at Broome on 19 September 2011 and was seen at St Peter Island on 11 February 2013. Quite a number of these flag-sightings were reported from the keen group of wader watchers in the Eyre Peninsula.

Tasmania

| Species | Australia | Total |
|------------------|-----------|-------|
| Curlew Sandpiper | 1 | 1 |

Only one inward sighting this year. All the Ruddy Turnstone carrying flags from elsewhere were also caught and details therefore appear in the Recoveries section of this Bulletin.



Curlew Sandpiper feeding at Werribee (Photo Digger Jackson)

Tern Breeding and Banding Report 2012/13

Clive Minton, Roz Jessop, Susan Taylor, Dave Cropley and Robyn Atkinson

Caspian Tern

| Location | Breeding pairs | Chicks banded |
|-----------------|-----------------------|----------------------|
| Mud Islands | 30 | 8 |
| Corner Inlet | 50+ | 27 |
| Totals | 80+ | 35 |

It was not possible to monitor the Caspian Terns in Corner Inlet as accurately as usual because of the unavailability of boat transport at the optimum time. However it does appear that there was a reasonable sized colony again on the West End of Clonmel Island and that some young were successfully reared.

On Mud Islands the colony nested on a new off-shore sand bank for the first time and, in spite of one period of strong winds, it also successfully reared young. Overall the banding figures are an underestimate this year of the total number of young fledged at each colony.

Crested Tern

| Location | Breeding pairs | Chicks banded | Banded adults caught |
|--------------------------------|-----------------------|----------------------|-----------------------------|
| Mud Islands/South Channel Fort | 454 | 9 | 7 |
| The Nobbies | 3500 | 1258 | 575 |
| Corner Inlet | 2000 | 1105 | 122 |
| Totals | 5954 | 2372 | 704 |

Crested Terns had an exceptionally poor breeding year in Port Phillip Bay and also at the Nobbies on Phillip Island. In contrast, the colony at Corner Inlet was a record level, some three times larger than in any of the previous 35 years.

The Crested Terns did not nest on Mud Islands for the first time ever. Instead a reduced size colony was formed on the nearby South Channel Fort Island. This was heavily predated by Silver Gulls and few eggs and chicks survived. It is not clear what caused the move from Mud Islands, where Crested Terns have nested for the previous 30+ years. There still appeared to be an adequate area cleared of vegetation. Nevertheless renewed efforts will be made in 2013 to ensure that a large area is cleared for the Crested Terns to nest in.

The problem at The Nobbies was a sudden failure of the local food supply (small fish) in the second week of November. By then 3500 pairs had laid eggs and further egg laying usually continues into the first half of December. However this year it ceased abruptly. Furthermore when the chicks hatched some 1900 are estimated to have died through lack of food. The food supply recovered a little in mid-December and the later hatching chicks fared much better. The crash in food supplies similarly affected the breeding success of the Fairy Penguins – both bird species feed on the same species and size of fish.

The exceptionally large Crested Tern breeding colony at Corner Inlet was at a new location – all along the eastern side of a small island just inside the inlet from Dream Island. This was a location free from storm tides and wind-blown sand, which was fortunate because of occasional periods of rough weather in December. Recaptures

of banded adults showed that a significant proportion had originated at The Nobbies, suggesting that some of the birds which would have normally nested there had transferred to Corner Inlet when their local food supply failed.

Breeding adults were retrapped again at The Nobbies as well as a good number in Corner Inlet. At both locations there were several individual birds more than 20 years old, the maximum being 25 years old (at both locations).

Gippsland Lakes Project

A new project this year was the catching of Crested Terns in the spring and summer in the Gippsland Lakes. This was to assist a Monash University study on blue-green algae. Apparently blue-green algae outbreaks can be studied via the residual effects on fish-eating birds.

Three catches were made (28, 22 and 26) with a cannon-net near Ocean Grange, with one catch being before the usual summer outbreak of blue-green algae and two catches afterwards. Monash University made a generous contribution to the VWSG for the loan of its cannon-netting equipment and expert personnel for these Crested Tern catches.

Fairy Tern

Fairy Terns continue to have poor breeding success along the Victorian coast. None were recorded breeding this year in Corner Inlet and none bred at Andersons Inlet (Inverloch) or in Port Phillip Bay. However 45 pairs apparently bred on Rams Island, on the south-east side of French Island in Western Port, and these were reported to have had some breeding success. They have bred at this location previously but have usually been unsuccessful due to predation and/or storm tides.



Crested Terns nesting at South Channel Fort in an area cleared of boxthorn by Parks Victoria (photo Barry Lingham, Geelong Field Naturalists December 2012).

Tern Recovery Report 2012/13

Clive Minton and Roz Jessop

Caspian Tern

There were no recoveries reported in the past year.

Crested Tern

There were no interstate recoveries reported of Crested Terns banded as chicks at Mud Islands, The Nobbies or Corner Inlet. Detailed below is an interstate movement of a Crested Tern chick banded for VWSG by David Trudgen at Beachport in South Australia.

Banded at Penguin Island, Beachport, SA

| Band No. | Date banded | Date recovered | Location recovered | Method of recovery | Km. moved |
|-----------------|--------------------|-----------------------|---------------------------|---------------------------|------------------|
| 074-14940 | 24/1/12 | 16/5/12 | Point Roadknight, Vic | Found dead | 378km E |

Common Tern

No recoveries reported this year.

Gull-billed Tern

| Band No. | Age | Date banded | Location banded | Date recovered | Location recovered | Km. moved |
|-----------------|------------|--------------------|------------------------|-----------------------|---------------------------|------------------|
| 073-64086 | Adult | 6/1/13 | Yallock Creek | 25/6/13 | Corner Inlet | 130km SE |

Very few Gull-billed Terns have ever been caught by the VWSG and the above is the first retrap/recovery. It had moved from Western Port to Corner Inlet in the six-month period since it was marked at Yallock Creek.

Gull-billed Terns have been much more numerous (up to 50 at some locations) than usual on the Victorian coast in the last two years. This is presumably the result of successful breeding in inland Australia over the wet years 2010/2012. The above movement shows that these non-breeding birds are prepared to move around between different estuaries in search of the optimum feeding conditions.

It is interesting that this bird was in almost complete breeding plumage when first caught in January and was undertaking its primary moult. When retrapped in June it was largely in non-breeding plumage and had completed the active moult, albeit with the outermost primary not replaced.

Little Tern

No recoveries reported this year.

Fairy Tern

| Band No. | Age | Date banded | Location banded | Date recovered | Location recovered | Km. moved |
|-------------------|-------|----------------------|---------------------------------|----------------|---------------------------|-----------|
| 042-99099 | Adult | 19/2/10 | West Cattle Island, Coorong, SA | 20/8/12 | Carpenter Rocks, SA | 231km SSE |
| 042-52399 | Adult | 20/12/11 | Teal Island, Coorong, SA | 7/8/12 | Carpenter Rocks, SA | 223km SSE |
| Flagged (2 birds) | Adult | 5/01/12 | Tathra, NSW | 17/2/12 | Werribee SF | 501km WSW |
| Flagged | Chick | Jan/Feb 2010 or 2011 | Inverloch | 25/9/12 | Reef Island, Western Port | 47km NW |

Another nice collection of Fairy Tern movements have been reported in the last year. One of these involves a chick from Inverloch which had moved to probably breed in the Rams Island colony in Western Port. There were two movements of adults from The Coorong eastwards along the coast during winter to Carpenters Rocks (still in South Australia). Most unusual were two birds which had bred at Tathra in New South Wales and had moved to Werribee only six weeks later. The 501km movement is the longest recorded in our studies so far for Fairy Tern.



Caspian Tern family at Mud Islands (Barry Lingham, Geelong Field Naturalists, December 2012.)

Sightings of Victorian-flagged Terns 2012/13

Clive Minton, Roz Jessop, Susan Taylor and Robyn Atkinson

Caspian Tern

Flagged at Clonmel Island, Corner Inlet

| Date seen | No. of birds | Location seen | Km. Moved |
|-----------|--------------|-----------------------|-----------|
| 14/10/12 | 1 | Moreton Bay, Qld | 1391 NNE |
| 28/10/12 | 1 | Bribie Island, Qld | 1432 NE |
| 31/1/13 | 1 | Lake Wollumboola, NSW | 540 NE |
| 1/2/13 | 1 | The Entrance, NSW | 727 NE |
| 3/4/13 | 1 | Toorbul, Qld | 1420 NNE |
| 1/5/13 | 1 | Culburra, NSW | 546 NE |
| 26/5/13 | 1 | Moreton Bay, Qld | 1391 NNE |

Flagged at Mud Islands

| | | | |
|--------|---|------------------|--------|
| 3/5/13 | 1 | Belmont Bay, NSW | 813 NE |
|--------|---|------------------|--------|

The lists above show the usual nice crop of sightings of flagged birds along the New South Wales coast and in south-east Queensland. This is where Caspian Tern juveniles and adults move to for the winter from both the Clonmel Island and Mud Islands breeding colonies.

An analysis of all the information generated by the VWSG from banding and flagging Caspian Terns over the last 30 years is currently being carried out. The results will be published in the VWSG Bulletin, and probably submitted elsewhere for publication also.

Common Tern

Banded in the Gippsland Lakes

| | | | |
|--------|---|--------------|---------|
| 8/2/13 | 2 | Ballina, NSW | 1154 NE |
|--------|---|--------------|---------|

Most Common Terns flagged by VWSG were marked around 20 years ago in the Gippsland Lakes. It is interesting that sightings of flagged birds are still being reported in most years. These Northern Hemisphere breeding birds (Central Siberia) seem to return each year and spend their non-breeding season on the east coast of Australia.



Crested Terns at Michaelmas Cay – photo Digger Jackson.



South Australian Team Report

August 2012 – July 2013

Maureen Christie

With all of the excitement and added work caused by the unexpected breeding event of Banded Stilt at Lake Torrens June/July this year I am afraid that my commitment to preparing a comprehensive report of our year's activities for the Bulletin has been neglected. Here it is at the 11th hour, in Roxby Downs due to leave for another banding trip to Lake Torrens in a couple of hours, and the report is still not complete! So, I am afraid that this year's report will be a collection of brief comments and is in no way comprehensive!

Once again we have had an extremely busy year. A brief report on our construction program – bird hide/information shelters/signage – is elsewhere in the Bulletin. So too is the story of our work on Cowrie Island. And I have at least managed to prepare the tables giving figures of catching done in South Australia.

We continue to be committed to the geo-locator program. Newbery Primary School donated \$300 and students joined us for the day's catching at Nene Valley when 29 were deployed! The remaining 1 geo-locator was deployed by the local team. We received \$6,000 from the South East Cooperative Coastal Conservation Initiative (funded through Caring for Our Country) to enable the purchase of the geolocators. This brings our total contribution from various sources to \$17,340.

Unfortunately cannon net catches by our local team this year were not very successful, with either small catches or failures – except for the most important catch of all, when we managed to deploy our one remaining geolocator! However, we continue to band and flag small numbers of Oystercatcher, Hooded Plover and small tern chicks. This year saw our first major movement since we began to use engraved leg flags (ELF) Oystercatcher chicks. Pied C3 – seen 28/11/2012 at Third Creek, Thompsons Beach was banded as a chick at Piccaninnie Ponds 29/11/2011. We are also slowly becoming more proficient at using noose mats to catch Hooded Plover. We inherited a set of large noose mats from Reece Pedler and we have begun experimenting with using an Oystercatcher decoy to catch Oystercatchers. Although we have not succeeded in catching an Oystercatcher yet, observations have been fascinating, with the decoy being pecked, kicked, stared down and even having pipping displays performed for it. Thank-you to Marj Rennie for the magnificent decoys! She has also made some Hooded Plover decoys for us to try with the noose mats on beaches where there is no sand to make fences. She will have them at the AGM so am looking forward to trying them out in the coming season.

Catching further afield has played an important part in our activities this year. We assisted with catching at Thompson Beach and led a team to Streaky Bay.

Our President, Jeff Campbell is count organiser. Efforts to try and gauge the effect of predation control measures being undertaken as part of a Caring for Country Grant have seen us undertake more counting than usual. Hooded Plover counts were completed in November and May. Seven fledged chicks were counted although we estimate that we fledged at least for the season. The usual PMP counts of the Port MacDonnell, Carpenter Rocks areas and Lake George, were done. We also participated in the annual AWSG Coorong count. We plan counts of Lake Eliza, Lake St Clair and Lake Hawdon every 5th year.

Following on from our successful Shorebird Identification Workshop Port MacDonnell and Robe, it is hoped to conduct a combined Bitten Survey and Wader ID and count of The Bool on the weekend of 21 and 22 September, 2013. Dependent on The Bool having water in it. Last news was that water had begun (slowly) in to run into Hacks Lagoon from Mosquito Creek so, at this stage, I am optimistic that it should go ahead. There will be free camping, for the Saturday night and all are welcome to hone their skills and enjoy The Bool – a Ramsar Site.

Predator control – threat abatement program

This is a continuing project. Our main commitment continues to be to monitor how successful the project has been in improving conditions for beach nesting birds. Monitoring methods for the future are under review. In addition to the normal summer and winter counts, we have been doing a count during May to assess the number of fledged juveniles in the population. We hope to move from artificial nest monitoring to monitoring a real nest using night cameras. Grainne Maguire, Birdlife, will help with ethics and advice. We finally seem to be making headway with resolving the issues surrounding data sharing between Birdlife and DEWNR. There has been a 'data sharing' agreement in place for many years, but it has not been working. We are to enter our Hooded Plover data onto Birdlife's 'Hoodie Portal'. All SE SA data will be available to our Department of Environment, Water and Natural Resources (DEWNR) team. Grainne will visit in October to assist us to use the portal. Plans are afoot to extend the portal to include other beach-nesting bird data.

As usual, a great deal of effort was put into monitoring and protecting Hooded Plover and Oystercatcher nests, with Jeff Campbell co-ordinating the protection of all beach nesting waders/terns. As a group we are struggling with the problem of too few volunteers and too many miles of beach.

We continue with our Dog's Breakfast program. Both the District Council By-law officers and the vets- all of whom assist in a voluntary capacity - consider it worthwhile continuing although we struggle with reaching our target audience. The Coastal Team of DEWNR continues to support this project.

General

All SA and King Island data is entered by David Trudgen. David is also responsible for maintaining the VWSG Oystercatcher Database. Flag making is organised by Jeff and Sarah Campbell, in collaboration with Malcolm Brown. Newsletters continue to be issued from time to time.

The group continues to provide input into various forums, with both Jeff Campbell and myself representatives on various committees. Press reports and radio interviews are conducted as the opportunity arises. We continue to be involved in more and more public relations activities. Jeff Campbell acts as our unofficial 'Conservation Officer' and makes comments on Draft Plans and the like. Once again we were involved with Threatened Species Day and manned a stall in collaboration with Birdlife Australia at the Naracoorte Caves. Display material has also been made available for various presentations at the Mount Gambier.

A very successful AGM and working bee was held at the Campbell family home in Mt Gambier.

During the year we welcomed two new members – Lincoln Huon Jones, born in May, 2013 to Katrina and Ken Jones and in July Zoe Lee Cobiac was born to Cath Bell and Michael Cobiac. We sadly record the passing of enthusiastic member Heather Gibbs and inaugural member Ted Summers.

Thank you to the members of the group who have worked hard to produce these results. Thank you too, to the members of both the Regional and District Offices of the DEWNR who have provided encouragement and practical help.

THOMPSONS BEACH, SOUTH AUSTRALIA, 25 – 29 NOVEMBER 2012
Clive Minton

This visit was to a new catching site on the east coast of St Vincent's Gulf about 50km north of Adelaide. The objective was to put engraved leg flags on a sample of about 200 Red Knot, from the reported 1,000 Red Knot which feed and roost there. It is not known whether these are from the *rogersi* or *piersmai* races and this is important to find out in relation to conservation of this rapidly declining species. Determination of race was primarily expected to come from observations of the individually identifiable birds when making their northward migration stopover in the area of Bohai Bay on the western side of the Yellow Sea. The experienced observers there (Chris Hassell and Adrian Boyle) can determine the race from the plumage of the birds, which are at that time in full breeding dress.

A thousand Red Knot were indeed present at Thompsons Beach. But we only caught one of them! The birds were very tame and generally cooperative but the tides proved totally unpredictable. In this shallow gulf area the tide seems to be much more dependent on wind/barometric pressure than the level set out in the formal tide tables. On nearly every occasion we got it wrong, either getting flooded out or being left high and dry. We did get a couple of small consolation catches totalling 79 birds, including a useful 39 Sharp-tailed Sandpipers, 12 Bar-tailed Godwits and four Great Knot. Sixteen of the Sharpies were juveniles suggesting that the species may have had a good breeding season in 2012.

The house kindly provided for our use by Tony Flaherty, Department of Environment, Water and Natural Resources (SA) was absolutely magnificent, overlooking the shore and only 100 metres from the nearest catching site. He and Chris Purnell (BirdLife Australia) are greatly thanked for all they did to set up the visit and for arranging for additional help from local wader enthusiasts. We hope to return in November 2013 and perform rather better now that we have more understanding of the ways of the tide.

An orange-flagged Bar-tailed Godwit and at least one orange-flagged Red Knot were seen (both from Victoria). An engraved-flagged Pied Oystercatcher seen on two successive days had been banded as a chick in 2010 by Maureen Christie at Piccaninnie Ponds, several hundred kilometres away in the south-east of the state.



South Australian Bar-tailed Godwit from Thompsons Beach, seen and photographed in China, April 2013 by Adrian Boyle.

| SOUTH AUSTRALIAN TEAM CATCHES 01.08.11 TO 31.07.2012. | | | | | | | | | | |
|---|-------------------------------|------------|-----------------|------------------|------------------|------------------------|--------------|------------|---------------------|-------------|
| DATE | PLACE | Sanderling | Ruddy Turnstone | Red-necked Stint | Curlew Sandpiper | Sharp-tailed sandpiper | Banded Stilt | Other | | TOTALS |
| 14.8.2012 | Pelican Point | | | | | | | | | * |
| 18.8.2012 | Danger Point (2 catches) | | 5 | 4 | | | | 2 | Pied Oystercatcher | 11 |
| 21.8.2012 | Pelican Point | | | | | | | | | * |
| 4.12.2012 | Beachport | | | | | | | | | * |
| 26.12.2012 | Piccaninnie Ponds | | | | | | | 1 | *Pied Oystercatcher | 1 |
| 31.12.2012 | Cape Banks Light | | | | | | | 2 | *Pied Oystercatcher | 2 |
| 4.1.2013 | Gerloff Bay | | | | | | | 1 | * Pied | 1 |
| 31.12.2012 | Blackfellows Caves | | | | | | | 2 | Hooded Plover | 2 |
| 22.1.2013 | Danger Point (2 catches) | | | | | | | 1 | * Little Tern | 1 |
| 29.1.2013 | Robe (Long Beach) | | | | | | | 2 | Hooded Plover | 2 |
| 5.2.2013 | Piccaninnie Ponds | | | | | | | 2 | *Pied Oystercatcher | 2 |
| 23.4.2013 | Nene Valley | | 4 | 1 | | | | | | 5 |
| Various 2013+ | Morella Basin | | | | | | 40 | | | 40 |
| 23.4.2013+ | Lake Harry | | | | | | 10 | | | 10 |
| 8.5.2013 | Nene Valley West | | | | | | | 1 | Hooded Plover | 1 |
| July 2013. | Lake Torrens | | | | | | 429 | | | 429 |
| | | | | | | | | | | 0 |
| | SA this year | | 9 | 5 | 0 | 0 | 479 | 14 | | 507 |
| B/F SA team | 1.12.00 – 31.7.2012 | 26 | 543 | 424 | 18 | 107 | 732 | 423 | | 2273 |
| | SA TEAM TO DATE | 26 | 552 | 429 | 18 | 107 | 1211 | 437 | | 2780 |
| | | | | | | | | | | 0 |
| Eyre Peninsula | | | | | | | | | | 0 |
| 1.11.2011 | Yanerbie | | 1 | 5 | | 1 | | | | 7 |
| 2.11.2012 | Yanerbie | 89 | | | | | | | | 89 |
| 3.11.2012 | Venus Bay | | | | | | | 6 | *Pied Oystercatcher | 6 |
| | | | | | | | | 2 | * Sooty | 2 |
| 4.11.2012 | Yanerbie | | 5 | 27 | | 1 | | 5 | (Red-capped Plover | 38 |
| | | | | | | | | 1 | (Pacific Golden | 1 |
| | Eyre Peninsula this year | 89 | 6 | 32 | 0 | 2 | | 14 | | 143 |
| B/F Eyre Peninsula | | 105 | 33 | 80 | | | | 1 | | 219 |
| | Eyre Peninsula to date | 194 | 39 | 112 | 0 | 2 | | 15 | | 362 |
| Thompson Beach | | | | | | | | | | |
| 27.11.2012 | Town Beach | | | 19 | | 39 | | | | 58 |
| 29.11.2012 | Third Creek | | | 1 | | | | 4 | (Great Knot | 5 |
| | | | | | | | | 12 | (Bar-tailed Godwit | 12 |
| | | | | | | | | 1 | (Red Knot | 1 |
| | | | | | | | | 3 | (Red-capped Plover | 3 |
| | Thompson Beach | | | 20 | | 39 | | 20 | | 79 |
| special geo trips | | | | | | | | | | 0 |
| 30.11.2012 | Pethers, Canunda | 18 | | | | | | | | 18 |
| 1.12.2012 | Pethers, Canunda | 89 | | 1 | | | | | | 90 |
| 2.12.2012 | Pethers, Canunda | 233 | | | | | | | | 233 |
| | geo trips this year | 340 | | 1 | | | | | | 341 |
| B/F geo trips | 23.4.2009 - 31.7.2012 | 308 | 192 | 152 | 13 | 76 | | 8 | | 749 |
| | Geo trips to date | 648 | 192 | 153 | 13 | 76 | | 8 | | 1090 |
| | | | | | | | | | | 0 |
| GRAND TOTALS TO DATE | | 868 | 783 | 714 | 31 | 224 | 1211 | 480 | | 0 |
| | | | | | | | | | | |

* net set, no catch made. ** chicks/runners. + Reece Pedler's PhD project

| SOUTH AUSTRALIAN TEAM CATCHES - Month Waders Caught in 1.12.200 TO 31.07.2012 | | | | | | | | | | | | | |
|--|-----|-----|-------|-------|-----|------|------|-----|------|-----|-----|-----|--------|
| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | TOTALS |
| Ruddy Turnstone | 5 | | 1 | 205 | 38 | 16 | 46 | 66 | 77 | 1 | 97 | | 552 |
| Red Knot | | | | 1 | | 12 | | | | | | | 13 |
| Sanderling | | 17 | 2 | 2 | | | | 5 | | | | | 26 |
| Red-necked Stint | | 34 | 34 | 96 | 4 | 20 | 49 | 93 | 32 | 43 | 1 | 23 | 429 |
| Sharp-tailed | | | | | | | | | 6 | 101 | | | 107 |
| Curlew Sandpiper | | | | | | 2 | 7 | 6 | | 3 | | | 18 |
| Pied Oystercatcher | 9 | 2 | | 1 | 1 | | | 2 | | | 6 | 13 | 34 |
| Sooty Oystercatcher | | | 2 | 3 | 2 | | | | | | 1 | | 8 |
| Banded Stilt | 192 | 173 | 12 | 351 | | 54 | 429 | | | | | | 1211 |
| Red-capped Plover | 3 | 4 | 1 | 4 | | | | 5 | | 1 | | 1 | 19 |
| Double-banded | | | 4 | 6 | | 4 | | 10 | | | | | 24 |
| Black-fronted Dotterel | | | 3 | | | | | | | | | | 3 |
| Hooded Plover | 2 | 2 | | 1 | 1 | | | | | | 5 | 5 | 16 |
| Little Tern | 17 | | | | | | | | | | | | 17 |
| Fairy Tern | | 104 | | | | | | | | | | | 104 |
| Crested Tern | 199 | | | | | | | | | | | | 199 |
| TOTALS | 427 | 336 | 59 | 670 | 46 | 108 | 531 | 187 | 115 | 149 | 110 | 42 | 2780 |
| excludes special geo expeditions by visiting Vic teams, Thompson Beach and Eyre Peninsula catches. | | | | | | | | | | | | | |

Report on Banded Stilt chick banding trip to Lake Torrens August 2013

Maureen Christie and Reece Pedler

About 50 mm rain at Roxby on 1st June followed by almost 20 mm in the next two weeks first Banded Stilt eggs at Lake Torrens on 14th June about 8,000 nesting pairs first chicks hatched 11th July on one weekend alone Reece Pedler counted 6,000 chicks with accompanying adults, leaving the colony and setting out on The Long March (about 5km of dry salt to water and food).

Not surprisingly, come late July, all roads seemed to lead to Roxby Downs and Reece's new home in Bolami Street. Pam from The Coorong and me from Carpenter Rocks were the first to arrive. Then Lynn (Reece's Dad) from Koolunga and Alastair from Victor Harbor. Philippa from Port Lincoln. And finally the car from Victoria with Clive and Rob from Melbourne and Birgita and Inka from Ballarat. No prizes for guessing what the main topic of conversation was as we enjoyed the BBQ prepared by Reece, Lynn and Alastair. I had been a bit canny, and had arrived a day early. So Pam and I were privileged to accompany Reece on an aerial survey of the breeding island and the 'deep puddle' where all of the chicks and adults were feeding. Stilts and chicks were very scattered, and Reece feared that there were far fewer chicks there than he had estimated. However, we were committed 420 blue engraved flags had arrived from Poland on Wednesday, Jeff (with a little bit of help from The Dollies) had made 700 plain blue flags, Reece had organised kayaks and gathered an enthusiastic group of banders together.

Everyone was up bright and early the next morning, and ready to leave at 8am. First hiccup – my car wouldn't start! The cavalcade set off leaving me to wait for the RAA (the SA equivalent of RACV). Thank goodness a local was planning to join the group – Pete Paisley arrived at the RAA depot just as my battery was being fitted. The trip to the camp site was a delight. Rain had meant that everything looked bright and fresh, with carpets of yellow, white and blue flowers.

Talk about being organised – on an earlier visit Reece, Parky and Pete had found us a *great* campsite, and delivered a load of firewood and 100 L of water. Kayaks could be launched into water rather than dragged for seemingly miles over mud. By the time Pete and I arrived, most people had their tents up, a latrine had been dug (essential as there were no trees to retreat to) and Clive was organising banding kits with all of banding pliers identified by either orange or orange/yellow! We erected a gazebo in case we needed shelter from the wind.

After lunch we set out, each with 25 ELF's in their kit. We did not have enough kayaks to go around, so Lynn and Alastair towed a tub and waded. Philippa bravely offered to partner me in a double kayak – I warned her that I was pretty hopeless, but she insisted. Most chicks were in small groups with 1 or 2 adults in attendance. The method - scoop up 3 or 4 (but not all) of the chicks with a dab net. Care needed to be taken to always leave some chicks in the water so that the attendant adult would stay close. Banded chicks were to be released together, back with the adults. Clive was base camp. The afternoon was pleasant with very little wind. Even so, catching chicks involved lots of effort. Finally, it was time to return home – with a freshening breeze and wet clothes it was surprising how cold it was. We were delighted with the result of our first effort – 159 banded/flagged and we were only out for half a day. During the late afternoon, early evening, reinforcements arrived from Roxby. Parky, Tina, Cat and Zoe. Just how many could we expect to get with another 2 ½ days catching to go??

The next morning we decided to do shifts. The wind was fresher than the day before, but we were still hopeful. During the morning wind changed direction, and the sight of Clive and me struggling to reconfigure the gazebo walls so that they gave protection from the prevailing wind would have caused much mirth if anyone had been around to watch! Come lunch time the morning shift straggled in, exhausted from struggling against the wind. Aware that the conditions were also hard on the chicks, it was decided to abandon banding for the day! Total 76 chicks banded/flagged. Tina and Parky prepared bacon and eggs for all! And why did Zoe want the cornflakes box – to make a pack of cards of course!

Sunday was finer weather and we organised the kayakers to work in teams, matching up Roxyites with experienced banders. Unfortunately Philippa had a badly swollen wrist – probably the result of the extra work of paddling for 2 on the first day. Unable to paddle, she and Pam walked 4 kms of shore, collecting all dead chicks that they could find. Some were amongst the vegetation, obviously left there by predators.

A successful morning out, but the weekend help had to leave after lunch. However, we were still a team of 11. With insufficient radios to go around, the waders were unable to summon help from the kayakers to help corral several large crèches of chicks before they dispersed. Lynn walked back to camp to bring around his ute – so that we could investigate the large number of stilt in the distance near where we had camped in 2011. And yes, there were lots of chicks – all out in shallow water over DEEP mud. Impossible to catch. So we retreated up the hill to wait for our passengers - Pete in his single and Inka and Rob in a double. We could see them working the other side of Calamanthus Island and watched in amazement as the double kayak seemed to come ashore on the far side of the island – surely they were not going to carry their kayak across the island? Finally they got the message that it was an island, and that they had to go round – and face a hard paddle to where we were waiting. But why were Inka and Rob smiling so much as they dragged the kayak ashore – perhaps in anticipation of the glass of port Lynn had waiting to help warm them up! Another successful day with 103 blue flags deployed!

Monday morning – our last day. The main question was could we manage to get out the last remaining ELF's? All were optimistic. I even hoped that we would make a serious start on the stock pile of plain blue flags. Every day we seemed to improve on our organisation. Teams were deployed, leaving Clive and me back at camp to start breaking camp. Everything went well with the morning's catching, but not so with the journey back to camp. Lynn, taking a short cut to his rendezvous with a kayak, did a tyre side wall. So, late back for lunch. But our target had been met – 78 engraved flags and 13 plain flags. Total for the expedition – 429 banded chicks (416 ELF, 13 plain).

And what else did we see? Out walking, Philippa found the remains of a small native mammal - the jawbone was perfect so identification will be possible. Several saw small groups of Flock Bronzewing (at the extreme south of their known range) and elusive Thick-billed Grasswrens in the Oodnadatta Saltbush near the camp. On the journey home, everybody had first-class views of a male Gibberbird (a tick for me!). A pair of Banded Lapwing with chick near a dam. And then there is the impressive list from a trip out to Arid Recovery reserve on Monday night – Burrowing Bettong, Bilby, Stick-nest Rat and Inland Dotterel with chicks.

What next? – Reece is out there again today, and he has a banding trip organised for next weekend (leaving Roxby 3 pm on Friday 9th August and returning to Roxby Sunday afternoon). Hopefully he will have received another 200 ELFs – if not, there are still 687 plain blue flags to go!

Thank you to everyone who contributed to the success of this expedition – both those who travelled mega miles and those who joined us from Roxby. The kayakers, Rob tells me that he estimates that they paddled a total of 50kms in, at times, difficult conditions. Jeff Campbell for, yet again, sending us into the field with more flags than we could possibly use, just in case. And Reece who made us so welcome in his new home and whose meticulous attention to detail in both the planning and execution of this expedition ensured its success.



Wader Encounters, September 2012

Graham Beal

Last year in September 2012, for family reasons I had to return to England. I stayed with my Mother at our family home where I grew up, located just North West of London in Chesham, Buckinghamshire, in the picturesque Chiltern Hills with its quaint villages and Beech woods.

Andrew Silcocks, Atlas organizer from Birdlife Australia happened to be in the country at the same time and visited one day for a spot of "birding". We went to a local haunt that I used to frequent a few kilometres away (7 miles!) called Tring Reservoirs. I used to cycle here as teenager in my early years of bird watching. Many interesting species used to turn up here and was always a thrill to see several species of ducks wintering and Common Sandpiper and Green Sandpiper, at the small local sewerage farm, passing through on spring and autumn passage. I remember seeing my first Pectoral Sandpiper here, an unusual occurrence in the U. K. Being end of summer / early autumn things were quiet with just some local residents species present.

At one reservoir Andrew managed to get some photos of a juvenile Little Ringed Plover that are regular breeders here and at another location, on exposed mud Green Plovers or Lapwing were resting. Once a common species, in 1987 and 1988 they declined due to changes in farming practices as a favoured nesting place is cultivated land.

On another excursion we travelled west to Slimbridge, Gloucestershire home of the world renowned Wildfowl Trust. Again it was the wrong time of year to see all the wonderful wild ducks, geese and swans that overwinter here, having travelled from the far north. The permanent collection of wildfowl species from all over the world is impressive though. It is here that they have hatched and are raising endangered Spoonbilled Sandpipers from eggs collected from its Arctic breeding grounds. This was strictly off limits of course!

On one of the ponds Common Redshank and Black-tailed Godwit could be seen "loafing" or resting. Amongst the Godwit and hard to distinguish from them was a rare visitor from America, a Short billed Dowitcher. As you can imagine many "twitchers" had been to see it during its stay.

By coincidence I happened to be traveling back to Australia at the same time as Andrew with a stopover in Hong Kong. For years I have wanted to visit Mai Po marshes after reading of the flag sightings in the VWSG Bulletin and its importance as stopover for thousands of migratory waders. Andrew was staying at the Hostel there and we met up on a hot, humid day. I was staying in a Hotel in Kowloon where the only birdlife I saw was 1 Black Kite and 1 Tree Sparrow! .This was a birdlife oasis in comparison to the rest of Hong Kong!

Since 1983 this 380 hectare Ramsar site reserve in the north western corner of Hong Kong has been managed by World Wildlife Fund for Nature – Hong Kong. After leaving the visitors centre we passed a series of fish ponds where Common Sandpipers were seen. There are extensive reed beds here where Light vented Bulbuls were very noticeable. On or not far off the pathways there are many hides overlooking the shrimp ponds (called Gei Wai locally) where many birds were seen feeding or resting. Black Winged Stilt were abundant and we also saw some Common Redshank. Other wading birds that we were fortunate to see was an Oriental Stork, the first seen in H K in 10 years and feeding in the distance a pair of endangered Black Faced Spoonbill (closely related to our Royal Spoonbill) .A quarter of the world's population can be found here ! Eastern Curlew could be heard in the distance Deep Bay.

When we finally met up with Andrew he had just been to Deep Bay where Kentish Plovers, Black & Bar Tailed Godwit, Whimbrel, Great Knot, Common Redshank and Terek Sandpiper were present in small numbers as this was just the beginning of their southward migration.

Across the bay with its tall buildings as a backdrop is the city of Shenzhen, now considered to be one of the fastest growing cities in the world!

List of Waders found at Mai Po Marshes

Plovers and Lapwings

| | | |
|-----------------------|---------------------|----------------------|
| Black-bellied Plover | Lesser Sand-Plover | Kentish Plover |
| Pacific Golden-Plover | Greater Sand-Plover | Little Ringed Plover |

Stilts and Avocets

| | |
|--------------------|-------------|
| Black-winged Stilt | Pied Avocet |
|--------------------|-------------|

Sandpipers and Allies

| | | |
|-----------------------|---------------------|------------------------|
| Terek Sandpiper | Whimbrel | Temminck's Stint |
| Common Sandpiper | Far Eastern Curlew | Sharp-tailed Sandpiper |
| Green Sandpiper | Eurasian Curlew | Dunlin |
| Gray-tailed Tattler | Black-tailed Godwit | Curlew Sandpiper |
| Spotted Redshank | Bar-tailed Godwit | Spoon-billed Sandpiper |
| Common Greenshank | Ruddy Turnstone | Broad-billed Sandpiper |
| Nordmann's Greenshank | Great Knot | Asian Dowitcher |
| Marsh Sandpiper | Red Knot | Common Snipe |
| Wood Sandpiper | Sanderling | Common Redshank |
| Red-necked Stint | | |



Mai Po Marshes, Hong Kong. Engraved flag combination white over yellow.

(Photo John Allcock)

Report on a Visit to King Island

27 March to 4 April 2013

Clive Minton and Roz Jessop

Introduction

Have you ever been on a fieldwork visit where everything went right? The most recent visit to King Island was one of those rare occasions when we achieved all our principal objectives, made a catch each time we set the cannon-net, and were not adversely affected by the weather conditions even though it was quite windy and showery for the first half of the nine-day period.

This was the seventh March/April visit to King Island by the VWSG as part of its long-term study of Ruddy Turnstone. The main results are given below, for the benefit of this year's participants and for the interest of previous participants and other VWSG members.

Objectives

The principal objectives of the study are:

- a) To monitor the annual breeding success of Ruddy Turnstones via the percentage of juvenile birds in catches.
- b) To census annually the population of Ruddy Turnstones at all the locations on the west coast of King Island.
- c) To recapture previously banded Ruddy Turnstones for annual survival rate measurement and to put new metal bands/engraved flags on birds caught for the first time.
- d) To deploy additional geolocators on Ruddy Turnstones and to retrieve further geolocators put on previously on King Island.

2013 Visit

The first day was spent visiting all the principal Ruddy Turnstone feeding and roosting locations on the west shores of King Island and obtaining an initial population count. These visits also served as a recce for the cannon-netting which was carried out over the next eight days.

The team was again based at Jenny Marshall's house in Currie. Graeme and Margaret Batey again had two people to sleep at their house and Margaret Bennett invited three team members to sleep at the small cottage on her property.

Population Count

Count figures for March/April 2013 have been added to count data from other recent visits in Table 1. The total of 645 was slightly higher than the November 2012 count (608) but much lower than the April 2012 count of 445. However the April 2012 visit took place in the second week of April when some of the adult Ruddy Turnstones, particularly the males, had already departed on northward migration. A better comparison is with the April 2011 count of 686. This suggests that the decline in Ruddy Turnstone numbers on the west coast of King Island (and at many other locations in the Flyway) is still continuing.

Catching

Ten cannon-net catches were made in eight days (Tables 2 and 4). Altogether 285 birds were caught, of which 255 were Ruddy Turnstone. This is the second highest total of Ruddy Turnstone for our March/April visits to King Island, which started in 2007 (Table 3). Catching success was high for a number of reasons including our increasing knowledge of the birds' habits at each location, an absence of "acts of God" – birds of prey or other unexpected disturbance - and weather conditions which did not prevent us setting nets where we wanted

to and firing nets when we wished. Catches were made at all the main sites along the west coast of King Island, with two visits being made to the Manuka area and to the shores close to Currie itself.

Recaptures

A total of 130 Ruddy Turnstones already carrying bands/flags was recaptured. This is 30% higher than on any previous visit (Table 3). The overall recapture rate on Ruddy Turnstones was 51%. This is the highest level recorded on any of the VWSG catching visits.

The highlight was recapturing a Ruddy Turnstone banded at Bohai Bay on the west side of the Yellow Sea in China in May 2009 (Table 5). This bird had also been recaptured on our previous visit in November 2012. Other recoveries and flag sightings, and particularly data from geolocators, has shown that most King Island Ruddy Turnstones make a stopover somewhere on the west coast of the Yellow Sea on both northward and southward migration.

Three Ruddy Turnstone originally banded in South Australia were also recaptured, and an additional South Australian-flagged bird was seen. Interestingly all three birds had been banded as immature – two in their first year and one just at the beginning of its second year. As in many wader species it appears that the younger birds are rather less site faithful than adults, with these three birds changing their non-breeding area from South Australia to King Island. Two of the three birds have now been caught several times on King Island, one of them five times in seven years (Table 5).

Percentage Juveniles

Only 3 (1.2%) of the 255 Ruddy Turnstones captured were juvenile/first year birds (Table 3). This continues the pattern apparent in Ruddy Turnstone (and Sanderling) of having either good breeding years or disastrously poor breeding years. Over the last seven years there have been four satisfactory years of breeding productivity (14.2 to 17.9% juveniles) and three years of very poor breeding outcomes (0 to 1.2%).

Data on other species in south-east Australia, and on Ruddy Turnstone and a range of other species in north-west Australia, indicates that many of the high Arctic breeding species had poor reproductive success in the 2012 Arctic summer.

Weights

All birds captured were weighed (Table 2). All adults had already reached a weight at least 30% above their fat-free weight (90 – 100g) and the heaviest bird (199g) had achieved 100% fat addition. This was at least a week before the earliest date on which Turnstones start leaving King Island on northward migration.

As usual, mean weights differed between locations. The figures in Table 2 need to be judged on the assumption that weights of individual birds will probably be increasing by two or three grams per day during this pre-migration fattening period. Even taking this into account Stokes Point, as usual, has the highest mean weights and the Manuka area the lowest. The 174.8g mean weight of the 34 adults caught at Stokes Point on 1 April may be the highest mean weight ever recorded during our catching of Ruddy Turnstone on King Island.

Sex Ratios

All adult birds caught were sexed, based on the advanced (average 75%) breeding plumage they had attained. Overall 46.8% of the adults were male. This is higher than the 43% recorded in April 2012 (when some males had already departed) but is rather lower than the approximately 50% recorded in most previous years. Again there were marked variations between catch samples at the different locations, with Surprise Bay having the highest proportion of males (65%) and Stokes Point and Manuka having the lowest (35%).

Past data will need to be examined to see whether the differences each year between the proportions of the sexes at different locations are consistent i.e. whether some sites tend to have a preponderance of a particular gender.

Geolocators

Four Ruddy Turnstone already carrying geolocators were recaptured. Two of these had only been put on in November 2012, as replacements of previous geolocators. These were therefore left on birds. The other two, older, geolocators were removed. One, originally deployed in April 2012, has given a full migratory path to, and back from, its breeding grounds in Arctic Siberia, where it also appears to have bred, but unsuccessfully. The other geolocator had been deployed in March 2010 and will need to be sent back to the U.K. manufacturer for downloading as the battery had (not surprisingly) run out.

A further 34 geolocators were newly deployed during the visit. These were all put on in the Manuka area, as in previous years, because this is the location at which recaptures (to retrieve geolocators) can most easily be made. These additional geolocators were deployed because of the need to build up sufficient data for a quantitative analysis of Ruddy Turnstones' migration tracks and also because of the need to obtain further comparative data on breeding activities and outcomes. The Ruddy Turnstone has proved particularly amenable to such studies via geolocator records. It will be interesting to see if the geolocators indicate poor breeding success in 2012 in line with the percentage juvenile results.

Future Visits

The next visit to King Island will take place for six days during the period 16 to 24 November 2013. The principal objective will be to retrieve geolocators with catching activities mainly concentrated in the Manuka area. The main 2014 visit is likely to take place from Monday 17 March to Tuesday 25 March. This, fortunately, misses the Easter weekend, in contrast to the last two years.

Data analysis

It is now time to carry out a more in depth analysis of the data collected on King Island over the past seven years. Originally we had intended to include some in this visit report but decided that a thorough comprehensive analysis would have delayed its publication for too long. So results will be published separately later this year, probably in the VWSG Bulletin and in the AWSG journal *Stilt*.

Acknowledgements

Everyone who participated in the fieldwork in March/April 2013 is greatly thanked for their efforts. The team consisted of 11 visitors from Victoria and eight persons from King Island itself. The considerable catching success is the result of all the physical effort and patience and perseverance of the team over a continuous period of nine days in the field. We also thank those who in various other ways made this annual "Expedition" possible. Angus Roberts, the Captain of the Searoad cargo ship, again most generously arranged for Clive Minton's vehicle, and all the cannon –netting equipment in it, to be transported between Melbourne and King Island. Jenny Marshall is thanked for kindly moving out of her house in Currie for nine days so that the team could be based there. Graeme and Margaret Batey and Margaret Bennett kindly provided additional accommodation.

We thank Shelley Davidson of the Tasmanian Parks Service who again loaned us a trailer. Margaret Bennett stored some of the equipment for us between visits as well as, with son Tim, kindly collecting Clive's Land Cruiser from the docks at Grassy and taking it back there again after the visit.

The Tasmanian Parks and Wildlife Service kindly provided the necessary permits for our banding and other activities.

Participants

The VWSG participants on this visit were Clive Minton, Roz Jessop, Peter Jenkins, Rob Patrick, Eric and Heidi Miller, Ila Marks, Rod MacFarlane, Yaara Rotman, Roger Minton and (first three days) Simeon Lisovski. In addition residents of King Island who took part for all or some of the period were Margaret Bennett, Graeme and Margaret Batey, Don Robertson, Kate Ravich, Tim Woodburn, Sean Hants and Maggie Tighe.

Sadly, Mavis Burgess, who has taken part in all our previous fieldwork on King Island and who originally invited us to visit King Island in 2007, was not with us. Her funeral took place the day before we arrived.

Table 1. Counts of Ruddy Turnstone on King Island including 27 March to 4 April 2013

Listed from south to north

| West Coast | Mar/ April | Nov | April | Nov/ Dec | April | Mar/ April | Mar | 1985 * |
|--------------------------------------|---------------|------|-------|-------------|-------|---------------|------|-----------|
| | 2012 | 2012 | 2012 | 2011 | 2011 | 2010 | 2002 | |
| Seal Bay/Black Point | 12 | 200 | n.c. | 200 | n.c. | 60 | n.c. | |
| Seal River Mouth | 0 | | n.c. | 0 | n.c. | 0 | n.c. | |
| Stokes Point | 60 | 28 | 50 | 0 | 30 | 20 | 90 | |
| Stokes Point to Surprise Bay | 12 | 24 | 25 | 67 | 70 | 110 | 40 | |
| Surprise Bay (including Denby Beach) | 80 | 0 | 70 | 12 | 75 | 105 | 80 | |
| Seal Rocks | 0 | 0 | n.c. | 0 | | 0 | 0 | |
| Dripping Wells | 75 | 55 | 40 | 90 | 62 | 65 | 40} | |
| Ettrick Beach | 0 | 1 | 0 | 0 | 0 | 0 | 0} | 60 |
| Miller Bay | 0 | 0 | n.c. | 0 | 0 | 0 | 0 | |
| Currie Golf Course (Burgess Bay) | 75 | 92 | 30 | 35 | 85 | 90 | 96} | 330 |
| Currie Harbour | 20 | 0 | 0 | 0 | 15 | 25 | 14} | |
| Dirty Bay | 0 | 0 | n.c. | 0 | 13 | 30 | 22 | |
| Manuka – South | 65} | 0 | 35} | 0} | 45} | 10} | 67} | |
| – Central | 70} | 165 | 50} | 60} | 50} | 150} | 68} | 200 |
| – North (Whalebone) | 30} | 0 | 35} | 5} | 60} | 15} | 65} | 67 |
| South Porky | 25 | 0 | 40 | 0 | 9 | 0 | 40 | 28 |
| Unlucky Bay | 25 | 25 | 15 | 60 | 48 | 10 | | 20 |
| North of Bungaree Creek | n.c. | 8 | n.c. | 0 | | 0 | 0 | 35 |
| Duck Bay – Island Point} | 70 | 80 | 35 | 35 | 70 | 115 | 15} | 260 |
| South Whistler } | | | 0 | 95 | | | 80} | |
| Whistler Point | 0 | 0 | 0 | 0 | 4 | 40 | 55 | 106 |
| The Springs | 26 | 45 | 20 | 61 | 50 | 45 | n.c. | |
| Wickham Lighthouse | 0 | 0 | n.c. | 0 | 0 | n.c. | 0 | |
| | 645 | 608 | 445 | 720 | 686 | 890 | 827 | |

*counts by D.B. Whitchurch

Table 2: Ruddy Turnstone Catch Details, King Island, 28 March - 4 April 2013

| <u>Date</u> | <u>Place</u> | <u>New</u> | <u>Retrap</u> | <u>Total</u> | <u>(Juvs)</u> | ♂ | ♀ | %♂ | <u>Mean Weight Adults (g)</u> | <u>Weight Range Adults (g)</u> | |
|--------------|-----------------------|-------------------|--------------------------|-------------------|-------------------------|-------------------|-------------------|---------------------|---------------------------------------|--|------------|
| 28/03/2013 | Central Manuka | 17 | 24 | 41 | (1) | 14 | 26 | 35% | 155.8 | 134-177 | (juv=97g) |
| 29/03/2013 | Dripping Wells | 15 | 12 | 27 | (-) | 15 | 12 | 55% | 151.7 | 125-170 | |
| 29/03/2013 | Currie Golf Course | 5 | 5 | 10 | (-) | 4 | 6 | 40% | 169.0 | 148-191 | |
| 30/03/2013 | Surprise Bay | 19 | 22 | 41 | (1) | 26 | 14 | 65% | 161.7 | 134-186 | (juv=89g) |
| 31/03/2013 | South Whistler | 29 | 10 | 39 | (-) | 19 | 20 | 49% | 168.8 | 139-189 | |
| 1/04/2013 | Stokes Point | 22 | 13 | 35 | (1) | 12 | 22 | 35% | 174.8 | 131-199 | (juv=115g) |
| 2/04/2013 | Currie Harbour | 6 | 13 | 19 | (-) | 9 | 10 | 47% | 165.3 | 153-190 | |
| 2/04/2013 | Currie Golf Course | 7 | 13 | 20 | (-) | 9 | 11 | 45% | 164.6 | 145-185 | |
| 3/04/2013 | North Manuka | 1 | 5 | 6 | (-) | 3 | 3 | 50% | 164.2 | 150-180 | |
| 4/04/2013 | Porky Beach | 4 | 13 | 17 | (-) | 7 | 10 | 41% | 161.7 | 143-174 | |
| Total | (10 catches) | <u>125</u> | <u>130</u> 51% | <u>255</u> | <u>0</u> 1.2% | <u>118</u> | <u>134</u> | <u>46.8%</u> | | | |

Average weight of 3 juvenile/first year birds was 100.3g. (range 89-115)

Table 3. Ruddy Turnstone Catch Totals on King Island 2007-13

| | <u>New</u> | <u>Recapture</u> | <u>Total</u> | <u>(Juveniles)</u> | <u>%Juv</u> |
|------|--------------------|-------------------|--------------------|--------------------|-------------|
| 2007 | 230 | 11 | 241 | (0) | 0% |
| 2008 | 354 | 65 | 419 | (75) | 17.9% |
| 2009 | 124 | 99 | 223 | (0) | 0% |
| 2010 | 123 | 88 | 211 | (30) | 14.2% |
| 2011 | 122 | 75 | 197 | (29) | 14.7% |
| 2012 | 65 | 53 | 118 | (18) | 15.2% |
| 2013 | 125 | 130 | 255 | (3) | 1.2% |
| | <u>1143</u> | <u>521</u> | <u>1664</u> | | |

Only includes Mar/April visit catches (not Nov. visits)



*Cape Wickham Lighthouse,
King Island
(Margaret Bennetts, Peter
Jenkins, Yaara Rotman)
Photo Roz Jessop.*



*Blood sampling Ruddy Turnstone
on a windy and rainy day on King
Island.*

Table 4. Catch details for all species - King Island 28 March to 4 April 2013.

| <u>Date</u> | <u>Location</u> | <u>Species</u> | <u>Ne w</u> | <u>Retrap</u> | <u>Total</u> | <u>(Juv)</u> | |
|----------------------|---------------------------|----------------------|-----------------|---------------|--------------|--------------|--------|
| 28/03/2013 | Central Manuka | Ruddy Turnstone | <u>17</u> | <u>24</u> | <u>41</u> | (1) | |
| 29/03/2013 | Dripping Wells | Ruddy Turnstone | <u>15</u> | <u>12</u> | <u>27</u> | (-) | |
| 29/03/2013 | Currie (Golf Course) | Ruddy Turnstone | <u>5</u> | <u>5</u> | <u>10</u> | (-) | |
| 30/03/2013 | Surprise Bay | Ruddy Turnstone | <u>19</u> | <u>22</u> | <u>41</u> | (1) | |
| 31/03/2013 | South Whistler | Ruddy Turnstone | <u>29</u> | <u>10</u> | <u>39</u> | (-) | |
| 1/04/2013 | Stokes Point | Ruddy Turnstone | <u>22</u> | <u>13</u> | <u>35</u> | (1) | |
| 2/04/2013 | Currie Harbour | Ruddy Turnstone | <u>6</u> | <u>13</u> | <u>19</u> | (-) | |
| 2/04/2013 | Currie (Golf Course) | Ruddy Turnstone | <u>7</u> | <u>13</u> | <u>20</u> | (-) | |
| 3/04/2013 | North Manuka | Ruddy Turnstone | 1 | 5 | 6 | (-) | |
| | | Double-banded Plover | 16 | 1 | 17 | (3) | |
| | | Red-necked Stint | 3 | 0 | 3 | (1) | |
| | | Pied Oystercatcher | 3 | 0 | 3 | (3) | |
| | | | <u>23</u> | <u>6</u> | <u>29</u> | | |
| 4/04/2013 | Porky Beach | Ruddy Turnstone | 4 | 13 | 17 | (-) | |
| | | Red-necked Stint | 3 | 0 | 3 | (2) | |
| | | Red-capped Plover | 2 | 0 | 2 | (-) | |
| | | Double-banded Plover | 1 | 0 | 1 | (-) | |
| | | Sooty Oystercatcher | 1 | 0 | 1 | (-) | |
| | | | <u>11</u> | <u>13</u> | <u>24</u> | | |
| <u>Total</u> | <u>King Island</u> | Ruddy Turnstone | 125 | 130 (51%) | 255 | (3) | (1.2%) |
| 10 catches in 8 days | | Double-banded Plover | 17 | 1 | 18 | (3) | |
| | | Red-necked Stint | 6 | 0 | 6 | (3) | |
| | | Pied Oystercatcher | 3 | 0 | 3 | (3) | |
| | | Red-capped Plover | 2 | 0 | 2 | (-) | |
| | | Sooty Oystercatcher | 1 | 0 | 1 | (-) | |
| | | | <u>154</u> | <u>131</u> | <u>285</u> | | |

Table 5: Recaptures of Ruddy Turnstones banded elsewhere

| Band Number | Flags | Banded | Recaptured (King Island) |
|--------------------|--------------|---|---|
| CHINA F06-4922 | B/Y | 2+ 7.5.09 Bohai Bay, CHINA | 18.11.12 Currie (Burgess Bay) 2.4.13 Currie Harbour |
| 052-60513 | ZDB/Y | 1 21.3.11 Port MacDonnell, SA Seen {7.5.11 Nene Valley, SA {18.5.11 " {31.7.11 " | 1.12.11 Unlucky Bay 7.4.12 Porky Bay 28.3.13 Central Manuka |
| 052-22383 | ZLC/Y | 2 9.8.11 Nene Valley, SA | 31.3.13 South Whistler |
| 052-03817 | HL/Y | 1 11.12.00 Port MacDonnell, SA | 21.3.07 Currie (Burgess Bay) 13.3.08 " 30.3.09 " 12.4.11 " 2.4.13 " |

*Net setting at Manuka, King Island (Photo Roz Jessop)*

HAVE YOU SEEN?

By Roz Jessop

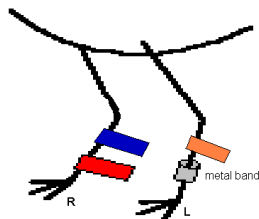
Always read flag combinations from top to toe

RED-CAPPED PLOVERS WITH ENGRAVED LEG-FLAGS?

In 2008 Deakin University commenced a banding study of Red-capped Plover at Cheetham Wetlands and Truganina Swamp, west of Melbourne – near Altona and Altona Meadows. Dr Mike Weston and students have flagged over 100 Red-capped Plover on the upper leg with an orange leg-flag engraved with two letters. They would greatly appreciate any sightings you may make. Masked Lapwings have also been marked with engraved flags at Phillip Island.

Please send details (including date and place) to
Dr Mike Weston, Deakin University,
221 Burwood Hwy, Burwood, 3125.
Email: mike.weston@deakin.edu.au
Phone: (+61 3) 9251-7433

HOODED PLOVERS, OYSTERCATCHERS OR GREY WADERS WITH FLAGS?

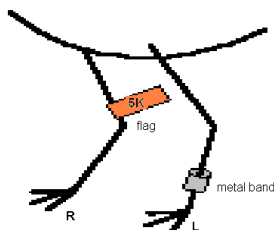
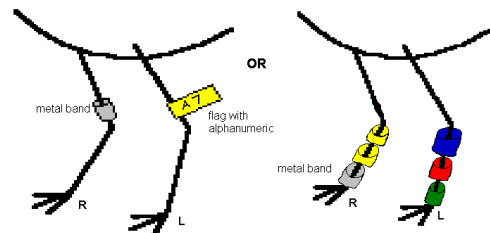


Hooded Plover with colour bands or flags?

Phillip Island Nature Park has an ongoing study colour flagging Hooded Plover chicks on Phillip Island. Any sightings of colour marked Hooded Plover should be sent to Roz Jessop
rjessop@penguins.org.au

Pied and Sooty Oystercatchers with colour bands or flags?

Any sightings of Pied and Sooty oystercatchers with colour bands or flags should be sent to David Trudgen
trudgen@iinet.net.au



“Grey” waders and terns with engraved or plain flags or colour bands? Any sightings of grey waders or terns with engraved flags or plain colour flags should be reported to Roger Standen

FLAGGING@AWSG.ORG.AU

WADER BREEDING SUCCESS IN THE 2012 ARCTIC SUMMER, BASED ON JUVENILE RATIOS OF BIRDS WHICH SPEND THE NON-BREEDING SEASON IN AUSTRALIA

CLIVE MINTON¹, ROZ JESSOP² & CHRIS HASSELL³

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INTRODUCTION

Reproduction rate is one of the two key parameters controlling wader populations. Each year since 1999 (Minton et al. 2000) the results of percentage juvenile monitoring (a proxy for reproductive rate) in Australia by the Victorian Wader Study Group (VWSG) and the Australasian Wader Studies Group (AWSG) have been published in *Arctic Birds* and in *Stilt* (the AWSG Journal). The paper in *Arctic Birds* facilitates comparison between annual breeding success results obtained by this method with information generated from a variety of other sources/methods across the whole of the Arctic breeding areas, also published in *Arctic Birds*. The paper in *Stilt* informs Australian and other wader researchers in the East Asian/Australasian Flyway of the results of this key element of their fieldwork programmes. Another objective of the parallel publication of these results is to set the data on permanent record for use by those who are interested in analysing long term data sets for relationships and causes of variations in reproductive success of Arctic breeding birds worldwide.

The rationale behind using percentage juvenile data to assess breeding success, and caveats concerning the interpretation and use of such data, were fully covered in last year's papers (Minton et al 2012.).

This paper presents the results of percentage juvenile sampling of waders in south-east Australia (SEA) and north-west Australia (NWA) during the November 2012 to March 2013 non-breeding season. This data provides estimates of wader breeding success for a range of species in the 2012 Northern Hemisphere summer.

METHODS

Information was again obtained from cannon-net catches of waders at high-tide roosts at a variety of locations throughout the non-breeding season (Minton et al. 2005). The usual sampling period was used in NWA (1 November to 21 March) and in SEA from mid-November. This year the sampling of Sanderling and Ruddy Turnstone in SEA was continued beyond the end of March because tide/logistical constraints forced key visits to the two main sampling areas to take place rather later than usual. However detailed recovery, flag-sighting and geolocator information obtained over recent years has shown that the sampling dates used this year were before any adult birds of either species were likely to have departed on northward migration.

The 2012 breeding success results are compared, as usual, in two different ways with the data generated over previous years (Minton et al. 2012). For the long data series now available in SEA (over 30 years in three species) the *median* percentage juvenile figure is quoted for comparison. In the shorter term data sets presented in Table 3 for SEA and in Table 4 for NWA the *mean* of the percentage juvenile figures for the previous 14 years (the limit of the NWA data set) are given. In general these two figures are similar but on some species there are differences, the reasons for which have not yet been investigated.

RESULTS

The figures for 2012/13 are given in Table 1 (SEA) and Table 2 (NWA). In the former all the usual species were sampled, except Red Knot. The population of this species has declined so much over the years that few catching opportunities are available. We have no good alternative information available to judge breeding success, although the visible presence of juveniles at some locations and numbers of overwintering birds in the 2013 austral winter suggests that Red Knot may have had at least some breeding success in 2012.

All the main species were sampled in NWA except for Sharp-tailed Sandpiper. Results are also given this year for Broad-billed Sandpiper.

Table 3 (SEA) and Table 4 (NWA) show that annual percentage juvenile results for each of the main species for each year since 1998/99, which is when annual sampling commenced in NWA. These tables facilitate comparisons between the two geographic regions of the non-breeding areas (3000km apart, one temperate and one tropical) and also in some cases facilitate comparisons between the same species in the two different areas.

DISCUSSION

The 2012 breeding season appears, unfortunately, to have been even poorer than the 2011 breeding season for most of the wader populations which visit SEA and NWA (Minton et al. 2012). This was especially so in NWA where in the Arctic-breeding species four out of seven were rated “very poor” and none achieved even average breeding success. In SEA Sanderling and Curlew Sandpiper also experienced a second successive very poor breeding outcome, but Red-necked Stint and Sharp-tailed Sandpiper were rated as being “good”. This variation between species in some years has been noted previously, with Sharp-tailed Sandpiper particularly being a species which quite frequently differs in its breeding outcome from the majority of other species (Minton et al. 2005).

In contrast the NWA results show that species which breed less far north in Siberia (i.e. predominantly not in the Arctic) had a rather better breeding performance in 2012 than Arctic-breeding species. They also performed better than in 2011. Greater Sand Plover in particular showed a marked improvement (28.2% juveniles) after a couple of years with lower than average productivity.

The link between breeding success of waders and weather/predator conditions in their breeding areas continues to receive attention worldwide (Fraser et al. 2013, Nolet et al. 2013). Our own new analysis, mentioned in last year’s paper and being carried out by Yaara Rotman/Marcel Klaassen of Deakin University, is still continuing. It does seem to confirm, as other researchers have also suggested, that the fairly rigorous Lemming cycles present in the Arctic for several decades in the second half of the last century, have broken down in the last 20 or so years. With wader breeding success shown to be critically related to the Lemming/predator numbers (Summers and Underhill 1987), it is not surprising therefore that the cycles of wader breeding success have also shown less regularity in the last two decades. One of the problems is that several critical factors vary independently – snow depth, date of snowmelt, June and July temperatures, late snowfalls during the hatching period and predator numbers. Sometimes variations in one factor will mask variations in another. Also it may be difficult to know about potentially devastating late snowfalls if these occur in only a limited area and for a short duration (i.e. without greatly affecting the monthly average temperature). The variable performance between species in a year may well relate to the chance mix of the critical factors which may occur in the main breeding location of a particular species.

CONCLUSION

Overall, 2012 was again a poor breeding season for most wader species which spend their non-breeding season in Australia. Given the pressures on many species of waders caused by loss of feeding habitat in key stopover locations in the Flyway it is desirable that they have the opportunity of offsetting survival losses due to this cause by having good breeding

success when they are in the Arctic or elsewhere in Siberia. Arctic waders, in particular, badly need an above-average breeding outcome in 2013.

ACKNOWLEDGEMENTS

Members of the VWSG and AWSG are greatly thanked for sustained fieldwork effort over several months in the 2012-13 non-breeding season. Only by their considerable perseverance can the annual long-term monitoring of a range of species in SEA and NWA be successfully carried out. Gaps in the data greatly reduce the practicability of determining the primary factors influencing breeding success.

All those who have facilitated access to our various monitoring sites and the carrying out of fieldwork are greatly thanked, especially Broome Bird Observatory and Anna Plains Station in NWA. Some financial support for fieldwork activities is most generously provided by Coastcare in SEA and by the WA Department of Environment and Conservation in NWA. The Australian Bird Banding Scheme and the various state environment/conservation bodies also kindly provided appropriate licences and, where necessary, ethics and other animal catcher approvals.

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Flock of shorebirds at 80 Mile Beach Ramsar Site (Photo Roz Jessop)

Table 1. Percentage of juvenile/first year waders in cannon-net catches in south-east Australia in 2012/13

| Species | No. of catches | | Total caught | Juv./1st year | | Long term median* % juvenile (years) | Assessment of 2012 breeding success |
|---|----------------|-------------|--------------|---------------|------|---|--|
| | Large (>50) | Small (<50) | | No. | % | | |
| Red-necked Stint <i>Calidris ruficollis</i> | 6 | 7 | 1902 | 414 | 21.8 | 14.5 (34) | Good |
| Curlew Sandpiper <i>C. ferruginea</i> | 1 | 6 | 329 | 11 | 3.3 | 9.8 (33) | Very poor |
| Bar-tailed Godwit <i>Limosa lapponica</i> | 0 | 2 | 77 | 15 | 19.5 | 17.9 (23) | Average |
| Red Knot <i>C. canutus</i> | 0 | 1 | 1 | 0 | - | 58.0 (18) | - |
| Ruddy Turnstone <i>Arenaria interpres</i> | 1 | 22 | 546 | 13 | 2.4 | 10.1 (22) | Very poor |
| Sanderling <i>C. alba</i> | 4 | 4 | 674 | 19 | 2.8 | 10.1 (21) | Very poor |
| Sharp-tailed Sandpiper <i>C. acuminata</i> | 0 | 8 | 116 | 21 | 18.1 | 10.7 (31) | Good |

All birds cannon-netted in period 15 November to 25 March except Sharp-tailed Sandpiper and Curlew Sandpiper to end February only and some Ruddy Turnstone and Sanderling to early April.

* Does not include the 2012/2013 figures

Table 2. Percentage of juvenile/first year waders in cannon-net catches in north-west Australia in 2012/2013

| Species | No. of catches | | Total caught | Juv/1st year | | Assessment of 2012 breeding success |
|---|----------------|-------------|--------------|--------------|------|--|
| | Large (>50) | Small (<50) | | No. | % | |
| Great Knot <i>Calidris tenuirostris</i> | 6 | 4 | 899 | 59 | 6.6 | Poor |
| Bar-tailed Godwit <i>Limosa lapponica</i> | 2 | 6 | 184 | 14 | 7.6 | Below average |
| Red-necked Stint <i>C. ruficollis</i> | 3 | 5 | 583 | 86 | 14.8 | Below average |
| Red Knot <i>C. canutus</i> | 1 | 8 | 130 | 2 | 1.5 | Very poor |
| Curlew Sandpiper <i>C. ferruginea</i> | 0 | 7 | 108 | 2 | 1.9 | Very poor |
| Ruddy Turnstone <i>Arenaria interpres</i> | 0 | 8 | 24 | 0 | 0 | Very poor |
| Sanderling <i>C. alba</i> | 0 | 4 | 31 | 1 | 3.2 | Very poor |

Non-arctic northern migrants

| | | | | | | |
|---|---|---|-----|-----|------|---------|
| Greater Sand Plover <i>Charadrius leschenaultii</i> | 4 | 7 | 393 | 111 | 28.2 | Good |
| Terek Sandpiper <i>Xenus cinereus</i> | 1 | 7 | 187 | 23 | 12.3 | Average |
| Grey-tailed Tattler <i>Heteroscelus brevipes</i> | 3 | 6 | 584 | 104 | 17.8 | Average |
| Broad-billed Sandpiper <i>Limicola falcinellus</i> | 0 | 2 | 22 | 4 | 18.4 | Average |

All birds cannon-netted in period 1 November to mid-March

Table 3. Percentage of first year birds in wader catches in south-east Australia 1998/1999 to 2012/13

| Species | 98/99 | 99/00 | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | 05/06 | 06/07 | 07/08 | 08/09 | 09/10 | 10/11 | 11/12 | 12/13 | Average (14yrs) |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| Ruddy Turnstone | 6.2 | 29 | 10 | 9.3 | 17 | 6.7 | 12 | 28 | 1.3 | 19 | 0.7 | 19 | 26 | 10 | 24 | 13.9 |
| <i>Arenaria interpres</i> | | | | | | | | | | | | | | | | |
| Red-necked Stint | 32 | 23 | 13 | 35 | 13 | 23 | 10 | 7.4 | 14 | 10 | 15 | 12 | 20 | 16 | 21.8 | 17.1 |
| <i>Calidris ruficollis</i> | | | | | | | | | | | | | | | | |
| Curlew Sandpiper | 4.1 | 20 | 6.8 | 27 | 15 | 15 | 22 | 27 | 4.9 | 33 | 10 | 27 | (-) | 4 | 3.3 | 16.6 |
| <i>C. ferruginea</i> | | | | | | | | | | | | | | | | |
| Sharp-tailed Sandpiper | 11 | 10 | 16 | 7.9 | 20 | 39 | 42 | 27 | 12 | 20 | 3.6 | 32 | (-) | 5 | 18.1 | 18.8 |
| <i>C. acuminata</i> | | | | | | | | | | | | | | | | |
| Sanderling <i>C. alba</i> | 10 | 13 | 2.9 | 10 | 43 | 2.7 | 16 | 62 | 0.5 | 14 | 2.9 | 19 | 21 | 2 | 2.8 | 15.6 |
| Red Knot <i>C. canutus</i> | (2.8) | 38 | 52 | 69 | (92) | (86) | 29 | 73 | 58 | (75) | (-) | (-) | 78 | 68 | (-) | 58.1 |
| Bar-tailed Godwit | 41 | 19 | 3.6 | 1.4 | 16 | 2.3 | 38 | 40 | 26 | 56 | 29 | 31 | 10 | 18 | 19.5 | 23.5 |
| <i>Limosa lapponica</i> | | | | | | | | | | | | | | | | |

All birds cannon-netted between 15 November and 25 March, except Sharp-tailed Sandpiper and Curlew Sandpiper to end February only and some Ruddy Turnstone and Sanderling to early April. Averages (for previous 14years) exclude figures in brackets (small samples) and exclude 2012/13 figures

Table 4. Percentage of first year birds in wader catches in north-west Australia 1998/1999 to 2012/2013

| Species | 98/99 | 99/00 | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | 05/06 | 06/07 | 07/08 | 08/09 | 09/10 | 10/11 | 11/12 | 12/13 | Average (14yrs) |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| Red-necked Stint <i>Calidris ruficollis</i> | 26 | 46 | 15 | 17 | 41 | 10 | 13 | 20 | 21 | 20 | 10 | 17 | 18 | 24 | 14.8 | 21.2 |
| Curlew Sandpiper <i>C. ferruginea</i> | 9.3 | 22 | 11 | 19 | 15 | 7.4 | 21 | 37 | 11 | 29 | 10 | 35 | 24 | 1 | 1.9 | 18.1 |
| Great Knot <i>C. tenuirostris</i> | 2.4 | 4.8 | 18 | 5.2 | 17 | 16 | 3.2 | 12 | 9.2 | 12 | 6 | 41 | 24 | 6 | 6.6 | 12.6 |
| Red Knot <i>C. canutus</i> | 3.3 | 14 | 9.6 | 5.4 | 32 | 3.2 | (12) | 57 | 11 | 23 | 12 | 52 | 16 | 8 | 1.5 | 18.9 |
| Bar-tailed Godwit <i>Limosa lapponica</i> | 2.0 | 10 | 4.8 | 15 | 13 | 9.0 | 6.7 | 11 | 8.5 | 8 | 4 | 28 | 21 | 8 | 7.6 | 10.6 |
| Non-arctic northern migrants | | | | | | | | | | | | | | | | |
| Greater Sand Plover <i>Charadrius leschenaultii</i> | 25 | 33 | 22 | 13 | 32 | 24 | 21 | 9.5 | 21 | 27 | 27 | 35 | 17 | 19 | 28.2 | 23.3 |
| Terek Sandpiper <i>Xenus cinereus</i> | 12 | (0) | 8.5 | 12 | 11 | 19 | 14 | 13 | 11 | 13 | 15 | 19 | 25 | 5 | 12.3 | 13.7 |
| Grey-tailed Tattler <i>Heteroscelus brevipes</i> | 26 | (44) | 17 | 17 | 9.0 | 14 | 11 | 15 | 28 | 25 | 38 | 24 | 31 | 20 | 17.8 | 21.2 |

All birds cannon netted in the period 1 November to mid-March. Averages (for pervious 14 years) exclude figures in brackets (small samples) and exclude 2012/13 figures.

The Role of the VWSG in the Flyway

Ken Gosbell

International Liaison Officer, AWSG

The Mission Statement of the VWSG states, inter alia, *that the scientifically collected information is intended to form a factual base for conservation considerations.....and to be a major contribution to the East Asian-Australasian Flyway.....* Most members are aware of our contribution that our data makes to scientific publications, albeit, all too few in number compared with the data that has been generated and held in our databases. However, we have a much wider influence than some may realise. Having just returned from participating in a Flyway Partnership meeting in Alaska, which I attended on behalf of the Australasian Wader Studies Group (AWSG), I thought it may be valuable to outline some of the ways in which the VWSG has contributed to the work of this forum.

The East Asian-Australasian Flyway Partnership (EAAFP) was initiated in 2006 with the aim of protecting waterbirds, their habitat and the livelihoods of people dependent upon them. There are currently 30 Partners including governments from 15 countries, 4 inter-government agencies, 10 international NGO's (of which AWSG is one) and 1 corporate enterprise. The purpose of the Partnership is to provide a flyway-wide framework to promote dialogue, cooperation and collaboration between all levels of governments, site managers, non- government organisations, UN agencies etc. to conserve migratory waterbirds and their habitat in the EAAF. Some of the mechanisms used include:

- i) Developing a flyway site network of important sites for migratory birds,
- ii) Improving community education and public awareness of the values of migratory birds,
- iii) Enhancing flyway research and promoting exchange of information,
- iv) Building skills in habitat and waterbird management among local stakeholders throughout the flyway,
- v) Develop flyway wide conservation measures for priority habitats and species.

In my opinion this organisation is one of the few means whereby NGO's can collaborate as equal partners with the key governments and decision makers in our flyway. While progress is often slow for many reasons, the trust and understanding which has built up between partners is essential to achieving some of the bigger goals of addressing the rapid decline in waterbird populations throughout the EAAF. In order to ensure that conservation decisions are based on the best available science, it is important to know what information is required and in which form and timeframes. In order to address these issues a 'Science workshop' was held as part of the recent Partnership meeting. Some of the key questions demanding answers included, but not limited to,

- i) how are numbers of waterbirds in the EAAF changing over time?
- ii) how do waterbirds respond to habitat loss?
- iii) what are the migration routes and key stopover sites for **all** species?
- iv) what makes a site important for a species?
- v) population viability analysis for endangered populations in the Flyway.

You will immediately recognise how the data gathered by the VWSG can feed into many of these questions.

These can be summarised as;

- (i) Population monitoring. Many in the VWSG contribute to the Shorebirds 2020 program of counting. These counts are critical to identifying important shorebird areas and population trends at sites and regions. Declines such as we are seeing in almost all

- migratory species in Australia can be due to local factors or problems in the flyway, particularly at major stopover areas.
- (ii) Migration. Knowledge of migration routes and stopovers (location and timing) is essential to understanding the bottlenecks and critical regions such as the Yellow Sea. The work of VWSG over 35 years of banding and leg flagging, particularly since the introduction of ELF's, has contributed in a major way to this understanding. Our geolocator program, which has been one of the leaders in the shorebird world, has greatly increased the knowledge of migration strategies for certain species
 - (iii) Demographics. Through our program of establishing the proportion of juveniles in a catch we get an indication of breeding success; similarly through the ELF program and recording subsequent sightings and through retraps of previously banded birds, an indication of survival rates can be obtained. These are important parameters in understanding the critical changes that are taking place in most of our migratory species.

What use is made of this data you may ask? Apart from being the basis for many published scientific papers, the data is used for other purposes. For instance all of the population count data is summarised for Australia and provided to the Asian Waterbird Census (AWC) coordinated by Wetlands International and which is published as Waterbird Population Estimates (WPE) and updated every 4 years. Within the Partnership this data is used to identify and prioritise the most important shorebird sites in the flyway relative to each species. This then enables recommendations for the nomination of Flyway Network Sites, a fundamental feature of the Partnership; the south eastern States of Australia already have 8 Network sites (see Footnote). It was encouraging to see Roebuck Bay and 80 Mile Beach added as FNS's at the recent meeting taking the total number of Network sites in the Flyway to 113. In addition the Partnership has established a Yellow Sea Task Force which utilises data for establishing major stopover sites for northward and southward migration. This is supplemented by more detailed studies such as those at Bohai Bay by Chris Hassell and the Global Flyways Network team.

With many of our shorebirds in this flyway declining at alarming rates and tidal flats of the Yellow Sea disappearing to industrialisation at the rate of more than 500 sq. km per year, what else can VWSG do? Here are a few suggestions;

- i) Maintain the long term programs of banding, leg flagging, counting and geolocators.
- ii) Write up more of our data and publish in recognised journals.
- iii) Be informed of the situation in the flyway in regard to areas of concern, endangered species and habitat degradation. Help in publicising these issues more widely in the community.
- iv) Consider participating in field work, training, and specialist studies in the flyway. Already there are fledgling NGO's in China which would welcome assistance.
- v) Encourage governments, including the Australian government, to take more active interest in the flyway and support strategies for conservation.

Without these and similar actions in the flyway and globally we are likely to witness exponential declines in the migrant shorebirds that we, the VWSG, value so much in Victoria, Tasmania and South Australia. I am always willing to discuss any of these issues.

Footnote: Existing Flyway Network Sites in south eastern Australia include Corner Inlet, Port Phillip Bay (Western shoreline) and Bellarine Peninsula, Western Port, Shallow Inlet Marine and Coastal Park, Discovery Bay in Victoria, The Coorong, Lake Alexandrina and Lake Albert in SA and Orielton and Logan Lagoon in Tasmania.

New insights from geolocators deployed on waders in Australia

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Keywords: Ruddy Turnstone, *Arenaria interpres*, Greater Sand Plover, *Charadrius leschenaultii*, Eastern Curlew, *Numenius madagascariensis*, Sanderling, *Calidris alba*, Australia, geocator, migration route, migration speed

Geolocators were deployed on waders in Australia for a third successive year, in Feb/Apr 2011 including on Eastern Curlew and Sanderling for the first time. Retrieval rates, in the 2011/12 austral summer, varied markedly between species. Technical performance of the geolocators was better than in previous years. However units on Greater Sand Plovers, migrating to breeding grounds in the Gobi Desert, China/Mongolia, again behaved erratically, and exhibited symptoms suggesting extraneous electromagnetic interference.

Generally, for each species studied, the results confirm earlier indications that the first step of northward migration from Australia is a long non-stop flight. Subsequent movements to breeding areas are usually shorter with up to three stopovers in SE Asia or Siberia. Similarly southward migration strategies include at least one long nonstop flight, though this is usually the second (or later) leg of the journey.

The timing of migration appears to be particularly related to breeding latitude. Eastern Curlews, which breed at relatively southern latitudes, depart from SE Australia from early March, reach the breeding grounds and lay eggs in April, set off on return migration in early June and, after a long stopover in the Yellow Sea, arrive back in SE Australia in early August. In contrast arctic-breeding Ruddy Turnstones do not depart from SE Australia until mid/late April and do not arrive back at their non-breeding locations until October, with the last individuals (which have taken a trans-Pacific route) not returning until late November/early December.

Recorded migration speeds (assuming the birds take a great circle route) were quite variable, ranging from 32 to 84 km/h, presumably due to wind conditions. They generally averaged nearer to 50 km/h rather than the 60–70 km/h which waders are known to be capable of achieving and which has been the basis of some past flight range calculations.

INTRODUCTION

There has been an explosion in the use of light-level geolocators to track migratory waders ever since Stutchbury *et al.* (2009) first revealed their successful deployment on birds weighing as little as 50 g. This has been underpinned by good liaison between researchers employing this new technology on waders and by rapid publication of information on techniques as well as results. The *Wader Study Group Bulletin* has led the way in this area (Clark *et al.* 2010, Conklin & Battley 2010, Johnson *et al.* 2011, 2012, Minton *et al.* 2010, 2011a, Niles *et al.* 2010, 2012). Only recently has it been realized that geolocators can also generate valuable ancillary data on nesting activities (Burger *et al.* 2012, Gosbell *et al.* 2012).

Geolocators were again applied in 2011 to Ruddy Turnstones *Arenaria interpres* in SE Australia and to Greater Sand Plovers *Charadrius leschenaultii* in NW Australia to add to information gained in previous years. Eastern Curlew *Numenius madagascariensis* and Sanderling *Calidris alba* were added to the portfolio of species studied in SE Australia. Eastern Curlews were studied with satellite transmitters in 1998, but the results were considered to have been affected by the large size of the units (Driscoll & Ueta 2002). With migratory data accumulating only slowly on this species from recoveries and flag sightings (Minton *et al.* 2011b), enhancement of knowledge via geolocators was considered desirable and potentially practical despite the fact that Eastern Curlews are difficult to catch. Sanderling has been a priority study species of the Victorian Wader Study Group (VWSG) for some years (Gosbell & Minton 2001) and has a reasonably high recapture rate in spite of considerable non-breeding area mobility. At a 53 g average fat-free weight, they were considered capable of carrying the 1 g geocator/flag unit.

This paper reports on results gained and methodological developments in year three of geocator deployments on waders in Australia by the Victorian Wader Study Group in SE Australia and by the

Australasian Wader Studies Group in NW Australia. Geolocators were deployed in Feb/Apr 2011, before the beginning of each species' northward migration. Retrieval took place between Oct 2011 and Apr 2012, after the birds had completed a return migration to their Northern Hemisphere breeding grounds.

METHODS

The geolocators deployed in Feb/Apr 2011 were mainly British Antarctic Survey (BAS) Mk10 units, as used in previous years, plus some experimental test units deployed at the request of manufacturers. Attachment to birds was again via a leg flag on the tibia, with only the size of the flag varying to suit the species. A flag colour different to the standard local colour was used to aid recognition of geolocator-carrying birds in the field (which is especially valuable when trying to recapture them).

Downloading of data from retrieved geolocators was accomplished with the aid of software programs provided by the manufacturers. On units where this was not possible (usually because the internal batteries had run out), units were sent back to the manufacturers for downloading. Migratory movements were subsequently plotted on Google Earth maps.

Calculation of migration speed on the longer legs of journeys was aided by the use of the geolocators' conductivity recorders which effectively provide a record of whether the bird is in contact with sea water every 10 minutes. In this way we were able to determine migration departure and arrival times more precisely. As in Minton et al. (2011a), we define migration speed as the average speed achieved by a migrant wader between one stopover and the next, assuming it travelled along the great circle route.

RESULTS

Geolocator retrieval

Geolocators were deployed and later retrieved in SE Australia on Ruddy Turnstones, for the third successive year, and on Eastern Curlews and Sanderlings, for the first time. In NW Australia they were used on Greater Sand Plovers for the second time (Table 1). Retrieval figures exclude one unit which was lost from its flag mount on a Ruddy Turnstone. One Greater Sand Plover was also found to have lost its flag and the attached geolocator. All other units retrieved were in good condition with negligible deterioration of the mount and Kevlar thread attachment and with no visible adverse effects on the birds' legs.

Table 1. Numbers of geolocators deployed/retrieved on Ruddy Turnstones, Greater Sand Plovers, Eastern Curlews and Sanderlings in SE Australia during 2011–2012. All geolocators were British Antarctic Survey (BAS) Mk10 unless otherwise indicated.

| Species | Location of deployment and retrieval | Geolocators deployed during Feb–Apr 2011 | Geolocators retrieved Oct 2011 to Apr 2012 | Number (%) successfully downloaded | Number seen during migration | Number seen at origin after migration |
|---------------------|--------------------------------------|--|--|------------------------------------|------------------------------|---------------------------------------|
| Ruddy Turnstone | Port MacDonnell, South Australia | 19 | 3 ^a | 2 (100%) | 1 | 8 |
| | King Island, Tasmania | 22 | 11 | 10 (91%) | 2 | — |
| | Flinders/Barwon Heads, Victoria | 5 | 1 | 1 (100%) | 1 | 3 ^d |
| Greater Sand Plover | Broome, Western Australia | 30 ^b | 7 (23%) | 6 (86%) ^c | 4 | 21 |
| Eastern Curlew | Inverloch, Victoria | 23 | 3 (13%) | 3 (100%) | 0 | 13 |
| Sanderling | Canunda N.P., South Australia | 24 | 1(4%) | 1 (100%) | 4 | 3+ |
| Totals (%) | | 123 | 26 (21%) | 23 (88%) | | |

Much greater difficulties were encountered in recapturing Eastern Curlews and Sanderlings carrying geolocators than Ruddy Turnstones and Greater Sand Plovers. Five visits were made to Andersons Inlet, Inverloch, Victoria, to recapture Eastern Curlews and only one catch was made; fortunately the seven birds caught included three carrying geolocators. Mostly the problem was that the birds roosted at high tide on flat saltmarshes where they could not be cannon-netted, but the extreme wariness of this species also contributed to the difficulty. At least 13 individuals carrying geolocators were seen in

the field and as Eastern Curlew is a long lived species it is hoped that more geolocators can be retrieved in future years.

Three Sanderlings carrying geolocators were present in Nov 2011 among a flock of 400 at the original deployment site at Canunda National Park, South Australia. Unfortunately only one of them was caught in two catches totalling 308. This flock normally congregates at a different, more catchable site, 30 km away, in Feb/Mar each year. However, for the second consecutive year, this did not happen in Mar 2012; so no further retrieval attempts could be made.

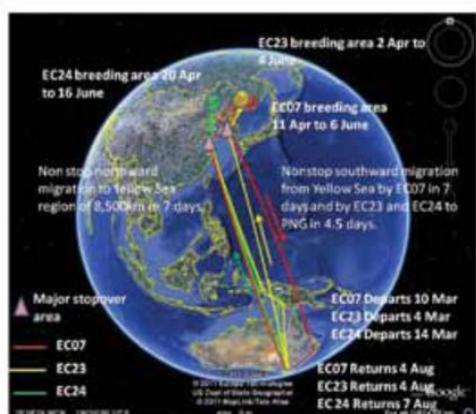


Fig. 1. Migration tracks of three Eastern Curlews as shown by geolocators deployed and retrieved at Inverloch, Victoria, Australia in 2011. Flag codes (EC07, EC23 & EC24) identify the individual birds.

Eastern Curlew

The three Eastern Curlews departed from their non-breeding area at Inverloch on the coast of Victoria, Australia, during 4–14 Mar and all flew 8,500 km nonstop to the western shores of the Yellow Sea taking 7–8 days (Table 2, Fig. 1). After a 22–30 day stopover in the Yellow Sea, each bird made a short movement (<1 day) to breeding grounds in the vicinity of the Amur River in NE China where they arrived between 2 and 20 Apr. All three bred or attempted to breed (Gosbell *et al.* 2012). They departed during 4–16 Jun and again stopped in the Yellow Sea where they spent 41–55 days. Returning to Australia, they arrived back at Inverloch on 4 and 7 Aug, but returned much more quickly in just five and seven days respectively, despite the fact that they both made a brief, 1–2 day stop en route in West New Guinea and the Gulf of Carpentaria (Queensland) respectively. The average duration of southward migration was 57 days, 73% longer than northward migration (33 days).

one bird (EC07) took three weeks, flying first 6,900 km to Queensland and then moving back to Inverloch in several short hops, arriving on 4 Aug. The other two, EC23 and EC24, arrived back at Inverloch on 4 and 7 Aug, but returned much more quickly in just five and seven days respectively, despite the fact that they both made a brief, 1–2 day stop en route in West New Guinea and the Gulf of Carpentaria (Queensland) respectively. The average duration of southward migration was 57 days, 73% longer than northward migration (33 days).

Table 2. Migration data retrieved from geolocators deployed on three Eastern Curlews at Inverloch, Victoria, Australia on 10 Feb 2011 and retrieved on 12 Oct 2011. Migration distances/speeds are for long individual segments of the migration; not for the whole migration.

| | Flag code 07 | Flag code 23 | Flag code 24 |
|--|--------------|--------------|--------------|
| Date of departure from Inverloch, Victoria, Australia | 10 Mar | 4 Mar | 14 Mar |
| Date of arrival in Yellow Sea | 18 Mar | 11 Mar | 21 Mar |
| Distance (km) | 8,900 | 8,500 | 8,500 |
| Date of arrival in breeding area | 11 Apr | 2 Apr | 20 Apr |
| Duration of northward migration (days) | 32 | 29 | 37 |
| Date of departure from breeding area | 6 Jun | 4 Jun | 16 Jun |
| Date of departure from Yellow Sea | 14 Jul | 30 Jul | 31 Jul |
| Duration of stopover in Yellow Sea (days) | 41 | 55 | 46 |
| Date of arrival back at Inverloch, Victoria, Australia | 4 Aug | 4 Aug | 7 Aug |
| Duration of southward migration (days) | 59 | 61 | 52 |

Sanderling

The route and migration strategy of the single Sanderling was rather different to that of the other species on which geolocator studies have been carried out in Australia, with more stopovers and a less direct route (Fig. 2). Migration from the non-breeding area in SE South Australia commenced on 25 Apr when the bird initially moved west, and may even have stopped for a day near Esperance on the south coast of Western Australia, before moving quickly north to reach its first major stopover in S Vietnam on 1 May. It then made two stops on the Chinese coast, including one in the Chinese part of the Yellow Sea, before making a final stopover on Sakhalin Island in E Siberia.

After nesting in the Siberian arctic (with evidence of incubation during 3–22 Jul), the bird was first recorded commencing its southward migration on 1 Aug. It made a stopover on the E Siberian coast near Sakhalin during the first half of August and then moved to the W Yellow Sea for the second half of August. It appears to have stopped in Borneo and on the S China coast, but because geolocators do not provide an accurate estimate of latitude around the equinox there is some doubt about the track

and timing of the remainder of its southward migration. However, on 2 Oct it arrived back at the original banding location in Canunda National Park, South Australia, where it was seen the following day (recognized by its leg flag).

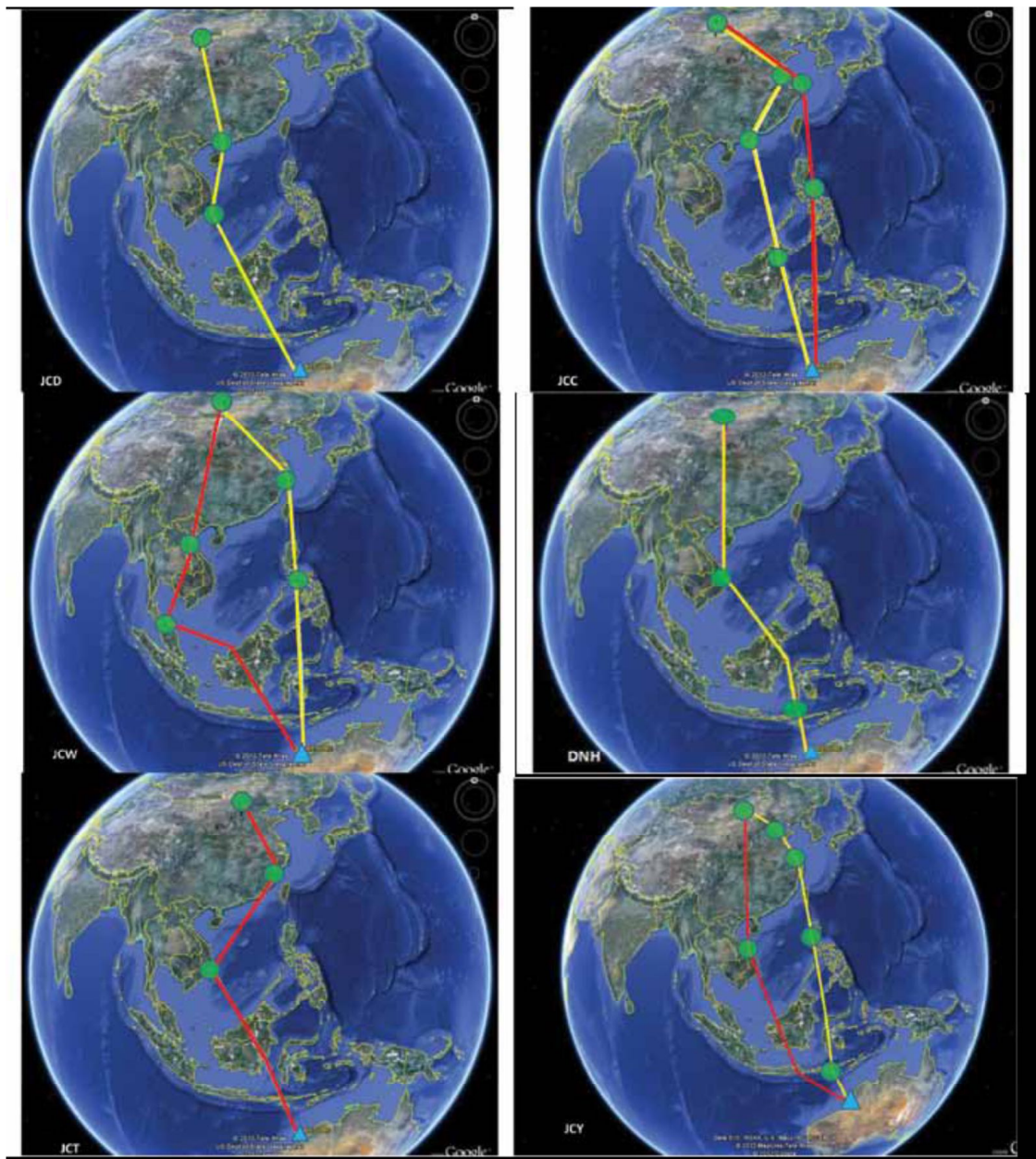


Fig. 2. Migration tracks of six Greater Sand Plovers in 2011 as shown by geolocators deployed and retrieved at Broome, NW Australia. Northward tracks are shown in yellow, southward tracks in red. Note that for three birds only a single track is shown.

It is notable that more of the 24 Sanderlings carrying geolocators were seen during migration through Asia (4) than were eventually seen back at the original deployment location (3). Individually identifiable birds were seen in Taiwan on northward migration (21 May) and in Korea (21 Aug) and in Japan (two different locations, 19 and 23 Aug) on southward migration. None of these sightings relate to the bird that was subsequently recaptured.

Greater Sand Plover

The data obtained from the seven geolocators retrieved from Greater Sand Plovers in 2011/12 provided far more comprehensive information than the five retrieved the previous year (Minton *et al.* 2011a), but technical difficulties were still encountered. Two geolocators had failed only a few weeks after deployment; a third did so just after the bird arrived on its breeding grounds. Moreover time-clock shifts were encountered in three of the geolocators. Nevertheless valuable information was generated on the migration of Greater Sand Plovers (Fig. 2).

All but one of the birds departed from Broome in the first two weeks of April (Table 3). The median departure date was 5 Apr (range 3–19 Apr), which is significantly later than the five geolocator birds departed in 2010 (median 1 Apr, range 31 Mar to 6 Apr; Mann–Whitney test, $W = 59.0$, $p = 0.033$; Minton *et al.* 2011a). Six of the birds arrived on their breeding grounds in S Mongolia and N China during the eight days 19–27 May (Fig. 2). The seventh, DNH, had probably not reached its final destination when its geolocator failed on 26 Apr. The median duration of northward migration was 45 days (range 38–48 days), for a total great-circle distance covered of 7,500–8,000 km.

Table 3. Migration data retrieved from geolocators deployed on seven Greater Sand Plovers at Broome, NW Australia, in 2011.

| Flag code | Geolocator type | Date of departure from Broome | Date of arrival in breeding area | Duration of northward migration (days) | Date of southward departure | Period on breeding grounds (days) | Date of return to Broome | Duration of southward Migration (days) |
|-----------|-----------------|-------------------------------|----------------------------------|--|-----------------------------|-----------------------------------|--------------------------|--|
| JCT | Test unit | 5 Apr | 23 May | 48 | 5 Jul | 43 | 11 Aug | 37 |
| JCW | Test unit | 7 Apr | 24 May | 47 | 11 Jul | 48 | 2 Sep | 53 |
| JCC | BAS MK10B | 19 Apr | 27 May | 38 | 6 Jul | 40 | 8 Aug | 33 |
| JCY | Test unit | 13 Apr | 23/5 | 40 | 26 Jun | 34 | 8 Aug | 43 |
| JCD | BAS Mk10B | 4 Apr | 19 May | 45 | Geolocator failed on 20 May | | | |
| DNH | BAS Mk10B | 3 Apr | (26 Apr) | (23) | Geolocator failed on 26 Apr | | | |
| JCZ | Test unit | 3 Apr | | | Geolocator failed on 13 Apr | | | |

The four birds whose geolocators were still working spent 34–48 days (median 41.5 days) on the breeding grounds and departed on southward migration between 26 Jun and 11 Jul (median 5.5 Jul). Three of the four arrived back in Broome during 8–11 Aug; the fourth, JCT, returned much later, on 2 Sep. The median duration of southward migration was 40 days (range 33–43 days), which is similar to, and not significantly different from, the duration of northward migration (Mann–Whitney test, $W = 28.0$, $p = 0.540$). The five birds whose breeding locations could be determined with accuracy (JCT, JCW, JCC, JCY & JCD) bred across an area of SE Mongolia and central N China stretching about 900 km east–west and 500 km north–south mostly in the Gobi desert region (which spans both countries) (Fig. 3).

Two of the 2010 birds had arrived in the same region before their geolocators failed (CJR & CJZ), but the remaining birds (CKB, CKL & CJD in 2010 and DNH in 2011) were last recorded further south and may not have reached their breeding site when their geolocators failed.

No data were obtained on the southward migration of any Greater Sand Plovers in 2010 but in 2011 tracks were obtained for four birds (Fig. 2). Three made only a single, long stopover during their journey back to NW Australia (25, 27, 39 days), two in Vietnam and one on the S China coast, but the fourth bird made several much shorter flights, stopping in the Yellow Sea, Thailand/Cambodia, Sumatra and possibly also in Irian Jaya before arriving back in NW Australia on 2 Sep, three weeks later than the others.

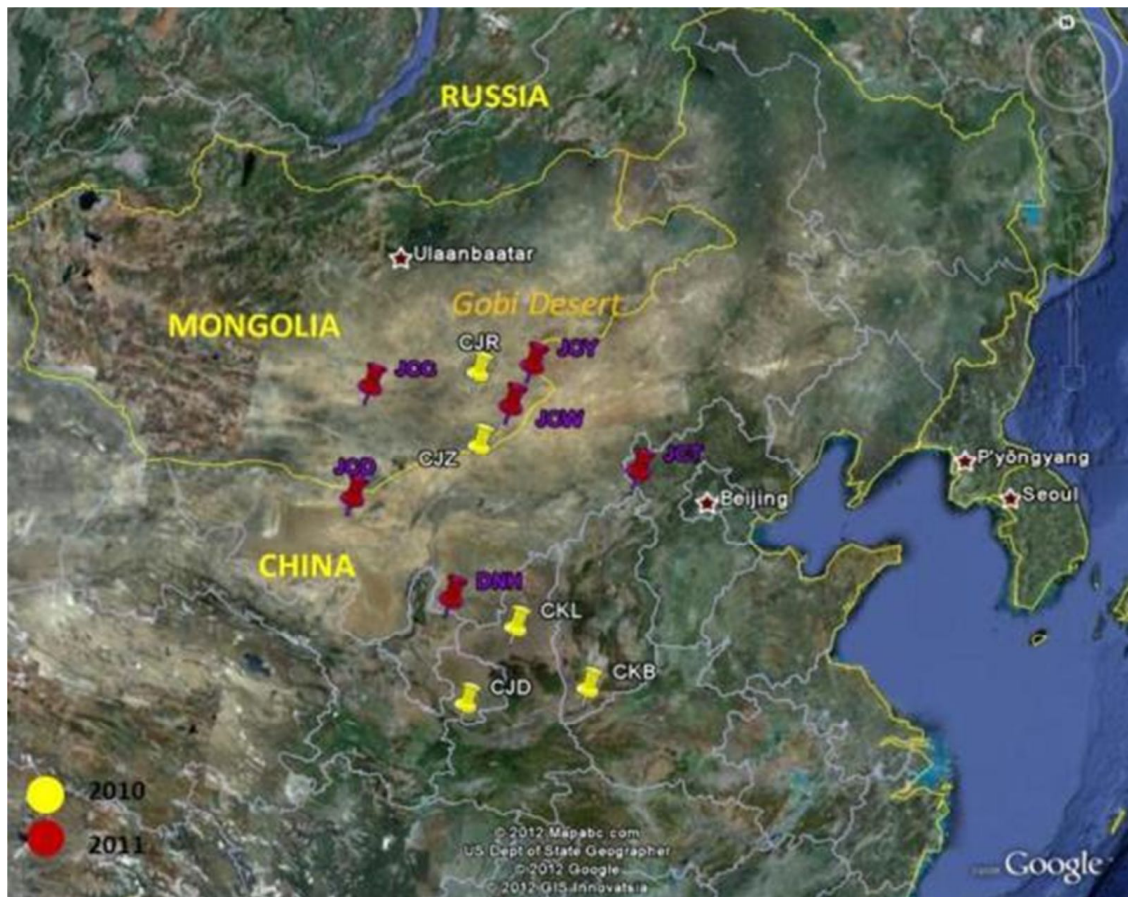


Fig. 3. Northern hemisphere destinations of Greater Sand Plovers in 2010 and 2011: the locations shown for birds JCT, JCW, JCC, JCY & JCD are certain breeding areas; the geolocators of the remaining birds failed prematurely so the locations shown might not be breeding areas.

Ruddy Turnstone

As in previous years, we had the greatest success in retrieving geolocators from Ruddy Turnstones, with 14 units recovered (Table 4). Data were successfully downloaded from all except one. However two had failed prematurely, one after only six weeks and the other during southward migration. The other 11 geolocators had full round trip migration tracks, except for one bird that did not migrate out of Australia. This is a much improved technical performance of the geolocators compared with the first two years of deployments on Ruddy Turnstones (Minton *et al.* 2010, 2011a).

Three of the units retrieved had been deployed in 2010. Two contained only the round trip migration to the northern hemisphere for that year but the third contained two years of migration data facilitating year to year comparison of migration routes, stopovers and timing. All birds departed from their non-breeding areas during 12–26 Apr.

The median departure date for the 11 birds from King Island was 21 Apr. Both birds from South Australia departed on 24 Apr, only 30 hours after the geolocators had been deployed. However, one of them returned to its departure site after only four days. During this time it went almost as far as Broome in NW Australia before turning back.

As in previous years, the majority of the Ruddy Turnstones started their northward migration by making a non-stop, 6–7 day flight of over 7,000 km. The first major stopovers were in Taiwan (3 birds), N Philippines (3), Vietnam (2) and Borneo (1). However two birds stopped for nine days in Broome, NW Australia and one bird spent five days in Sulawesi, before moving on to the Philippines (2) and Vietnam (1). Subsequent stopovers were on the south/central coast of China (4) and the Yellow Sea (8). From those areas, all birds continued to the Arctic and traversed some part of the Sea of Okhotsk. The birds entered the region of continuous daylight in the Arctic between 27 May and 7 June (median 1 Jun), but we cannot tell how much longer it took the birds to reach their breeding grounds. Therefore the minimum duration of northward migration ranged from 34 to 50 days (median 43 days, Table 4).

Table 4. Migration data retrieved from geolocators deployed on Ruddy Turnstones in SE Australia in 2011–2012.

| Flag code (sex) | Geocator type | Date of departure from Australia | Date of arrival in Arctic | Duration of northward migration (days) | Date of departure from Arctic | Period in Arctic (days) | Date of return to origin | Duration of southward migration (days) |
|-----------------|--------------------------------|----------------------------------|---|--|-------------------------------|-------------------------|--------------------------|--|
| | Deployed on King Island | | | | | | | |
| ZV (M) | Test unit | 19 Apr | 1 Jun | 43 | 29 Jul | 59 | 10 Oct | 73 |
| KT (F) | BAS Mk12a | 22 Apr | 1 Jun | 40 | 28 Jul | 57 | 12 Oct | 76 |
| KM (M) | BAS Mk18b | 14 Apr | 27 May | 43 | 23 Jul | 57 | 27 Sep | 67 |
| KM (M) | BAS Mk18c | 12Apr | 28 May | 46 | 23 Jul | 56 | 1 Oct | 70 |
| YD (F) | BAS Mk10 | 16 Apr | 2 Jun | 47 | 19 Jul | 47 | 13 Oct | 86 |
| WT (F) | BAS Mk10 | 26 Apr | 4 Jun | 39 | 30 Jul | 56 | 2 Oct | 64 |
| KU (M) | BAS Mk10 | 23 Apr | 29 May | 36 | 31Jul | 63 | 14 Oct | 77 |
| NJ (M) | Test unit | 26 Apr | Geocator failed on 23 May | | – | – | – | – |
| WA (F) | Test unit | 16 Apr | 2 Jun | 48 | 25 Jul | 51 | Geocator failed | |
| ZY (M) | Test unit | 23 Apr | 30 May | 37 | 29 Jul | 60 | 16 Oct | 79 |
| KN (M) | BAS Mk10 | 24 Apr | 3 Jun | 40 | 19 Aug | 77 | 18 Oct | 60 |
| NR (F) | Test unit | 20 Apr | 2 Jun | 43 | 24 Jul | 52 | Not clear | – |
| | Median | 21 Apr | 1 Jun | 42 | 28 Jul | 57 | 13 Oct | 76 |
| | Deployed in SE South Australia | | | | | | | |
| CJC (M) | BAS Mk10 | 24 Apr | 5 Jun | 44 | 23 Jul | 48 | 26/9 | 65 |
| ZJL (F) | BAS Mk10 | 24 Apr | Bird did not leave Australia, returned to origin after 4 days | | | | (28 Apr) | |
| | Deployed at Flinders, Victoria | | | | | | | |
| CMT (F) | BAS Mk12a | 25 Apr | 29 May | 34 | 16 Aug | 79 | 3 Dec | 109 |

a Deployed in April 2010. Data for 2010 migration only

b Data for 2010 migration

c Data for 2011 migration

Most birds re-entered the zone of night-time darkness during 19–30 Jul, although two were much later, 16 and 19 Aug. These last two birds had hatched eggs successfully from second clutches after the failure of their first clutch (Gosbell *et al.* 2012), and spent 79 and 77 days respectively in the Arctic compared with a median of 56 days for the other ten birds.

During southward migration, every bird made a stopover in the Yellow Sea (China 11, Korea 1) where most arrival dates were between 21 Jul and 12 Aug (one on 25 Aug). The duration of this stopover varied widely, from 4 to 31 days, with over half (7) stopping for 15–25 days. Most birds made at least two further stops, with the S China coast, Indonesia and NW Australia being the most frequently used locations. Equinox effects on geo-location meant that precise information could not be obtained during the second half of September.

Most birds arrived back on their non-breeding areas in the first two weeks of October (earliest 26 Sep). The bird that was the last to commence its southward migration (KN) returned only slightly later than the rest (18 Oct). However the other late starter (CMT) returned very slowly, not leaving the Yellow Sea until 25 Sep; then spending a month (8 Oct to 10 Nov) in NW Australia near Broome; and finally stopping off for 11 days in the Lincoln Peninsula in South Australia. It did not return to its non-breeding area at Flinders until 3 Dec after a 109-day southward migration.

This compares with a median of 73 days for all other birds. As with most waders this is much longer than northward migration (median 43 days). It is not clear whether the slow return of CMT was normal for this individual or whether it was a consequence of its late departure from the breeding grounds. The round trip migration for all Ruddy Turnstones averaged 171 days – about 5 ½ months. Thus this species spends only slightly more than half of each year on its non-breeding areas in Australia, and less than two months on its arctic breeding grounds. The bird for which two years' data were available (KM) showed close synchrony of both timing and route between the two cycles of migration (Table 4). The start and finish of migrations varied by only 2–3 days, and even the stopovers in the Yellow Sea on southward migration were similar (27 Jul to 13 Aug in 2010, 25 Jul to 16 Aug in 2011). The Philippines

and Taiwan were visited on northward migration and Java on southward migration in both years. Two years of migration data, obtained from different geolocators in each year, were also available for KU. Timing and, especially, the northward and southward migration routes were very similar in both 2010 and 2011. The Ruddy Turnstone (9Y/CMY), which used a route across the Pacific for its southward journey in both 2009 and 2010 (Minton *et al* 2011a), also showed closely similar migration strategies in both years. Most geolocators removed from Ruddy Turnstone are now replaced with a new unit, so hopefully further data will be collected in the future to compare migrations in different years.

Migration speed

Migration speeds were calculated for the longer legs of those migratory journeys for which departure and arrival times could be determined with reasonable accuracy, usually with the aid of the conductivity output from the geolocators (Table 5). Speeds varied considerably, especially in the Eastern Curlews (41–84 km/h), but just over half the flights for all four species combined (14/27) fell within the rather narrow range of 44–52 km/h. For the two species with the largest samples, Eastern Curlew and Ruddy Turnstone, there was no significant between-species difference in median migration speed (Eastern Curlew: median 50.5 km/h, $n = 8$; Ruddy Turnstone: median 48 km/h, $n = 12$; Mann–Whitney test: $W = 112.5$, $p = 0.314$). However, for Ruddy Turnstone, median northward migration speed (51.5 km/h, $n = 6$) was significantly greater than that of southward migration (44 km/h, $n = 6$; Mann–Whitney test, $W = 54.0$, $p = 0.019$).

DISCUSSION

Geocator retrieval and performance

Of the 123 geolocators deployed in Feb–Apr 2011, 26 were retrieved in the 2011/12 non-breeding season after the birds had made a return migration to their breeding grounds in the Northern Hemisphere (Table 1). Retrieval rates varied between species ranging from 33% for Ruddy Turnstones to only 4% for Sanderlings. This variation was mainly the result of two factors which significantly influenced retrieval – site faithfulness and catchability. Ruddy Turnstones, Greater Sand Plovers and Eastern Curlews all have a strong tendency to return to the same non-breeding area in Australia each year (VWSG data). Geocator retrieval from them is therefore potentially higher than for Sanderlings which are much less site faithful and can sometimes be found at locations several hundred kilometres from where they were originally marked (VWSG data). The ease of catching birds also varies between species with Eastern Curlew being particularly wary and often roosting in locations, such as flat saltmarshes, where cannon-netting is difficult or impossible.

Before embarking on a geocator program for a particular species, we have made calculations based on previous retrap data to estimate the likely chance of retrieving geolocators. In most cases we have assumed that normal retrap rates could be enhanced by targeted catching. We have considered that if a retrieval rate of 20% could be achieved, it would provide a satisfactory return on our investment of time and money as it should generate adequate data to determine the migration strategy of a population. For Ruddy Turnstones and Greater Sand Plovers, a 20% retrieval rate has been consistently achieved each year. Because Eastern Curlews are particularly long-lived (with an estimated annual survival rate of c.90%, VWSG unpubl. data), it is hoped that further catches of birds with geolocators in future years will bring the proportion retrieved (13% in 2011/12) up to a satisfactory level. Sanderling however may prove to be an unrewarding species for geocator studies. With a further 44 geolocators deployed on Sanderlings in 2012, retrieval potential should become clearer over the next year.

The technical performance of geolocators retrieved during the last year has been much better than in previous years, even taking into account that the 2010/11 figures were strongly influenced by the 30 Swiss Ornithological Institute units which all failed (Minton *et al* 2011a). An average of 92% of the units retrieved provided useful migration data and this is considered acceptable. Most of the units deployed were BAS Mk10 geolocators but there were also some test units which were deployed on birds at the request of manufacturers. The performance of the two groups was similar (Tables 3 & 4).

Data on the return rates of Greater Sand Plovers carrying geolocators and comparative information on birds carrying only an engraved leg flag were collected in 2011/12 as they were the previous year (Minton *et al* 2011a). The approachability of this species combined with the intensity of scanning for leg flags in Roebuck Bay, Broome, and means that a high proportion of surviving/returning birds are recorded. Of the 30 Greater Sand Plovers fitted with geolocators in March 2011, 21 (70%) were seen there after completing their return migration to their northern hemisphere breeding areas. Of the 211 other Greater Sand Plovers caught at the same time, 103 (49%) were seen after their return. The corresponding figures in 2010/11 were 69% and 63%. The higher resighting rate of geocator-carrying

birds can be attributed to the fact that they are more easily detected as they carry two flags instead of one, and one is a contrasting colour (orange), making it more visible. These data suggest that the deployment of geolocators on Greater Sand Plovers does not have any negative effect on their survival rate.

Eastern Curlew

The migration routes shown by the geocator output for our three Eastern Curlews, their stopover and breeding locations, and the timing of the migratory movements (Fig. 4) are generally consistent with previous, relatively sparse, information on the species' migration as shown by band recoveries and leg-flag sightings (Minton *et al.* 2011b). The only difference is that none of them stopped over in S Japan or the Korean coast of the Yellow Sea. Also, most previous records of birds on the breeding grounds have been in SE Siberia, rather than NE China, but they were all in the region of the Amur River which flows through both countries.

Sanderling

The fact that our Sanderling stopped on or close to Sakhalin Island on both northward and southward migration is consistent with many previous reports of flagged/banded Sanderling from Sakhalin which seems to be used by a large proportion of Sanderling from Australia on both migrations (Minton *et al.* 2011c).

It seems that our bird made at least five stopovers on both its northward and southward migration, whereas most other species on which we have data appear to stop only 2–4 times (Minton *et al.* 2010, 2011a). Possibly the reason is that suitable habitat for Sanderlings (mainly sandy beaches) is more widespread than that of the other species so there are many more places in the flyway at which they can stop. It is perhaps notable that our bird did not visit Japan where there have been many Sanderling flag sightings and recoveries in the past, particularly on southward migration (Minton *et al.* 2011c).

The northward track of our Sanderling seems to have departed quite markedly from the most direct, great-circle route, with a strong westward detour (Fig. 4). It will be interesting to see whether the migration strategy of other Sanderlings from which we hope to retrieve geolocators in the future is similar.

Greater Sand Plover

It is notable that the duration of northward and southward migration was similar in our Greater Sand Plovers (Table 3). This is quite different from all other species studied so far using geolocators in which southward migration has invariably been longer than northward migration (Minton *et al.* 2011a, Niles *et al.* 2010).

The northward migration routes taken by our birds were more to the northwest compared with those used by most other waders from NW Australia (Minton *et al.* 2011c). After an initial long (3–4 day) flight from NW Australia, the journeys were completed with shorter flights, and all did a total of three stopovers. Only one bird stopped in the Yellow Sea but another tracked over its western edge without stopping. As in 2010 (Minton *et al.* 2011a), Vietnam was a particular favoured stopover location.

The relatively poor technical performance of the geolocators used on Greater Sand Plovers is puzzling. It has now occurred on three different geocator models and in both 2010 and 2011. The technical problems only appear to arise when the birds reach N China on their northward migration. In 2010, all five geocator units ceased operating at this time (Minton *et al.* 2011a), but in 2011 only one of five did so. However, three of the other four were affected by major shifts in their clock timing.

Laboratory tests carried out by JF at the British Antarctic Survey in 2010 suggested that the operation of the geolocators was not affected by low temperatures (down to -10°C) which the birds may have experienced during their migratory flights at altitude or on arrival in their breeding areas. Similarly high temperatures (up to 50°C), which the birds could have experienced on the beaches of Broome, NW Australia, did not appear to affect the performance of the geolocators.

The geocator failures and clock shifts are indicative of electromagnetic interference. Possibly they were caused by powerful radar or radio signals in N China. Whilst there is no proof of this, it would appear significant that the problems encountered occurred in two different years and on different geocator models. It is also of note that satellite transmitters on Amur Falcons *Falco amurensis* also experienced unspecified technical problems when the birds reached the N China/ Mongolia region (B. Meyburg, *in litt.*).

Ruddy Turnstone

We have no clear explanation for why one Ruddy Turnstone from South Australia (ZJL) departed on northward migration, but only got as far as NW Australia before returning to its starting location. Possibly the fact that it was caught only 30 hours before it departed affected it in some way. We know of no similar instance.

The northward migration patterns of our 13 Ruddy Turnstones are similar to those recorded in the previous two years (Minton *et al.* 2010, 2011a) and confirm that the majority of birds from SE Australia stopover in the NW Yellow Sea. This strong dependence on the Yellow Sea as the last major refuelling stop before the flight to the breeding grounds had not been shown as clearly by count data or by flag sightings (Minton *et al.* 2011c). The marked decline of Ruddy Turnstone populations recorded at some non-breeding locations in Australia could therefore be linked to the large reductions in shorebird feeding habitat that has occurred in the Yellow Sea in recent years (MacKinnon *et al.* 2012, Minton *et al.* 2012, Murray *et al.* 2011, Yang *et al.* 2011).

Migration speed

The wide range of migration speeds recorded can probably be attributed mainly to variation in the wind conditions the birds experienced. The two greatest speeds recorded (75 and 84 km/h) were for Eastern Curlews on southward migration during the last leg of their journey from the Torres Strait region back to Inverloch. Both journeys coincided with following (northerly) winds. Two Ruddy Turnstones travelled at unusually slow speeds (32 and 36 km/h) on southward migration between the Yellow Sea and Indonesia, presumably due to headwinds.

The small sample sizes, individual variability and probable wind effects prevent us from determining whether there are systematic differences in migration speed between species, or between northward and southward migration. Broadly, migration speeds seem to vary around 50 km/h, with the large Eastern Curlew (mean weight 850 g) not appearing to have a migration speed that differs markedly from the three much smaller species (mean weight 53–95 g).

Ruddy Turnstone is the only species for which there is evidence that migration speed is greater during northward than southward migration. The evidence is even stronger if data from our earlier studies (Minton *et al.* 2011) are included: median northward migration speed = 57 km/h, $n = 11$, median southward migration speed = 42 km/h, $n = 8$; Mann–Whitney test: $W = 150$, $p = 0.001$). Possibly this is the result of generally more favourable winds during northward migration. However, we plan more detailed examination of migration speeds and the influence of wind conditions in the future, as larger samples accrue, particularly for Ruddy Turnstone.

Future plans

The VWSG and AWSG intend to continue to exploit to the full the potential of geolocators to further their wader migration studies. Additional species will be added to the programme as appropriate. In Mar–Apr 2012, a further 126 geolocators were deployed on Ruddy Turnstones (32) and Sanderlings (44) in SE Australia and on Red Knots (44) and Great Knots (6) at Broome in NW Australia. These are the first Great Knots ever to be fitted with geolocators, and the first Red Knots to be fitted with them in Australia. These geolocators were also the first to be produced by Biotrack, under licence from BAS, and by a new supplier, Migrate Technology Ltd. It will be interesting to see how these units stand up to the rigours of being attached to the leg of long distance migratory waders.

ACKNOWLEDGEMENTS

The VWSG/AWSG are extremely grateful to the various organisations and individuals who have provided funding to purchase the geolocators used in these studies. In the 2011/12 year these included The Wettenhall Trust, Deakin University, Nature Foundation S.A., the SA Department for Environment and Natural resources, the North-west Australia Wader and Tern Studies Expedition, and individual members of the VWSG. AWSG/VWSG members and other helpers who took part in the extensive fieldwork activities during the deployment and retrieval (especially) of geolocators are also greatly thanked. The Global Flyway Network is thanked for making Chris Hassell available for catching activities at Broome. The Australian Bird Banding Office and the various state environment authorities are thanked for providing banding, scientific and ethics permits.

CONSERVATION REPORT

Doris Graham

When determining the need to respond to development and project proposals the potential effects on our waders are assessed against the principles espoused by our “Vision” as set out at the front of this Bulletin.

During the year the proposals were dealt with in a two phase process. Firstly I watched and listened for reports of proposed development projects in the early planning stage which could negatively impact on either resident or migratory wader feeding or roosting habitats and/or increase the level of disturbance. I then consult as many people as I can find who would/could know a little or much of the situation, and set about gaining as much knowledge as I can of the potential effects on the waders. I then set about composing the required submission, again consulting experts in the area. The most frustrating problem with all the projects/proposals that I had to deal with is that there seems to be no strength in the inter-governmental agreements made to protect our migratory waders, e.g. between Australia and Japan, China, Republic of Korea, and the wider international conventions such as Ramsar and Bonn.

If anyone would like to join the Conservation team, please contact me.

Conservation projects during previous 12 months

There were several big challenges this last year — some presented for a number of years, others short, already worked on and completed.

Mallacoota Ocean Access Boat Ramp — Bastion Point.

This project was submitted several years ago by the East Gippsland Shire Council as the Ocean Access Boat Ramp at Bastion Point, Mallacoota.

The development proposed to construct a two-lane boat ramp, finger jetty, breakwater, access road and car park at Bastion Point. This major structure would alter the whole atmosphere of this area of Mallacoota — larger boats would bring many more people necessitating more accommodation and facilities, the destruction of the ambience of the area — currently known for its peace and natural beauty, also dredging of the rocks required to create the new breakwater, and the breakwater itself will certainly alter the movements of the sand and mud in the Inlet which could potentially destroy the food source of waders by altering the particle size of the sediments and making the habitat unsuitable for the invertebrates which currently living in the intertidal sands and mud.

Many migratory waders use the Inlet during the non-breeding season and two of our resident species waders use the area throughout the year e.g. Hooded Plover and Pied Oystercatcher. Unfortunately this project has been approved.

Lonsdale Golf Course Re-development.

This re-development project was first detailed many years ago but because of lack of funds and much opposition did not go ahead. Recently it was proposed again by the Lonsdale Golf Club. The revised redevelopment/enlargement of the course involves the adding of two more holes and associated fairways, to entice international golfers.

The main concern for shorebirds is that the proposed development is very close to the shores of Lake Victoria in the Lonsdale Lake State Nature Reserve at Point Lonsdale. This lake is used by thousands of small migratory waders, particularly during unpleasant weather and at very high tides, when they fly from the seagrass areas of Swan Bay near Queenscliff to roost there. The displacement of soil may “pollute” the lakes and likely change or destroy the invertebrates on which the waders feed. The new courses/“greens”/placement were

placed in an area of natural saltmarsh that was of high conservation value. The proponents were successful with most of their proposal.

Geelong Salt Fields in Urban Renewal Project.

This project has not been completed, but will have serious effects on the many waders that use the shallow lagoons of the former Moolap Saltworks.

Western Port Catchment Committee

This “committee” has grown since its conception 10 years ago and is still attracting new members from groups interested in Western Port.

This year the 2-monthly meetings have moved to different locations and this in itself gives different groups an opportunity to learn about the geography of the whole area.

The format of each meeting differs, and on two occasions we have hired a boat and travelled from Tooradin across Western Port towards Barrallier Island, Crawfish Rock, and back via Yaringa Harbour, and on the second travelled east to past Stockyard Point, near Jam Jerrup.

There are always two or three persons who speak as we travel when we pass places of interest, and Jon Fallaw spoke of the Little Penguins of Western Port, and I have spoken on the resident and migratory waders. The highlight for me was on the last one when passing Lang Lang I was lucky enough to be watching the coast to see seven “large” birds lift off from behind a stone wall erected to preserve the coast. They flew in no formal way and only about 20 m along the wall before disappearing — too few for us to catch I guessed. They were too far to see colour but their outline indicated their identity immediately as Whimbrel, and luckily there was another person who confirmed my identification.

These trips have given us all much more knowledge of the structure of Western Port and I am always interested in seeing the waders on Barrallier Island from the sea.

Thirty minute talks are usually given then discussions follow, speakers and proponents included over this last year: Yaringa Harbour expansion and a proposal of erecting a huge wind farm on French Island.

Hooded Plovers in the Mornington Peninsula National Park

Malcolm Brown

Hooded Plovers have experienced poor breeding results in the Mornington Peninsula National Park over several years (Table 1).

Many people think one of the major reasons for these poor results is due to dogs being allowed on Hooded Plover nesting beaches, despite these beaches being within a National Park. BirdLife Australia has estimated 78.9% of dogs walked in the park are off-leash and only 2.9% of dog owners observe park signage.

As a result of this, Parks Victoria recently carried out a review of dog walking on beaches within the National Park.

Unfortunately, most people involved in Hooded Plover conservation are disappointed by the outcomes of the review.

Changes resulting from the review are that only 7 km of beach have been set aside as ‘No Dog’ beaches (out of a total of 60 km of ocean beaches) and much of them are already beaches with restricted access for dogs during period of November to April.

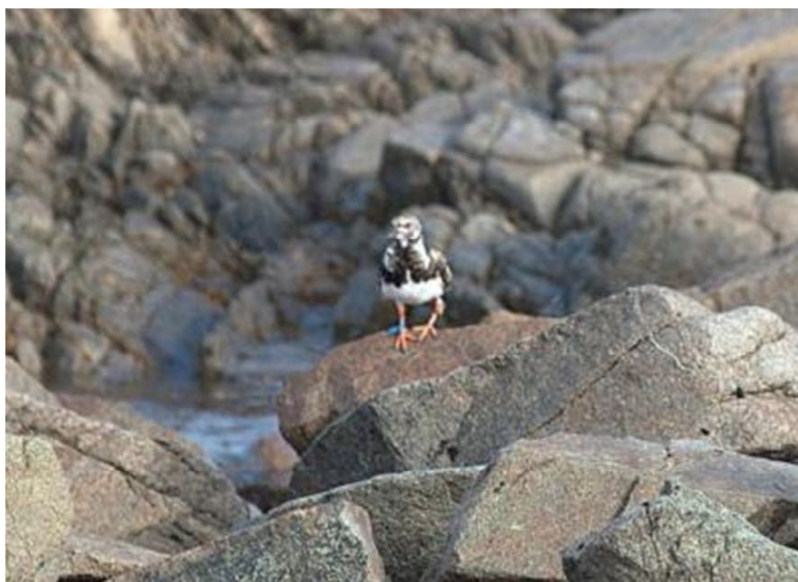
It's also thought that the new restrictions could put some beaches under more pressure from dogs. By continuing with what is seen by many visitors to the park as a complicated set of regulations, the need for enforcement is more than would be the case if a total ban in the entire National Park was enacted. Needless to say, there are no extra rangers to enforce the new regulations.

However, these changes do indirectly indicate the need to remove dogs from beaches where Hooded Plovers are nesting and there will be another review in two years. In the meantime, volunteers will be recording those instances where chicks are killed or disturbed by dogs or when are where there are breaches in regulations.

Table 1

| Failure rate Hooded Plovers. Eggs to fledgling 2006/7 – 2012/13 Morningside Peninsula National Park | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|------------------|------------------|
| Years | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/2012 | 2012/2013 |
| Eggs laid | 111 | 114 | 105 | 112 | 153 | 137 | 118 |
| Eggs hatched | 43 | 45 | 26 | 33 | 54 | 27 | 21 |
| Chicks survived | 10 | 6 | 6 | 7 | 9 | 3 | 9 |
| Fledgling vs eggs fail rate | 91% | 95% | 94% | 95% | 94% | 98% | 92% |

Ruddy Turnstone with geolocator on King Island (photo Margaret Bennetts)



Pied Oystercatcher versus Tiger Snake

Maureen Christie

Just what were the pair of pied oyks up to? They were both high up the beach, walking back and forth very warily, almost on tippy toe. One raised its wings – from the shoulder – perhaps they were going to mate? But no, it didn't really look like it. I decided to pass by, and watch from a distance. By now one of the oyks had moved away and was feeding near the water's edge. It's mate was still warily pacing back and forth high on the beach. As I drew level it became obvious what was causing the strange behaviour – a one metre+ tiger snake!! The tiger was poised, head raised, ready to strike. Pied oyk walked back and forth, in silence. I reached for my camera – and managed to miss the magic moment when the snake turned and retreated. However, I did capture an incredible sequence of photos..... oyk facing tiger, tiger ready to strike, oyk pacing, hackles raised, tiger retreating, oyk back on nest, nest with 2 eggs.



Mud Islands Restoration of Crested Tern nesting area - July 2013

Rob Patrick

Mud Islands are hardly on the radar for most people to visit, in fact when you set out in a small boat from Sorrento it is difficult to see where they are due to their low profile. However, they are a sort of Maldives attraction for a number of shorebird and tern species and, of course, VWSG members who enjoy remote places with shallow water, salt marshes and traces of mud.

Armed with weapons for vegetation removal, eight members arrived by courtesy of the Parks Victoria boat and three aboard David Wilbraham's personal tender. The latter receiving various lessons in boatmanship, including how to paddle away from the shore with long handled shovels, and the rapid changing of fuel tanks in a shipping lane with a large ferry steaming towards you.

The first time vegetation was intentionally managed was some 30 years ago, 1985 to be precise. Clive led the assault team then, as he did on 16 July 2013. Maintenance in the intervening period has largely been undertaken by the VWSG to ensure suitable nesting areas were available for Crested Terns. Friends of Mud Islands provided vegetation clearing support over the past 5 to 8 years.

The team comprised Clive Minton, Nick Minton, Roger Standen, Robyn Atkinson, Peter Jenkins, David Wilbraham, Dave Cropley, Rob Patrick, Mary Cowling, Moira Longden and Colin Gibbs.

The accompanying photos by Nick Minton and Rob Patrick illustrate how nesting areas had been comprehensively overtaken by vegetation, as well as the final outcome of the visit.



The Flyway Print Exchange: an art project inspired by the East-Asian Australasian Flyway

Kate Gorringer-Smith
Flyway Print Exchange Co-ordinator
www.kategorringesmith.com.au

In January, 2014, while our shorebirds are enjoying the respite before they return to their breeding grounds, a small flock will be sent ahead. This ungainly flock, of artworks rather than birds, will travel by post, unprotected by any covering, from Melbourne to New Zealand, Singapore and Alaska, then back to Melbourne, echoing the journey travelled twice annually by our migratory shorebirds.

The artworks, original prints made by twenty artists from nine of the twenty-two Flyway countries, will be images created in response to the idea of the Flyway. Beautiful, precious objects themselves, those sent journeying will return weathered and crumpled, marked by addresses, postmarks and stamps. The images will be the artists' response to the idea of Flyway; the paper will bear witness to the physical journey that the Flyway defines. In the final exhibition of the works, to be held in Melbourne mid-2014, the weathered works will be exhibited beside their pristine counterparts.

My intention in the Flyway Print Exchange is to convey the essence of the Flyway, as an ancient pathway across the globe that is older than the countries through which it passes. Also, I hope to raise awareness of our migratory shorebirds: the challenges they face on their journeys and the marvel that they make – and survive - them at all.

A bit of background

A printmaker myself, my interest in birds stems from the years I worked as a scientific editor at BirdLife (then the RAOU) on *HANZAB* and then *Wingspan*. I now work from my studio in Brunswick, Melbourne, making etchings and linocuts.

I first used shorebirds in my work in 2009, as a symbol of human journeying. I concentrated on the Bar-tailed Godwit, the species that makes so many journeys between hemispheres that an individual bird can, in one lifetime, travel as many miles as from the earth to the moon. The endurance of these birds, the continuing mystery of how they navigate, their beauty and their restlessness, make them a rich source of imagery.

The more I read about the birds, the more inspired I became. The facts of the journeys themselves, the epic endurance flights for days and nights across endless stretches of ocean, the physiological adaptations to make those flights possible, the continuing mystery of their navigation: all these elements are such wondrous stories, and combined they are truly awe-inspiring.

When I was searching for more information about Bar-tailed Godwits, I was recommended the book 'Invisible Connections: why migrating shorebirds need the Yellow Sea'¹. The following quotation from the chapter 'Time is Running Out' by Brian McCaffery encapsulates for me, the phenomenon of the Flyway:

From a human perspective, Australasia and the countries stretching along the Pacific Rim are already connected in important ways – by history and commerce, alliances and agreements. Less frequently, however, do we consider the ecological connections between these nations, spun by the dramatic journeys of migratory birds. Their globe-spanning flights link countries separated by thousands of kilometres, as well as those separated by ideology, language and culture. In a world where diplomacy can seem a daunting challenge, these avian ambassadors fly readily from country to country, with dependence on all but allegiance to none.

A feather grown to grace the breast of a godwit in New Zealand may someday be used to line the nest of a tundra-dwelling songbird near the Bering Sea. Tiny grains of stony detritus washed down from the highlands of central China may frame the burrow of a mud-dwelling worm in the Yellow Sea, a worm that helps fuel the flight of a Great Knot when it stops en route from the tropical coast of Australia to the windblown summits of the Chukotka Peninsula. Near the shores of the Sea of Okhotsk, a young Nordmann's Greenshank may leap from its nest in a tree to gorge among the wetlands of Sakhalin, only to fall prey months later to a hungry raptor along the shores of the South China Sea. A singing male Spoon-billed Sandpiper may perch atop the weathered rib of an Arctic whale at the summer solstice, then leave dainty tracks across the vast grey tidal flats of the Bay of Bengal before the autumnal equinox. Undaunted by the borders drawn on our two-dimensional maps, these feathered travellers remind us that we are connected in ways more profound and substantive than those set forth in the carefully crafted phrases of treaty and trade.

The Project

In March, I put out calls for participating artists, both through the bird world and the art world. The response was fantastic! The nine countries involved in the project are: Australia, India, New Zealand, Singapore, Indonesia, South Korea, Japan, China and the USA (Alaska). The artists themselves range from post-graduates and academics to recent graduates and emerging artists.

The formalities of an exchange are that each participating printmaker creates an image through the medium of their choice (e.g. linocut, etching, woodcut, screenprint, lithograph), then reproduces multiples of that image: a process known as editioning. The edition will number enough prints for every artist in the exchange to receive one of the other artists' prints – so if you have 20 artists participating they will receive at the end a folio of all 20 prints.

I have also asked the participating artists to create some extra prints: some to sell (with a percentage of proceeds to be donated to BirdLife Australia's Shorebirds 2020 project), one to exhibit, and one to go on the Flyway journey.

My hope is that after its initial exhibition in Melbourne, the exhibition will travel to other parts of Australia and to the countries of other artists along the Flyway.

The Artists

Everyone has their own reason for being attracted to the project. Pui San Tham, a Singapore artist, retired from the airline industry in 2007. He is now an active conservation volunteer in the Sungei Buloh Wetlands, and specialises in Nature Art for Singapore National Parks. He emailed me first in May, and sent me beautiful images from the sketchbook in which he records the birds of the Sungei Buloh Wetlands. Pui San has not done any printmaking before, but his enthusiasm was such that he has begun to work with woodblock printing! His artistic skills readily translate to this new medium, and the alacrity with which he has tackled this challenge is fantastic.

In contrast, Hyun Tae Lee is a young South Korean artist who has completed a Master's degree at RMIT. In his initial email to me expressing interest in the project, Tae wrote how the North Koreans who have managed to escape from the tyranny of their country to his home country, South Korea, are 'searching for some hope, somehow like those migratory birds.'

The latest participants to join the project are indigenous artists from Waralungku Arts in the Gulf Region of the Northern Territory. I spoke to the Arts Centre Co-ordinator, Madeleine Challenger, who liked the idea of the project, and researched it further to discover that their nearby Sir Edward Pellow Islands are regionally significant for Grey-tailed Tattlers, Ruddy

Turnstones and Curlew Sandpipers. Madeleine wrote to me that, 'It is really great because we have been looking for ways to partner with the sea rangers here and bring more focus on conservation and environmental management to the art centre, and this will be a great opportunity, and the sea rangers will be able to take the artists to visit these sites and share traditional and scientific information about the species in the development stage of the project.' Many artists from Waralungku Arts will be creating work in response to the Flyway, three of whom will participate in the Flyway Exchange.

The next step

Now that my participating artists have been finalized, my next step – while the artists are creating their editions – is to organize the nuts and bolts of the project: to organize an exhibition space in Melbourne to house the initial exhibition, and to fundraise for the ongoing costs of framing, invitations, a catalogue, postage etc.

If you have any questions or ideas for the project, I'd love to hear from you. Please email me at katehal@optusnet.com.au

¹Reprinted with permission from 'Time is Running Out' by Brian McCaffery, Chapter 1 of *Invisible Connections: why migrating shorebirds need the Yellow Sea* by Jan van de Kam, Phil Battley, Brian McCaffery, Danny Rogers, Jae-Sang Hong, Nial Moores, Ju Yung-ki, Jan Lewis and Theunis Piersma. CSIRO Publishing, Collingwood, Victoria, Australia, 2010.



Shorebirds at Bohai Bay (Photo Chris Hassell)

Four Scenes from Werribee December 2012

Barbara Campbell

'Performance' holds within it, too, an older meaning of completion. Performance is a duty or obligation done. It has long held the connotation that the qualities of the duty done were heightened by being public, by having an audience. A performance is a consummation. A performance stands by itself in some way.

[Greg Dening, *Performances*, Melbourne University Press, 1996, p. xiii]

Scene 1: Evening, Thursday 27 December 2012

There's a shortage of knives. Five of us here. Only one knife. Looks like it's been well-maintained – sharpened so much, the blade isn't straight any more but curved into a gentle sickle. And this seems right. IT knows what it has to do – it has to cut this grass. Healthy, long grass. Up to our waists in it. Perhaps grass isn't the right word. Maybe it's bull-rushes. After all, we're beside the water. It's quite Old Testament out here. Then again, aren't bull-rushes a sort of straw colour? Whatever it's called, it's definitely green. Colouring-in-pencil green.

So, back to the problem with the knives. The job at hand. We've got to cut a lot of this grass (or rushes). There are five of us and I've got the sickle knife so I start cutting. Gathering up a good bunch with my left hand, bending right down low to cut near the roots with my right hand. Someone else is next to me. We've just met. It's Surong. In lieu of a knife, she's found a big blue canvas bag. She's holding it open for me so I can put the cuttings straight into it. Clump, bend, cut, place. We become an efficient grass-cutting machine. Clump, bend, scythe, deposit. I feel part of the scene. Bunch, stoop, slash, load. I straighten up. Stretch.

How are the other non-knife-holders doing? Celine and Kimberly are using their bare hands, pulling at the roots or just plucking a few blades at a time. It looks wrong. Not just inefficient. Wrong. I say nothing. They keep going, a few green blades at a time, leaving their harvest on the ground for Surong to collect. Allan is further along. It looks like he's making better progress than the girls. He's using a pen knife, presumably his own. It flashes silver. I wonder if it's ever experienced the outdoor life. I'm guessing the blade is four or five centimetres long – out here at the lagoon's edge! Ridiculous! But Allan and his knife are getting the job done, clump by smallish clump. We're all getting the job done. Our first bit of team work.

Soon enough the bag is full. Surong and I cart it back over to where the others are gathered on the mud in the middle of the lagoon. The other team of grass cutters has already started the next task. They must have had more knives. Our team gets to work, taking our cuttings from the big blue sack and laying them over the top of the still-furled net. Straight clumps of bright green lying across the net. How is this camouflage!? We've taken the grass from over there where it was rooted at the water's edge, growing and waving in the slight breeze of late summer sunset and now it's lying down in the mud here, all the grass blades lying in the same direction in a long straight line, maybe 30 metres long! A long green – crayon green – Lego green – line on the surface of the mud.

Surely the birds will know something is up. They've been watching us.

Scene 2: Morning, Friday 28 December 2012

Gumboots are the *pointe* shoes of this dance. Gumboots are not close fitting even when they are the right size. The foot can feel the internal walls, ceiling and floor of the room within a gumboot. There is no moulding to the shape of the foot, no allowance for the subtlety of a flexing foot in motion. In short, there is no grace with a gumboot, at least not in the conventional way. But like the *pointe* shoe, the gumboot defines a certain vocabulary of movement.

A ballerina can traverse a stage at speed *en pointe*, feet crossed tightly, one in front of the other, the flutter of movement rising up the body, setting up a vibration that is stilled at the point where legs meet torso. Progress in gumboots proceeds carefully, deliberately. Each foot rises parallel to the ground, suspended there for a moment like a breath before the descent. Each step is clearly defined. Left foot up and down, right foot up and down.

From a distance, the gumboot is a thickened L that any child could draw. The gumboot covers more than the foot, the base of the L. The real point of a gumboot is the vertical part of the L, that long rubber cylinder encasing ankle, shin and calf. The gumboot's height brings us into proximity with the elements. As long as we stay attuned to the upper limits of our gumboots, just under the knees, we know how far we can go.

Hazel enters our field of vision from the left flank, one gumbooted foot after the other, slapping the shallow water as she continues her slow advance westward. From the right, a flock of about 20 Sharp-tailed sandpipers arc around to land on the first spit of exposed mud directly in front. They're not there for long though. Hazel steps onto their mud refuge and moves them further west, away from us and towards the next exposed mud spit. At the moment she is performing the role of lead twinkler. Clive is choreographing her actions across this open-air stage by way of short band radio. He and I are in the box seats behind some tufts of spiky grass. Surong is a little way to our left documenting the action with her long-lens camera balanced on a monopod.

Hazel and the birds are performing in the same scene but they occupy different parts of the stage. The birds choose the mud and the air. Hazel in her gumboots traverses water and mud and water again.

Clive to Hazel: "Go a bit more left and a bit more slowly."

It sends her deeper into the water. Soft mud sucks at her boots, catches her, stops her previously steady progress. Clive's binoculars are on the birds, not Hazel. Hazel's voice pulls focus: "It's very soft here."

"Okay well don't go much deeper, don't get stuck." Hazel rocks backwards and forwards until her left boot is released from the mud's grip. It puts her momentarily off-balance. She retreats to the nearest mud spit.

Clive: "Hold it there for a mo."

Scene 3: Morning, Saturday 29 December 2012

Have I told you about the wind? How it has a presence out here? There's not much to stop it: hardly any trees. It comes up from the south and sometimes brings the rain with it. It can lend an aspect of winter to a midsummer's day. You can see it ripple the surface of the water, see it ride across the grass undulating like a bright green ocean. The humans too: it is with us all, rearranging our hair, finding a way into our weatherproof hoods and giving them the life of a shadow head. It thrusts hands into pockets when the hands are not busy. It can burn the face as surely as the sun. When the tasks are done and the waiting and watching begin we seek shelter from it in the lee of our four-wheeled drives. The waders know the wind too, the small ones especially: the stints, the sharpies, the curlew sandpipers. To a small bird, a rock is a wind break as good as any car.

Clive, Eric and Roger leave the embankment of Borrow Pits to inspect the conditions at water's edge. The challenge, as always, is where to set a net. The trio returns. Clive gives

the assessment. There is a little island of rocks – just a few metres in diameter – that forms the terminus of a narrow spit jutting into the water directly in front of where we are all standing. The birds like the rocks but the rocks are too far from the shore for a net to reach. Roger's suggestion is to move the rocks to create a new island close to the shore a little further to the west where a net can be easily set. Clive likes the strategy and prepares us for action. Half the team will lay out the net near the shoreline. The rest will walk along the spit, single file, collect rocks from the end of the point, return with them to the net position and throw them into the water, thus creating a new island for the birds. I ask Clive if the rocks can be thrown at the same time, the better to document it. And so the performance begins.

One by one, jacketed, gumbooted, they advance along the spit: bending at waste or knees to lift the rocks from their slimy bed. Each carrier designs their own method: one in each hand; a pile of three resting against the body; a stash nestled into the crook of an arm. Back they come, still in single file, spreading out along the shore just in front of the loosely laid net. Clive throws the first rock from his shorefront stool. It lands with a dull splash a metre into the shallows. He readies the team with the familiar cry: "Three, two, one, FIRE!"

How to score this exquisitely simple composition? A sound at the end of each throw, underarm or overarm. Rocks hitting other rocks, rocks landing flat or bouncing once, rocks forming splashes or none at all. A single sound, a short pause, another single, a long pause, a clusters of sounds, an even longer pause, a single sound. Twenty-three seconds of rocks and water and laughter.

And at the end, Clive: "I think that's brilliant. Now, could all the stone-throwers start collecting vegetation."

Scene 4: Morning, Sunday 30 December 2012

I've been told the soft part colours of birds fade soon after death. They are "fugitive", I've been told. Soft part colours are not necessarily soft colours. Soft part colours are the colours of the soft parts of the birds – that is, everything but the feathers. You may know a bird by the colours of its feathers, but what of its bill, its legs, its eyes? Sometimes you will know a bird by its soft parts and its soft part colours.

Eric is handed the special tools for the job: an extra wide banding ring, a pair of red-handled pliers, and a section of yellow plastic tube about ten centimetres in diameter and about 20 centimetres long. The bird itself has been kept separately from the other species in a small drawstring cotton sack hanging from the wing mirror of Clive's car. Eric prepares himself on the camping stool by first placing a soft cloth across his trousers. He takes the bird, adroitly flips it onto its back, and folds it into the basin of his lap. Now the bird's head and bill are facing out towards the east. Its feet are pointing upwards pushing against the air. Eric stills the movement, gently clamping each foot between each thumb and index finger. The bird relaxes. Eric waits to ask Clive a question and, just in those few distracted seconds, he begins to stroke the white feathers of the bird's right flank. The tip of its bright orange bill rests lightly on Eric's left hand.

Bright orange doesn't come close to describing the colour of this bird's bill. I am very near to it, less than a metre away. Several of us are held within its aura, watching it, recording it. Jim, who is helping Eric to band the bird temporarily casts a shadow across it, realizes he has done so, apologises, and steps to the side. Instantly the sun returns its own colours to the bill. Nearest the head it's purest vermillion, in the middle it shifts to fuchsia, shifts back again to vermillion and at the very tip just a touch of cadmium yellow. The vermillion also collects in the rim and iris of the bird's eye, its pupil a shadowed black bead.

The bird's legs are pinker than the skin of Eric's palms but its feet and joints have a touch of burnt umber, a little lighter than the back of Eric's hands. Six talons protrude beyond six toes, not far off the colour of Eric's fingernails.

Despite his experience, Eric struggles to close the engraved metal band around the bird's upper left leg. The jaws of the pliers open and close, turn and bite the metal. Eric checks the tightness of the gap several times before he's satisfied. Jim takes the now banded bird from Eric and gives it to Clive and Roz for the final process. Like all the other birds caught today it receives a colour-coded leg flag indicating its Victorian origin. But the orange plastic flag of Victoria is no match for the orange of a Pied Oystercatcher's bill and eyes.

Barbara Campbell January, 2013.

These four scenes are writings towards my PhD at Sydney College of the Arts, University of Sydney. The research question is: How do migratory shorebirds direct human performance? Please feel free to write to me at cam6606@uni.sydney.edu.au



Sharon Woodend, enjoying a stroll in the conservation ponds

Wetland Restoration and Conservation

Protecting habitat of international significance for shorebirds at Observation Point, Phillip Island

(Reprinted from *Wetlands Australia: National Wetlands Update* July 2013 – Issue No. 23.

Ilona Fenner, Port Phillip and Western Port Catchment Management Authority

A pest plant control program has helped to safeguard shorebird habitat at Observation Point on Phillip Island's Northeast coast.

A lack of resources and the remote location had meant that little had been done over the years to stifle the spread of weeds at Observation Point on Phillip Island's Northeast coast, an area of international significance as wetlands habitat for shorebirds. With resources provided through the Ramsar Protection Program, Phillip Island Nature Parks stepped in and began a pest plant control program that has made a major contribution to the protection of the character of Observation Point and helped to safeguard it as habitat for shorebirds.

A sensitive coastal region, Observation Point relies on native vegetation and particularly the banksia woodland to prevent erosion and protect the area as a significant breeding area for ground-nesting birds like Buff-banded Rails and Hooded Plovers. In late 2012, as part of the Ramsar Protection Program, the introduced *Dolichos* Pea that was threatening the Banksia Woodland was controlled, allowing this important vegetation to thrive.

Weeds like Bridal Creeper and the shrub *Polygala* that began as garden plants in the neighbouring urban area spread prolifically into the nature reserve. Over a period of around 25 years these weeds made their way right out to the tip of Observation Point, strangling and shading out indigenous plants in their path.

A major effort of manual removal of *polygala* shrubs, some up to 2 metres high, in September of 2012 has cleared away all the adult *Polygala* in the area. Small weed seedlings that developed over the summer were systematically controlled in late autumn. The area is now experiencing the regeneration of native species; Sticky Hopbush and *Bursaria* are amongst the natives germinating where the canopy of *Polygala* has been removed.



Polygala removal from Observation Point (Phillip Island Nature Parks).

Phillip Island Nature Parks is a partner in the

Ramsar Protection Program (<http://www.pppwcma.vic.gov.au/our-projects/majorenvironmental-projects/ramsar-protectionprogram.aspx>), which is working to protect habitat for shorebirds and migratory birds in the region. The Program is supported by the Port Phillip and Westernport CMA, through funding from the Australian

Government's Caring for our Country and is part of Australia's commitment to the Ramsar Convention, which strives for the conservation and wise use of all wetlands.



Boxthorn removal – northern coast of Phillip Island (Photos Beau Fahnle).



Cowrie Island, Beachport, South Australia

Maureen Christie

We first became involved with Cowrie Island in January 2009 after Marcia Lorenz reported large numbers of Fairy Tern circling the island. The highest number of adults counted at any one time was 100 and we banded 76 chicks. When the terns nested there in November 2009, we provided chick shelters, but eggs were abandoned before hatching. There was very little cover on the island apart from boxthorn and concern was expressed that chicks could be injured on boxthorn spikes if they scurried into the bushes whilst being pursued by a predator. Aware that Fairy Terns have nested on the island at least once in each decade since the 1950's, and that a pair of Sooty Oystercatchers nest there regularly, it was decided to remove the boxthorn. David Trudgen has been systematically working away at this for ages, but hesitated to remove the last box-thorn as he had observed a Sooty Oystercatcher chick using it for shelter. The threat of aerial predators here is very real - Silver Gulls nest on nearby Post Office Rock. And there is the usual complement of raptors - a fresh Fairy Prion carcass, headless, with breast pecked clean picked up on the island on a recent visit bears witness to their hunting skills. Chick shelters are all very well, but appropriate vegetation is better. The Trudgies brought their concerns to our AGM, and it was decided that we should approach the Department of Environment, Water and Natural Resources to design a suitable revegetation project. Ranger Ross and the Coastal team were extremely supportive, and supplied seedlings, equipment and manpower.



Tuesday 28 May was fine and calm with moderate seas. Ideal for our working bee! Part of the Beachport Conservation Park, Cowrie Island is opposite Blow Hole beach and separated from the mainland by a 5 metre channel. This channel is relatively shallow, but can be quite difficult to cross at high tide, especially if there is a sizeable swell. Many hands made for light work as Cookie organised us into a chain gang to get the gear and plants across the channel and up the jagged limestone cliff face.

Finding places to plant seedlings in the shallow soil was challenging. We appreciated help from Peter Feast, who advised on which plants should be planted where. Care was taken not to disturb the area used by the Fairy Terns for nesting - it was already well vegetated with ground covers, so it had already been judged 'suitable' by them. A 'shelter belt' of shrubs was planted where the box-thorn had been, and chunky chick shelters were scattered as temporary shelter. All finished in record time, and we left the island well before high tide. Trudgies then made us welcome at their home with hot drinks and home-made fruit cake!



Hoped for rain arrived within a few days of the planting and so the seedlings would have been well watered in. Let's hope the winter gales are not too unkind and that the plants get off to a good start. Thankyou to all, especially the Trudgies, for a well co-ordinated project – and a great day out at the beach!

Eisenmann Medal Celebration

Rosemary Davidson, Carlene Gosbell, Irma Kluger and Doris Graham



Lunch at Harewood House to celebrate the awarding of the Eisenmann Medal to Clive Minton by the Linnaean Society of New York.

Somehow this missed appearing in last year's Bulletin and what a celebration it was!

We were delighted when VWSG member, Pat Macwhirter agreed so readily to our request to hold a lunch on Saturday May 5th at her lovely

historic home, Harewood House where many of us have stayed. We had planned to hold lunch in her garden, but Pat insisted that we use the house which was just as well as the day was overcast and cold and we all appreciated being inside with a welcoming fire in the beautiful dining room.



The celebrations commenced with a glass of champagne and a few words of explanation of the Award from Roz Jessop.

Pat then welcomed the seventy three guests and told us something of the history of her home and its wonderful early life.



This was followed by a delicious lunch- David Hollands carved a ham, Irma Kluger provided fillet steak and Carlene Gosbell's local shop, BBQ chicken served with salads

Everyone then gathered in the dining room where David Hollands, Charles Allen, Malcolm Brown, Graham Beal, Rod Mc Farlane and Ken Gosbell spoke of Clive's achievements and gave many examples of his commitment to passing on his knowledge and expertise as well as some very amusing stories.

In reply, Clive thanked all those for making his award possible and mentioned that four of those present- Mike Preston, David Hollands, Bill Bygott and Charles Allen (see above) - attended his school where his lifelong interest in birds began in earnest.

After some luscious desserts and coffee the day ended with tours of Harewood, the viewing of slide shows of VWSG activities and group photos.

We all thank Pat for providing a wonderful warm and welcoming venue.

Thanks also to those who provided the desserts and to all those who helped in many other ways.



Farewell Heather Gibbs

A Wonderful Friend of the Flyway

10th May 1973 – 9th November 2012

Heather became a leading expert in Australian birds and their migratory habits and many of her wonderful photographs have appeared in various publications. She was passionate about the environment and preserving a sustainable world for our future. Her active environmental involvement led her to participate in projects as diverse as volunteering in the Antarctic and performing zoological projects throughout Australia. Her passion for sustainability led her to design her home using these principals and involvement with the West Brunswick Community Garden and Food Forest and alternative transport options.

Heather started participating in shorebird fieldwork with the Victorian Wader Study Group (VWSG) some 30 years ago when, as an 8-year-old, she accompanied her parents on wader banding activities at Queenscliff. She continued active involvement in shorebird conservation throughout her life taking part in several NW Australia Wader Expeditions including one with her mother Gail and with her son Dominic (2008). In recent years, Heather gained great satisfaction from bringing her two young children (Dominic and Amy) with her to VWSG activities.



Heather grew up on the Bellarine Peninsula and after attending Marcus Hill Primary School, continued her education at Geelong College where she commenced in class 7M in 1985. At College, she was an adventurous member of both the 1990 1st Hockey and 1st Softball Teams, also enjoying Science & Ceramics. She also won the College Physics Prize in 1990. A family member described her as 'a quiet, studious girl with a gentle nature – but dangerous on the sporting field. ... remembered fondly by her classmates'. After leaving College, she completed a BSc (Hons) in Zoology at the University of Melbourne studying Gannets at Pope's Eye near Queenscliff (1996). She was also a *Potter in Residence* (Melb Uni Student Union).

After 6 months travelling Heather started her own business in 1997 'Protoavis Productions'. Her company developed educational multi-media, computer based training and database-driven web sites. She also worked for 'Ecology and Heritage Partners' in the Environmental Services industry (2005-12). She commenced work with Birdlife Australia (1997-2003) and produced her first CD-ROM 'Gould's Birds of Australia'. She also worked as a sub-editor on *The Handbook of Australian, New Zealand and Antarctic Birds* the most significant bird publication in the history of Australian ornithology. During this time she also went on a trip to the Antarctic counting birds from on board ship which she really enjoyed. She later produced two more CD-ROMs (Indonesian Language & Ergonomics) and did contract computing work for Telstra, ANZ, EPA and other corporations mostly through a small business known as 'LearnTech'.

In recent years Heather had been working on a PhD project, "The effects of climate on breeding in Australian birds", and several papers from this work have been published. These studies were partly funded by a three year scholarship she gained from Deakin University.

Since 2005 Heather managed the leg-flag and banding databases for the AWSG and the VWSG. Her computer program writing skills were legendary. Clive Minton, a colleague of Heather's who worked alongside her within these projects wrote, "She was the quickest and most capable person I've ever come across in relation to extracting data and in presenting it in a form most helpful to the user." She had a deep commitment to conservation and was always looking for ways to improve these databases, particularly with regard to making them more user-friendly.

Heather was also a member of the AWSG committee and made valuable input to a wide variety of discussions. She was always willing to put her hand up to take on extra tasks and to assist other people's projects in a variety of ways. A driving force was her deep commitment to conservation. Below is a list of some of her collaborative research papers, however, if you were to peruse the acknowledgement of many, many, papers produced on shorebirds since 2007 you will find lots of thankyou's to Heather for helping with data management, contributing ideas and reviews.

Heather loved her children greatly and with great patience explained everything to them and involved them in practical ways in shorebird research, we hope to continue this for her in the future.



Heather had built up a huge network of contacts throughout the East Asian - Australasian Flyway. Because of her cooperative and helpful attitude they all regarded her as a friend. Her partner Brian, children, Dominic and Amy, and extended family will miss her greatly – as will all her colleagues and friends throughout the Flyway.

Some of Heather's research papers

Chambers, L., **H. Gibbs**, M. & G. Ehmke. (2007) Trends in reproductive timing and success: masked lapwings, *Wingspan*, 14: (4) p. 9, Royal Australasian Ornithologists Union, Moonee Ponds, Vic.

Chambers, L., **H. Gibbs**, M. & G. Ehmke. (2008) Spatial and temporal variation in the breeding of Masked Lapwings (*Vanellus miles*) in Australia, *Emu*, 108: (2), pp. 115-124, CSIRO, Collingwood, Vic.

Christie, M., R. Jessop & **H. Gibbs**, (2009). Site faithfulness of Ruddy Turnstone *Arenaria interpres* in the south-east of South Australia. Report to Wildlife Conservation Fund of S.A. National Parks and Wildlife Council, 24pp.

Ehmke, G. & **H. Gibbs**. (2007) Timing of breeding in Australian birds: no climate change fingerprint detected in several common species, *Wingspan*, 14: (4), p. 9, Birds Australia, Carlton, Vic.

Gibbs, H.M., F. I. Norman, & S. J. Ward. (2000) Reproductive Parameters, Chick Growth and Adult 'Age' in Australasian Gannets *Morus serrator*: Breeding in Port Phillip Bay, Victoria, in 1994-95. *Emu* 100: 175–185.

Gibbs, H. (2007) Climatic variation and breeding in the Australian magpie (*Gymnorhina tibicen*): a case study using existing data, *Emu*, 107: (4), pp. 284-293, CSIRO Publishing, Collingwood, Vic.

Gibbs, H. (2007) What do we know about the effects of climatic variation on Australian birds?, *Wingspan*, 14: (4), p. 24, Birds Australia - Royal Australasian Ornithologists Union, Melbourne, Vic.

Gibbs, H., L. Chambers & A. Bennett (2011) Temporal and spatial variability of breeding in Australian birds and the potential implications of climate change, *Emu*, 111: (4), pp. 283-291, CSIRO Publishing, Australia.

Minton, C., S. Taylor, R. Jessop, **H. Gibbs**, T. Habraken & R. Schuckard. (2010). Amazing initial results from the deployment of engraved leg flags on Bar-tailed Godwits *Limosa lapponica* in Victoria. *Stilt*, 58: 10-13.

Minton, C., J. Wahl, **H. Gibbs**, R. Jessop, C. Hassell & A. Boyle. (2011) Recoveries and flag sightings of waders which spend the non-breeding season in Australia. *Stilt*, 59: 17-43.

Minton, C., J. Wahl, R. Jessop, C. Hassell, P. Collins & **H. Gibbs**. (2006) Migration routes of waders which spend the non-breeding season in Australia. *Stilt* 50: 135–157.

Minton, C., J. Wahl, R. Jessop, C. Hassell, P. Collins & **H. Gibbs**. (2008) Movements based on recoveries and flag sightings and particularly illustrating the key role of the Yellow Sea. (Conference Abstract): *Stilt*, 54: 6.

Minton, C., K. Kraaijeveld, B. Hansen, R. Jessop, H. Gibbs, A. Reigen & C. Hassell. (2008) The Red Knot Conundrum. (Conference Abstract): *Stilt*, 54: 6.

Minton, C., M. Christie, P. Johns, ChungYu Chiang, Chih-Hui Liu & **H. Gibbs** (2010). Sightings of engraved leg flag Ruddy Turnstones *Arenaria interpres* on migration. *Stilt*, 58: 63-64.

Minton, C.D.T., R. Jessop, P. Collins, A. Ewing & **H. Gibbs**. (2005). Sightings of waders leg-flagged in Victoria: Report Number 12. *Stilt*, 48: 42-49.

Minton, C.D.T., R. Jessop, P. Collins, C. Hassell, A. Ewing & **H. Gibbs**. 2005. Sightings of waders and terns leg-flagged in north-west Australia: Report Number 9. *Stilt*, 47: 47-57.

Minton, C.D.T., R. Jessop, P. Collins, M. Christie, I. Stewart, A. Ewing & **H. Gibbs**. (2005) Sightings in 2004-2005 of waders leg-flagged in South Australia: Report Number 4. *Stilt*, 48:

Vale Mavis Margaret Burgess 17/12/1938 – 16/3/2013

Mavis was born in Echuca where her father was headmaster of a nearby school. She had two brothers.

Mavis graduated as a registered nurse from The Alfred Hospital in 1959, she then went on to further studies in midwifery and in 1962 came to live on King Island with her husband Nigel. They went on to have two daughters, Jan and Margaret.

She quickly became a dynamic member of the island community and worked at the Grassy Bush Nursing hospital from 1963 until it closed in 1991. Mavis was a founding member of the St. John Ambulance Service, secretary of the island Gun Club, a member of the local fire brigade and a member of Birds Australia (now Birdlife Australia). She was a Justice of the Peace, Child Welfare officer and a Community Crisis Support Team volunteer, in other words there were few aspects of life on King Island to which Mavis did not positively contribute. In 1986 Mavis was honoured by her community when she was made the King Island Australia Day Citizen of the Year. In her spare time she was keen and very able photographer!

Mavis Burgess became a lifeline to the VWSG during our visits to King Island beginning in 2006. It was Mavis's husband Nigel who first alerted Clive to the presence of large numbers of Ruddy Turnstone on the island. But it was Mavis who made our stays there so enjoyable with her wonderful generosity of spirit, her deliveries of King Island cheese that apparently had fallen from the back of a truck and her ability to convince all manner of people that the VWSG was very important to King Island and she going to make sure that everyone knew it. She would collect Clive's vehicle from the ship in Grassy and she and Nigel and their dog Sarah-Jane would be there to meet us at the airport with another vehicle for our use. A few days before she died, of the complications of cancer, she was told that a wing at Phoenix Community House was to be named after her, she quickly quipped "I'm not dead yet". She received an AM in the recent honours list, her daughters will collect it at Government House in Hobart in September. Sadly she did not know of this award prior to her death.

Mavis can teach us a lot about the selfless contribution to one's community and the value of friendship and support, our subsequent island visits will be much diminished by her passing.

Penny Johns.



Pied Oystercatchers in flight (Photo Roz Jessop)

Vale Henry Bennett
09/06/1945-09/10/2012

Henry Bennet, a King Island member of the VWSG died on the 9th of October 2012. Henry and his wife Margaret have been keen participants in the activities of the group since 2009. Their local knowledge and enthusiasm have been important in contributing to the success of the VWSG's field work on King Island. Henry is remembered warmly for his wry smile and practical advice. Nothing was too much trouble; he made his home available for group members to stay and was always happy to drive people participating in the banding program. He further supported the activities of the VWSG by looking after and storing equipment between visit of the group and making sure the equipment was in good working order. His first-rate knowledge of King Island and the places the Ruddy Turnstones favoured made his input to the group most valuable. This also included collecting data on waders sighted on the Island.

Henry, a retired farmer, was born on the 9th of June 1945 in Melbourne. His early years were spent in the Mallee, and in 1965 he settled in King Island where he worked in the family bakery. Later he and Margaret became dairy farmers. When members of the VWSG met Henry and Margaret they were enjoying their retirement and many stories were swapped about camping trips, the birds seen and plans for the next holiday.

He was a keen bird fancier and was a very successful breeder of Budgerigars, Gouldian Finches and Scarlet Chested Parrots. He enjoyed outdoor pursuits including fishing and was known for keeping his favourite fishing places close to his chest.

He wasn't a man to seek public acclaim; he concentrated his life on work, his family and his recreational pursuits. None the less, he was well respected within the King Island community and is a great loss to the community.

Henry was a valued member of the King Island banding team and a good friend to those of us who made the trip from the mainland. He will be missed by us all and our sympathy and condolences go to Margaret and his sons, John and Tim.

Ila Marks



*Yellow River tidal estuary, King Island
(Photo Roz Jessop)*

Publications and Presentations using VWSG data

Compiled by Roz Jessop

NEWSLETTERS

Members made contributions to the following:

- **“The Tattler”**, Newsletter for the East Asian-Australasian Flyway. Copies can be downloaded from the AWSG web page <http://www.awsg.org.au/>. You can also download previous copies of the AWSG journal *Stilt* from this site. Article prepared by Clive Minton
- **“VicBabbler”**, quarterly newsletter of the BirdLife Victoria. Article prepared by Clive Minton
- **“Birdlife South East SA Newsletter”** page of ‘wader notes’ prepared by Maureen Christie
- **“Friends of the Shorebirds South East”** email newsletters prepared by Maureen Christie

Papers of interest:

Minton, C., Jessop, R. and Hassell, C. 2011. Wader breeding in the 2011 Arctic summer, based on juvenile ratios of birds which spend the non-breeding season in Australia. *Stilt* 62: 54-48.

Minton, C., Jessop, R. and Hassell, C. 2012. Wader breeding in the 2012 Arctic summer, based on juvenile ratios of birds which spend the non-breeding season in Australia. *Arctic Birds*.

Abstracts from talks presented at the Australian Shorebird Conference, Adelaide, September 2012 (Published in *Stilt* 62).

REPRODUCTIVE SUCCESS OF ARCTIC BREEDING WADERS INDICATE THAT LEMMING CYCLES ARE LOOSING THEIR GRIP ON THE FUNCTIONING OF ARCTIC ECOSYSTEMS

Y. AHARON-ROTMAN, M. KLAASSEN, C. MINTON, C. HASSELL, M. SOLOVIEV, P. TOMKOVICH

The alternative prey hypothesis suggests lemming cycles in the Arctic breeding grounds are indirectly responsible for inter-annual fluctuation in breeding success of geese and waders. Previous studies found such interactions in the East Atlantic Flyway. We studied whether lemming cycles may also indirectly affect breeding success of waders from the East Asian- Australasian flyway, however no evidence for such an effect was found. Most species did not show population cycles, as would have been expected if they are under the influence of lemming cycles, and breeding success did not correlate with lemming abundance in the different breeding areas. We interpret our results to be due to current changes in lemming cycles showing a tendency to disappear over the past two decades.

WHAT CAN GEOLOCATORS TELL US ABOUT SHOREBIRDS BREEDING IN THE ARCTIC?

Ken Gosbell and Clive Minton

Our understanding of breeding characteristics of shorebirds in the breeding areas is generally poor due to difficulties of geography and location. Here we describe how the data obtained from geolocators can be used to obtain information about incubation timings relative to arrival and departure of several species of shorebirds studied by VWSG and AWSG in 2009 to 2011. The core of the study is related to 26 geolocators retrieved from Ruddy Turnstone originally banded at Flinders, Victoria, SE of SA and King Island, Tasmania. Our presentation will show data demonstrating successful breeding outcomes in almost half of the birds studied. Moreover, we present evidence that a second nesting attempt is often made in the case of the first attempt failing. Data from smaller samples from Eastern Curlew and Sanderling will also be presented. This information is important to aid the understanding of breeding characteristics and their influence on population dynamics. It also demonstrates the valuable contribution geolocators can make to improve our understanding of shorebird behaviour and ecology.

UNLOCKING SOME OF THE MYSTERIES OF MIGRATION – GEOLOCATORS PROVIDING NEW INSIGHTS OF THE MIGRATION STRATEGIES FOR FOUR SHOREBIRD SPECIES

Clive Minton and Ken Gosbell

During 2009 to 2011, the VWSG and AWSG deployed a number of geolocators on four different species, Ruddy Turnstone, Eastern Curlew and Sanderling in several locations in Southeast Australia and Greater Sand Plover in Broome, northwest Australia. With good retrieval rates on Ruddy Turnstone and Greater Sand Plover, we were able to increase our knowledge of migration strategies for both these species in particular. The northward migration of Ruddy Turnstone was on a narrow path with many birds completing an initial non-stop flight of 7,600 km to Taiwan. Most later staged in the Yellow Sea before locations became indiscernible as birds encountered continuous daylight. The southward migration paths generally showed a much wider spread, ranging from Mongolia to the central Pacific including one of unexpected results was a bird that moved east to the Aleutian Islands before making a long trans Pacific flight in two successive years; a round trip of 27,000 km each year. Several birds have now been tracked for two successive years which provides evidence of repeat strategies. This program has already added to our knowledge of migration pathways, departure dates, return dates and speeds as well as highlighting several conservation issues. The use of the northern Yellow Sea as a stopover for Ruddy Turnstone was a new insight as was the widespread individual strategies of southward migration adopted by this species. We will present information on the migration strategy and timings for Eastern Curlew which breed in sub-Arctic regions. In the case of Greater Sand Plovers, we show how the use of the coasts of Vietnam for stopovers was important as they travelled to northern China and Mongolia to breed.

FEMALES FLY FURTHER – EXTREME DIFFERENTIAL MIGRATION IN THE GREY PLOVER

Danny Rogers

Grey Plovers (*Pluvialis squatarola*) are widespread long distance migrants, breeding in arctic tundra and migrating to non-breeding grounds thousands of kilometres to the south. We examined sex ratios in non-breeding populations of Grey Plover, using genetic methods to sex Grey Plovers captured in Australia, and label data to obtain sex-ratios from museum skins worldwide. Remarkably, over 98% of Grey Plovers in Australia proved to be female. The proportion of males in the non-breeding population increased gradually to the north, and the northernmost non-breeding populations of the East Asian – Australasian Flyway are dominated by males. Similar sex skews occur in other migratory flyways of the world, but they may be less strong. Grey Plovers appear to exhibit the strongest differential migration known in migratory waders. I discuss possible reasons, and also consider whether their differential migration increases their vulnerability to habitat loss.

BANDED STILTS: CROSS-CONTINENTAL MOVEMENTS BY AN EXTREME BOOM- BUST SPECIES

Reece Pedler and Andrew Bennett

Banded Stilts are iconic among Australian birds for their classic boom and bust life ecology strategy, which involves them travelling hundreds of kilometres to inland salt lakes following major rainfall events and breeding *en masse* in colonies totalling tens or hundreds of thousands to exploit rich but highly ephemeral food resources. Despite Australian ornithology's fascination with boom and bust and this species in particular, there is very little known about the strategies and cues important to this complex and risky ecological strategy, particularly in view of the threats facing the species from climate change, regulation of inland waterways, toxic waste-water storages and predation at breeding events. Early results from satellite tracking using 5 gram solar-powered tags attached to Banded Stilt at a recent breeding event demonstrate that a large number of inland ephemeral lakes, coastal wetlands and artificial salt fields play an important role as post-breeding stop-over sites for this species. Cross-continental scale movements demonstrate that the degree of interconnectedness between eastern and western Australia is likely to be much greater than previously thought and suggest that regular movements of hundreds of kilometres are commonplace for this species.

Other Talks

Ken Gosbell; EAAF Partnership Meeting (MoP7), Alaska, June 2013. Experience with geolocators in SE and NW Australia.

Roz Jessop – 14/11/2012 “Natal Dispersal of Hooded Plover at Phillip Island”. Mornington Peninsula Field Naturalists

Web sites

Global Flyways Network for reports on work in Bohai Bay

<http://globalflywaynetwork.com.au/>

www.vicnet.net.au/~vwsq

VWSG Financial Report

Rosemary Davidson and Clive Minton

The Victorian Wader Study Group's finances continue in a healthy condition. The "normal" items and totals for operating income and operating expenditure were almost the same as in the previous year and again were almost balanced. However there was a considerably greater income in the 2012-13 financial year from donations and other special items such as the loan of equipment (and people) to Monash University. For the year as a whole total reserves increased by just over \$13,000.

The VWSG would particularly like to thank all those who have so generously supported its work with financial contributions during 2012-13. Maureen Christie, and her group Friends of Shorebirds South-east Australia, has been incredibly successful in obtaining financial contributions to cover the costs of geolocators applied to Sanderling and Ruddy Turnstone in South Australia. Coastcare Victoria (Bruce Atkin) is also greatly thanked for its annual contribution towards our operating costs such as electric fuses, black powder and engraved leg flags. Note that two such Coastcare contributions were actually received within the last twelve-month period, but these were to cover two "shorebird years".

Generous personal donations were also received from Jim Reside, Senator John Madigan (whom we happened to encounter when in the field at Inverloch) and from a range of VWSG members themselves.

The net result of this generous financial support is that we are able to afford good equipment and to purchase geolocators, engraved leg flags etc. as needed to maximise the data generated by our fieldwork activities.

Not included in the annual accounts, because they were paid for directly by the outside institutions, are electric fuses supplied through Parks Victoria, geolocators paid for by Marcel Klaassen/Deakin University, and boat hire for transport to Barrallier Island secured by Parks Victoria San Remo. Our considerable thanks are due to everyone.

Finally a long overdue acknowledgement to Rosemary Davidson, the VWSG Treasurer, for the huge effort she puts in to meticulously record our various income and expenditures during the year, and for putting together these annual accounts.



*Canunda Beach, South Australia
(Photo Roz Jessop)*

Victorian Wader Study Group Inc.

ABN 12 724 794 488

Income & Expenditure Statement for the year ended 30 June 2013

INCOME

| | |
|--|------------|
| Subscriptions | \$2,070.00 |
| Bank Interest | \$911.72 |
| Term Deposit Interest | \$1398.29 |
| Donations, M.Bennett, M. Burgess, B. Clifford, X. Dennett, D&J Gillespie, A. Gutowski, T. Ireton, B. Lane, M. Longden, P. Park, A. Renkin, N&N Roussac, J. Stevenson, N. Takeuchi, D. Thomas, H. Watson P. Wright, D&J Wyatt | \$670.00 |
| Proceeds from AGM Raffle | \$569.00 |
| Excess from AGM Food | \$232.00 |
| Sale of T Shirts | \$135.00 |
| Excess Manns Beach Hall hire | \$15.00 |

Sub-total **\$6001.01**

| | |
|---|----------|
| Donations from Flinders Shorebird Walk | \$170.00 |
| Payment for Andrew Isles Advertisement | \$50.00 |
| Sale of fuses to NWA | \$504.00 |

Sub-total **\$724.00**

| | |
|-------------------------------|------------|
| Grant from Coastcare | \$8,000.00 |
| Grant from Shorebirds SE | |
| Flags for Banded Stilt | \$970.00 |
| Geolocators for Sanderling | \$4,840.00 |
| Geolocators (CACC) | \$6,000.00 |
| Newberry Park School | \$300.00 |
| *Payment for use of equipment | \$4000.00 |
| Bendigo Wildlife J&J Reside | \$500.00 |
| Donation Sen. John Madigan | \$500.00 |

Sub-total **\$25,110.00**

| | |
|----------------------------|--------------------|
| TOTAL INCOME | \$31,835.01 |
| Cash Balance 1/07/2012 | |
| Petty Cash | \$40.65 |
| Westpac Com. Solns.Account | \$319.20 |
| Westpac Cash Res Bonus | \$27,027.05 |
| Westpac Term Deposit | \$26,310.78 |
| Macquarie Account | \$1089.96 |
| Un-presented cheque | \$222.00 |
| Net Total | \$54567.64 |

*Payment for use of VWSG equipment and personnel for catching terns for study of blue-green algae by Monash University.

EXPENDITURE

| | |
|---|-----------|
| Printing Bulletins | \$2139.50 |
| Postage, photocopying | \$257.50 |
| Bank charges | \$26.00 |
| Incorporation Fee | \$43.90 |
| Flowers and gifts for Eisenman Medal celebration | \$132.00 |
| Ethics License for SA | \$75.00 |

Sub-total **\$2,673.90**

Equipment

| | |
|--------------------------------|-----------|
| Spanners & mallets | \$183.00 |
| engraved flags & colour bands | \$2327.00 |
| Trailer registration & repairs | \$634.50 |
| Hovercraft fuel | \$270.00 |
| Stool Repairs | \$175.00 |
| Fuel for tern project | \$110.00 |
| Batteries & choc blocks | \$135.31 |
| Black powder | \$405.00 |

Sub-total **\$4,247.81**

| | |
|--|------------|
| Purchase of geolocators | \$6,306.20 |
| Payments for secretarial help for C. Minton | \$4959.20 |

| | |
|----------------------------|--------------------|
| TOTAL EXPENDITURE | \$18,187.41 |
| Cash Balance 30/06/2013 | |
| Petty Cash | \$71.25 |
| Westpac Com.Solns. Account | \$5477.71 |
| Westpac Cash Res Bonus | \$32,442.55 |
| Westpac Term Deposit | \$30,000 |
| Macquarie Account | \$215.73 |
| Net Total | \$68207.24 |

VWSG Inc. Membership List July 2013

Bev & Geoff Abbott
 Richard & Margaret Alcorn
 Charles & Jocelyn Allen
 Malcolm Allen
 Terri Allen
 Mark Anderson
 Peter Anton
 Allen Archbold
 Robyn & Steve Atkinson
 Tony Ball
 Graham & Jenny Beal
 Andy Bennett & Kate Buchanan
 Margaret Bennett
 Rob & Gail Berry
 David Billingham
 Malcolm & Judy Brown
 Paul & Anna Buchhorn
 Bill Bygott
 Gordon & Dawn Cameron
 Aiden Campbell
 Jeff & Sarah Campbell
 Mervyn & Ann Chappell
 Smathie Chong
 Rob Clemens
 Maureen Christie
 Allan Clarke & Marj Reni
 Bretan Clifford
 Pete Collins
 Christine Connelly
 Mike Connor
 Dave Cropley
 Monika Czastka
 Rosemary Davidson
 Michael Dawkins
 John Dawson
 Xenia Dennett
 Barbara Dickson
 Elizabeth Dunn
 Dianne Emslie
 Alice Ewing
 Jon Fallaw & Becky Hayward
 Erin Farmer
 Maureen & Robin Fitzgerald
 Tim & Liza Gale
 Dave Gerard
 Colin & Angela Gibbs
 Don & Joyce Gillespie
 Ken & Carlene Gosbell
 Andrew & Kath Gosden
 Doris Graham
 Nicole Grenfell
 Patrick-Jean Guay
 Angie Gutowski
 Graham Hancock
 Birgita Hansen
 Neville Hatten & Robin Borland
 Peter Haward
 Peter Hermans
 David & Margaret Hollands
 Vivien Holyoake
 Patsy Hohnen
 Tracey-Ann Hooley
 Peter Houston
 Damian Howard
 Tania Ireton
 Peter Jenkins
 Rosalind Jessop
 Penny & Murray Johns
 Steve Johnson
 Peter Johnstone
 Debbie King
 Marcel Klaassen

Irma Kluger
 Ken & Femmie Kraaijeveld
 Joy Knight
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