# VICTORIAN WADER STUDY GROUP

STUDY GROUP

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# EDITORIAL

The V.W.S.G. has in eight years accumulated an impressive amount of data - on catches, biometrics and banding records, recoveries, retraps and sightings of colour-marked birds. Data which, even with the aid of a computer, requires patience, care and long hours to assemble and marshall. By June this year the enormous total of 26,640 birds had been caught : 38,555 if birds handled in other States jointly with local groups are included. Of these no less than 19,722 have been processed.

In 1979 it was decided that there should be an initial five-year study ending in mid-1984. No doubt this will be followed by a further five year study. In any event the work continues and must be increasingly selective : the priorities are now indicated in the published Fieldwork Programmes.

In years to come overseas recoveries will perhaps be commonplace (the migration routes pass through many heavily populated areas) and even slightly boring. But for us fortunate pioneers each report brings excitement, satisfaction and sometimes, surprise. The most recent recoveries are of two Red-necked Stints in Da Nang, Vietnam. The importance of finding the staging areas on the routes to and from the breeding grounds of the Palearctic waders is clear. Can the recent reduction in numbers of Curlew Sandpipers be attributed only to lack of breeding success or can there be other reasons including loss or change in character of staging areas?

V.W.S.G. members have played a substantial part in what has now become an annual survey of the North-West coast of Australia. Nearer home, work will begin this Spring on Latham's Snipe at Seaford Swamp and at Point Henry near Geelong. Seaford Swamp is thought to be the most important wintering area for snipe in Victoria, possibly in Australia.

# FEEDING BEHAVIOUR OF FOUR SPECIES OF CALIDRIDINE SANDPIPER AT LAKE REEVE IN EAST GIPPSLAND

PETER DANN

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The Victorian Wader Study Group organised a course at the Rotomah Island Bird Observatory in conjunction with Royal Australasian Ornithologists Union on the identification and ecology of waders. The course was held from the 12th. to 15th. of February 1981 and one field session was devoted to a demonstration of the techniques used in describing the feeding behaviour of waders. It was also intended to attempt to relate observed behaviour of the waders to the potential prey species in the study area. The area chosen for the study was a series of saline pools on Lake Reeve, several kilometres west of Golden Beach in the Gippsland Lakes. Lake Reeve is a semi-permanent wetland which dries out into a long chain of isolated, shallow salt-pans. The saline pools in the study area were covered by a thick growth of algae which formed a mat over 70% of the area used by the feeding waders. The remaining 30% of the area was bare mud. A count at the beginning of the study recorded 129 Red Knots Calidris canutus, 300 Sharp-tailed Sandpipers C. ferruginea and 30 Red-necked Stints C. ruficollis in the study area.

The group of 14 observers was divided into 4 teams and each team assigned to a particular species. Three aspects of the feeding behaviour of the four species were examined:

1. Microhabitat preference
2. Feeding depth in substrate (i.e. mud, water)
3. Rate of feeding movements.

## 1. Microhabitat preference

The term 'microhabitat' is unfortunately vague but is used here in the sense of feeding patches or the distinguishable parts of this habitat (saline pools complex) used by waders when feeding.

The microhabitat preference of each species was examined by dividing up the study area on the basis of its physical characteristics. Four types of microhabitat were obvious and these were the wet and dry sections of both the algal mat and the bare mud. At five-minute intervals, the number of individuals of each species in each microhabitat was counted. This procedure was continued for approximately one hour and observers counted only those individuals whose position was clearly visible. The results are presented in Table 1.

Table 1
The number of observations and the percentage (in brackets) of the total observations for each species of wader feeding in each microhabitat at Lake Reeve.

| Species | Microhabitat | | | | Total |
|---|---|---|---|---|---|
| | Algal Mat | | Bare Mud | | |
| | Dry | Wet | Dry | Wet | |
| Red Knot | 236 (55.3%) | 0 | 3 (0.7%) | 188 (44%) | 427 |
| Sharp-tailed Sandpiper | 123 (21.1%) | 242 (41.4%) | 2 (0.3%) | 217 (37.2%) | 584 |
| Red-necked Stint | 6 (8.7%) | 7 (10.1%) | 30 (43.5%) | 26 (37.7%) | 69 |
| Curlew Sandpiper | 0 | 6 (17.1%) | 0 | 29 (82.9%) | 35 |
| Total | 365 (32.7%) | 255 (22.9%) | 35 (3.1%) | 460 (41.3%) | 1115 |

The red-necked Stints and Sharp-tailed Sandpipers fed in all four microhabitats to some extent and the Curlew Sandpipers and the Red Knots were largely confined to only two. Thus the Red Knots and Curlew Sandpipers may be considered more specialised in their choice of feeding patches. More waders fed in the algal mat areas (55.6% observations) than in the bare mud areas (43.4% observations), despite the algal mat being 70% of the available feeding area and the bare mud representing 30% of the available feeding area. It is apparent that the waders were not distributed at random over the available feeding areas as if this were the case the distribution of the waders would have been approximately 70% algal mat and 30% bare mud.

The highest percentages of feeding observations for each species generally occurred in different microhabitats:

| | |
|---|---|
| Red Knot | 55.3% of observations in dry algal mat |
| Sharp-tailed Sandpiper | 41.4% of observations in wet algal mat<br>37.2% of observations in wet bare mud |
| Red-necked Stint | 43.5% of observations in dry bare mud<br>37.7% of observations in wet bare mud |
| Curlew Sandpiper | 82.9% of observations in wet bare mud |

The first and second preferences in microhabitat use of Sharp-tailed Sandpipers (shown above) were not significantly different if simply compared to each other but if the smaller available area of bare mud is taken into account then this species use of the wet bare mud is of greater significance statistically

than was its use of wet algal mat. The first and second preferences in microhabitat use of the Red-necked Stints were within the bare mud area, no significant preference being obsedved between wet mud and dry mud: the relative size of the bare mud and algal mat areas does not affect this finding.

2. Feeding depth in substrate

The depth in the substrate at which the waders searched for and obtained food was recorded in three categories: pecks, jabs and probes. These depths were guaged by the proportion of the bill of individuals of each species that was inserted into the substrate while feeding. A peck was a feeding movement on the surface of the substrate; a jab was an insertion of up to one half of the bill length and a probe an insertion of more than one half of the bill length. Observers examined the individuals of their assigned species at ten-minute intervals for a period of one hour and recorded the number of individuals employing each method. The results are presented in Table2.

Table 2

The numbers of pecks, jabs and probes made by each species of wader while feeding at Lake Reeve. The percentages are given below each number.

| Species | Type of feeding movement | | | Total |
|---|---|---|---|---|
| | Peck | Jab | Probe | |
| Red Knot | 0 | 157 (79.7%) | 40 (20.3%) | 197 |
| Sharp-tailed Sandpiper | 78 (49.1%) | 53 (33.3%) | 28 (17.6%) | 159 |
| Red-necked Stint | 237 (32.8%) | 397 (55.0%) | 88 (12.2%) | 722 |
| Curlew Sandpiper | 147 (44.1%) | 22 (6.6%) | 164 (49.3%) | 333 |

Table 2 indicates that there are differences in the way in which each species uses the bill in the search for and the obtaining of food. Jabs were the most commonly employed feeding movements of Red Knots and Red-necked Stints. The Sharp-tailed Sandpipers largely pecked and jabbed while the Curlew Sandpipers predominently probed and pecked. The Red Knots were not observed to peck but the other three species used all three feeding movements to some extent in the observation period. It is unfortunate that the feeding movements could not be separated into searching movements or capturing and food taking movements. With waders of this size it is generally impossible to discern when a food item is taken. Studies on larger species of wader have shown that many of the shallower feeding movements are purely investigative and do not often result in the capture of prey.

3. Rate of feeding movements

The third parameter measured by each group was the rate at which the feeding movements were made. The number of feeding movements of an individual were counted over a five-minute period: counts for individuals which fed for less than five minutes were not recorded. The average rates of movements of each species are shown below in Table 3.

Table 3
The average rates of feeding movements of each species of wader while feeding at Lake Reeve.

| Species | Average rate | Number of Observations |
|---|---|---|
| Red Knot | 0.46/ second | 11 |
| Sharp-tailed sandpiper | 0.36/ second | 9 |
| Red-necked Stint | 1.38/ second | 6 |
| Curlew sandpiper | 0.65/ second | 4 |

It was found that the hydraulic-like manner in which the knots fed (stitching) was very difficult to quantify and so each series of the rapid movements was counted as one movement. Since each series of movements between one and twenty rapid insertions the rate of bill movements in knots greatly exceeded those of other sandpiper species.

An assessment of the potential diet of each species was made by examining their feeding behaviour, the types of food obvious on the feeding area and the benthic samples taken by Poore, Corrick and Norman (1979) in a similar area of Lake Reeve.

The Red Knots fed largely by jabbing and probing in the algal mat and bare mud areas at avery fast rate. It appears that they were searching for animals by touch since most of the plant material was on the surface of the substrate and the movements were too rapid to be purely prey capturing motions. Oligochaete worms, amphipods and gastropods were recorded by Poore, Corrick and Norman (1979) in February and were found to be present this study in the areas examined. All three types of animal bury in the substrate to some extent and it was noted that the gastropod snails were abundant undef the algal mat. The diet of the Red Knot seems to have consisted largely of gastropods and amphipods (also abundant in the area) and possibly oligochate worms (not as abundant as gastropods and amphipods).

The Sharp-tailed Sandpipers fed relatively slowly, close to the surface (pecking and jabbing) in the wet areas of the algal mat and bare mud. Their preference for wet areas where animal food is easier to captue suggests that this type of food was more important than plant material. Insect larvae and pupae were

common in the wet areas and observed to be active at the surface of the wet bare mud areas. The observations suggest that the insect larvae and pupae and gastropods were the most likely food items.

The Red-necked Stints fed close to the surface (pecking and jabbing) of the wet and dry bare mud areas at a relatively fast rate. Since they were,feeding largely on the surface of the mud it is probable that they were feeding by sight rather than touch and therefore that the high rate of bill movements is indicative of their feeding on very abundant items. Small seeds littered the dry bare mud areas and probably constituted a major food source of stints. Their behaviour in wet mud areas was similar to that of Sharp-tailed Sandpipers and presumably resulted in similar prey e.g. insect larvae and pupae and gastropods.

The Curlew Sandpipers at an intermediate rate by pecking and probing in predominantly wet bare mud areas or wet algal mat areas. Their preference for the wet areas and their use of deep insertions into the mud suggest animals as a chief food: oligochate worms were the only animals found at the depths at which Curlew Sandpipers appeared to be probing. Their pecking movements also suggest that gastropods, insect larvae and pupae and amphipods may have been taken.

The study illustrated that some indication of the diet of each species could be acheived fairly simply by examining the feeding behaviour of the birds. The differences in feeding behaviour reflect differences in diet in either the species taken or the size of prey taken. It is arguable that competition for food, either in the past or present, has resulted in these four closely related species exhibiting these differences in behaviour.

I should like to thank all the participants in this study and the wardens of the Rotomah Bird Observatory (Mr Allan Burbidge and Ms Julie Raines) for their enthusiastic assistance.

Reference.

Poore G.C.B., Corrick A.H. and Norman F.I. (1979) 'Food of three waders at Lake Reeve, Victoria'. Emu 79: 228-9.

## LOCATIONS OF WADERS CAUGHT IN VICTORIA

| | TO JUNE 1982 | JULY-DEC 1982 | JAN-JUNE 1983 | TOTAL |
|---|---|---|---|---|
| Werribee | 17,511 | 1,516 | 925 | 19,952 |
| Westernport Bay | 3,299 | 443 | 818 | 4,560 |
| Queenscliff/ Pt Lonsdale | 2,112 | 138 | 802 | 3,052 |
| Corner Inlet | 1,187 | - | 271 | 1,458 |
| Anderson's Inlet | 988 | - | - | 988 |
| Altona | 216 | 33 | 39 | 288 |
| Bendigo (Sewage Farm) | 70 | 46 | 27 | 143 |
| Seaford Swamp | 98 | - | - | 98 |
| Mud Island | 35 | - | - | 35 |
| Seaspray (Lake Reeve) | 18 | - | - | 18 |
| | 25,534 | 2,176 | 2,882 | 30,592 |

Totals include 26,640 newly banded birds and 3,952 retraps of 29 species.

## WADER BANDING TOTALS

## CATCHES IN VICTORIA - JULY TO DECEMBER 1982

| | NEW | RETRAP | TOTAL |
|---|---|---|---|
| Pied Oystercatcher | 9 | - | 9 |
| Masked Lapwing | 14 | - | 14 |
| Grey Plover | 18 | - | 18 |
| Red-kneed Dotterel | 20 | 10 | 30 |
| Hooded Plover | 1 | - | 1 |
| Double-banded Plover | 31 | 3 | 34 |
| Red-capped Plover | 20 | 10 | 30 |
| Black-fronted Plover | 17 | 2 | 19 |
| Blackwinged Stilt | 2 | - | 2 |
| Red-necked Avocet | 6 | - | 6 |
| Ruddy Turnstone | 1 | - | 1 |
| Eastern Curlew | 11 | - | 11 |
| Bartailed Godwit | 23 | - | 23 |
| Red Knot | 76 | 2 | 78 |
| Great Knot | 13 | 1 | 14 |
| Sharp-tailed Sandpiper | 329 | 12 | 341 |
| Rednecked Stint | 908 | 303 | 1211 |
| Curlew Sandpiper | 288 | 46 | 334 |
| | 1787 | 389 | 2176 |

# WADER BANDING TOTALS

## CATCHES IN VICTORIA - JANUARY TO JUNE 1983

| | NEW | RETRAP | TOTAL |
|---|---|---|---|
| Pied Oystercatcher | 21 | 23 | 44 |
| Sooty Oystercatcher | 2 | - | 2 |
| Masked Lapwing | 60 | 3 | 63 |
| Red-kneed Dotterel | 9 | 1 | |
| Double-banded Plover | 45 | 13 | 58 |
| Redcapped Plover | 11 | - | 11 |
| Blackfronted Plover | 11 | - | 11 |
| Blackwinged Stilt | 1 | - | 1 |
| Eastern Curlew | 8 | - | 8 |
| Terek Sandpiper | 2 | - | 2 |
| Red Knot | 17 | 3 | 20 |
| Sharp-tailed Sandpiper | 133 | 1 | 134 |
| Rednecked Stint | 1415 | 390 | 1805 |
| Curlew Sandpiper | 610 | 103 | 713 |
| | 2345 | 537 | 2882 |

# VICTORIAN WADER CATCHES
## 1975 to 30 JUNE 1983

| | NEW | RETRAP | TOTAL |
|---|---|---|---|
| Pied Oystercatcher | 187 | 75 | 262 |
| Sooty Oystercatcher | 4 | 1 | 5 |
| Masked Lapwing | 108 | 3 | 111 |
| Grey Plover | 27 | - | 27 |
| Lesser Golden Plover | 38 | 4 | 42 |
| Redkneed Dotterel | 116 | 11 | 127 |
| Hooded Plover | 12 | 1 | 13 |
| Mongolian Plover | 52 | 2 | 54 |
| Doublebanded Plover | 645 | 39 | 684 |
| Large Sand Plover | 11 | - | 11 |
| Redcapped Plover | 324 | 104 | 428 |
| Blackfronted Plover | 47 | 2 | 49 |
| Blackwinged Stilt | 9 | - | 9 |
| Rednecked Avocet | 58 | - | 58 |
| Ruddy Turnstone | 74 | - | 74 |
| Eastern Curlew | 45 | - | 45 |
| Greytailed Tatler | 3 | - | 3 |
| Greenshank | 1 | - | 1 |
| Terek Sandpiper | 8 | - | 8 |
| Latham's Snipe | 26 | - | 26 |
| Bartailed Godwit | 305 | - | 305 |
| Red Knot | 321 | 18 | 339 |
| Great Knot | 120 | 3 | 123 |
| Sharptailed Sandpiper | 1926 | 40 | 1966 |
| Little Stint | 1 | - | 1 |
| Rednecked Stint | 16912 | 3052 | 19964 |
| Longtoed Stint | 1 | - | 1 |
| Curlew Sandpiper | 5246 | 597 | 5843 |
| Sanderling | 13 | - | 13 |
| | 26640 | 3952 | 30592 |

29 species

## ANNUAL WADER BANDING TOTALS BY VWSG IN VICTORIA

| CALENDAR YEAR | NEW | RETRAPS | 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 |
| Total catches in Victoria to end 1982 | 24295 | 3415 | 27710 |
| Jan - June 1983 | 2345 | 537 | 2882 |
| Total to 30/6/83 | 26640 | 3952 | 30592 |

## WADER CATCHES IN OTHER STATES IN WHICH VWSG HAS PARTICIPATED

| | | NEW | RETRAPS | TOTAL |
|---|---|---|---|---|
| Tasmania (Hobart) | Nov 1979 | 1244 | 83 | 1327 |
| Sth Aust (Adelaide) | Feb 1980 | 815 | 5 | 820 |
| N.S.W. (Newcastle & Botany Bay) | Mar 1981 | 906 | 15 | 921 |
| North West Aust(Broome) | Aug/Sept 1981 | 1183 | 6 | 1189 |
| North West Aust (Broome/ 80 Mile Beach/ Port Hedland) | Aug/Sept/ Nov 1982 | 3582 | 124 | 3706 |
| | | 7730 | 233 | 7963 |

If these birds, handled during joint operations with local groups in other States, are included the VWSG has now been involved in the catching of 38,555 waders.

# FLUCTUATIONS IN HOODED PLOVER NUMBERS AT VENUS BAY IN 1981 AND 1982.

Martin Schulz and Lindy Lumsden

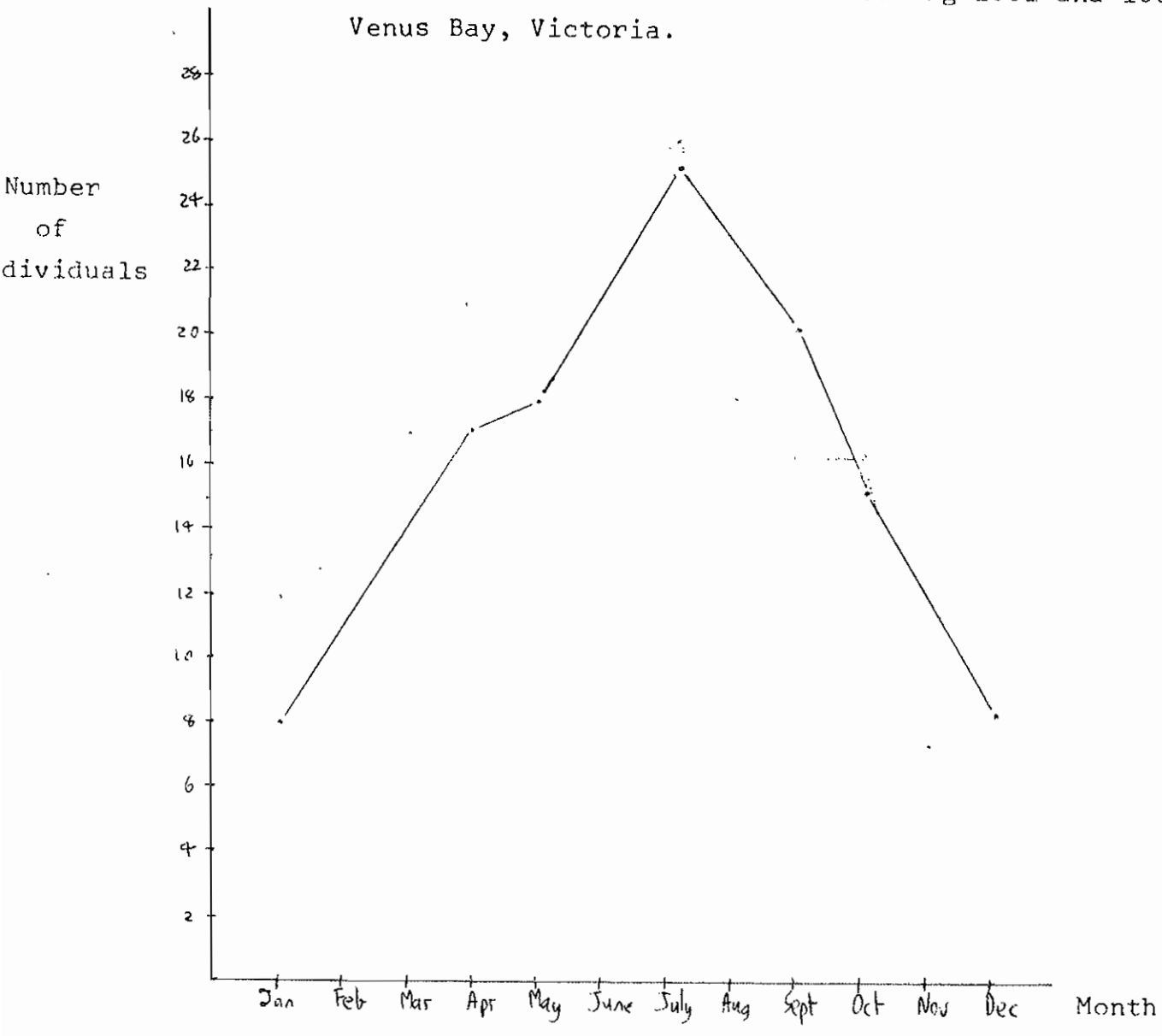
A ten kilometre stretch of beach at Venus Bay (38° 53'S., 146° 12'E.) was surveyed once during most months of 1981 and 1982. Counts were conducted during varying tide and weather conditions by walking at the high tide level of the beach and noting all birds that were judged as not having been recorded earlier. The problem of duplication was eliminated in many instances by walking in the sand dunes to avoid flushing the birds.

Figure 1. illustrates the number of Hooded Plovers counted during the months of 1981 and 1982. Numbers in both years followed a similar trend, being lowest in the period from November to January and highest in July with a maximum of twenty-six and twenty-five seen in the respective years. After July in both years the number of Hooded Plovers declined till reaching the low of the late spring and summer months. A similar trend has also been noted at Darby Beach, Wilson's Promontory (Authors' pers. obs.).

Correlated with the larger numbers observed during the winter months was the frequent occurrence of loose aggregations of this species. These averaged ten birds (Standard Error=3.9), with a maximum of fifteen individuals observed. In contrast during the late spring and summer months the majority of sightings were of single birds or pairs. In this latter period the largest aggregation recorded was of four individuals. A similar trend was noted on Darby Beach, where the largest aggregation observed was of twenty-eight individuals in July, 1982 (Authors' pers. obs.).

The occurrence of the winter aggregations is probably the result of flocking of non-breeding birds. However, this leaves open the question as to where do these birds go during the summer months. Perhaps the best way this could be answered would be to conduct monthly Hooded Plover counts along the Victorian coastline to quantify fluctuations in numbers and to look for areas which have marked increases in the numbers of the species present in the summer months.

Figure 1. The number of Hooded Plovers observed during 1981 and 1982, Venus Bay, Victoria.




Key:

- · · · 1981
- ——— 1982

# TWINKLE, TWINKLE LITTLE STINT

(A Reflection on One Year of Wader Banding)

By Alexandra Djurovich

I open my eyes. I nearly awaken to a sea of glistening stars shining above my head. Dawn's light is steadily penetrating the mire of darkness. The lilting call of two swans nearly returns me into my previous blissful slumber. I take a deep breath - immediately my nasal passages are twitching. My whole body is reverberating from this unexpected sensory shock. I truly awaken. WERRIBEE!!

Hearing the name and my best friends (pardon me) turn their noses up.

Well, I'm no snob. I'll rub noses (beaks, bills, proboscuses) with two thousand stints any day.

Why, they traverse eight thousand miles every year to come here. A perilous journey indeed, spanning two continents. They actually seem to prefer the place to anywhere in Australia.

Although, upon reflection, I've spanned two continents to spend almost every other weekend at this same undesirable place. (There might be some basis here to theorize on Werribee's attraction to Northern Hemispherians).

Yes, Werribee certainly has its abundance of stints. However, the objective is not to postulate on their numbers, but to catch the poor little dears. It is for this reason alone that my colleagues and I put up with a few minor discomforts.

For example, icy wet hands, piercing bay winds, lumbering and cumbersome gum boots, lack of food and all to often unresponsive and aching muscles.

There are some concessions, however. Where else may one have the immense pleasure of spending a night or two at the remote but well appointed 'Werribee Hilton' ?

But don't take my word for it - come and see what a fun place Werribee is on a Sunday morning or Friday night or Saturday afternoon or . . . . (you will cherish every poignant memory).

## RECOVERIES OF BANDED BIRDS

### Pied Oystercatcher

| | | | | |
|---|---|---|---|---|
| 100-82069 | Adult | 8.3.80 | Werribee | |
| | Recaptured | 26.3.83 | Queenscliff | 25 km SSE |

The following were recaptured at Queenscliff on 25/6/83.

| | | | | |
|---|---|---|---|---|
| 100-82065 | Adult | 8.3.80 | Werribee (P/R 3.5.81 Queenscliff) | 25 km SSE |
| 100-82066 | " | " | " | " |
| 100-82080 | " | " | Werribee (P/R 13.6.81 Queenscliff) | " |

More new Werribee/Queenscliff movements, including two birds which had previously been recorded there.

### Bartailed Godwit

| | | | | |
|---|---|---|---|---|
| 071-51111 | 1 yr old | 30.10.82 | Queenscliff | |
| | Found dead | 15.1.83 | Rhyll, Phillip Is. | 60 km ESE |

This is the first recorded movement between locations in Victoria of a Bartailed Godwit.

### Red Knot

| | | | | |
|---|---|---|---|---|
| 051-04864 | Juvenile | 6.11.78 | Werribee | |
| | Recaptured | 31.10.82 | Queenscliff | 25 km SSE |

This is the fourth Red Knot banded as a juvenile at Werribee and subsequently recaptured as an adult at Queenscliff.

### Sharptailed Sandpiper

| | | | | |
|---|---|---|---|---|
| 051-11615 | Adult | 21.3.81 | Newcastle, NSW | |
| | Recaptured | 28.12.82 | Werribee | 850 km SW |

This is the first recapture/recovery showing movement from nearly 2000 Sharptailed Sandpipers caught by the VWSG. It is only the second (and by far the largest) movement of a Sharptailed Sandpiper recorded within Australia.

### Rednecked Stint

| | | | | |
|---|---|---|---|---|
| 032-45946 | Juvenile | 15.11.81 | Inverloch | |
| | Recaptured | 8.5.82 | Yallock Creek, Westernport | 52 km NNW |
| 032-27534 | Juvenile | 17.1.81 | Werribee | |
| | Recaptured | 4.12.82 | Yallock Creek | 85 km ESE |

| | | | | |
|---|---|---|---|---|
| 032-19052 | Juvenile | 13.4.79 | Werribee | |
| | Recaptured | 30.12.82 | Hobart, Tas. | 605 km SSE |
| 031-91132 | Freeflying | 6.11.78 | Werribee | |
| | Recaptured | 27.3.83 | Queenscliff | 25 km SSE |

Note, again, the predominance of birds banded as juveniles. Adults very rarely change location (except of course on migration).

Curlew Sandpiper

| | | | | |
|---|---|---|---|---|
| 040-97590 | Adult | 26.1.80 | Werribee | |
| | Bought from market (dead) | 15.5.81 | Shanghai, China | 8000 km NW |

This is the third VWSG (and fifth Australian) Curlew Sandpiper to be recovered in China or Hong Kong. All were recovered in April/May during their northward return migration to their Siberian breeding grounds.

| | | | | |
|---|---|---|---|---|
| 040-96206 | Adult | 30.11.79 | Werribee | |
| | Recaptured | 27.8.82 | Port Hedland, WA | 3200 km NW |

This is our longest wader movement so far within Australia. In conjunction with the reports of colour dyed birds (see later) it suggests that NW Australia may be the entry point on migration for many waders coming to SE Australia.

Fairy Tern

| | | | | |
|---|---|---|---|---|
| 041-12187 | Adult | 28.3.82 | Queenscliff | |
| | Found dead | 19.3.83 | French Island, Westernport | 54 km ESE |

This is the furthest movement so far of a VWSG banded Fairy Tern. The following were recaptured at Queenscliff on 26/6/83.

| | | | | |
|---|---|---|---|---|
| 040-28419 | Pullus | 7.1.76 | Queenscliff | - |
| 040-28437 | " | 10.1.76 | Moolap | 25 km SE |
| 040-68666 | " | 19.1.82 | Werribee | 25 km SSE |
| 040-68680 | " | " | " | " |

The first two were banded by Roy Wheeler, bringing to four the number of old birds of his which the VWSG has caught.
The latter two retraps also bring to four the number of birds recaptured at Queenscliff from the 30 chicks, banded in the Fairy Tern colony on the South Spit at Werribee on 19 January 1982. These recaptures suggest that many Fairy Terns may not move far from their natal area, even in winter.

Crested Tern

| | | | | |
|---|---|---|---|---|
| 071-06658 | Pullus | 14.12.68 | Stonywell Island, SA | |
| | Recaptured | 26.6.83 | Queenscliff | 510 km ESE |

The following were recaptured at Queenscliff on 5/3/83.

| | | | | |
|---|---|---|---|---|
| 070-65676 | Pullus | 3.1.74 | West Island, SA | 590 km ESE |
| 071-30193 | " | 11.12.76 | (Stonywell Is. | 510 km ESE |
| 071-30214 | " | " | (The Coorong, SA | " |

The following were seen (band numbers read by telescope) at Beaumaris on 13.3.83.

| | | | | |
|---|---|---|---|---|
| 071-00369 | Pullus | 16.12.67 | Stonywell Is.SA | 540 km ESE |
| 071-01807 | " | 23.12.67 | Penguin Is, Beachport, SA | 440 km E |
| 071-07480 | " | 29.12.68 | Stonywell Is.SA | 540 km ESE |
| 071-07924 | " | 14.12.69 | " | " |
| 071-16445 | " | 28.12.70 | " | " |
| 071-15796 | " | 27.12.71 | Penguin Is.SA | 440 km E |
| 070-53401 | " | 6.12.79 | Stonywell Is.SA | 540 km ESE |
| 071-47233 | " | 12.12.82 | " | " |
| 071-47338 | " | " | " | " |
| 071-56038 | " | 26.12.82 | " | " |

This series of recoveries further confirms that the marked autumn passage of Crested Terns along the coast of Victoria is mainly of birds of South Australian origin. Note that two birds were in their sixteenth year, whilst three were juveniles. The 11 birds whose band numbers were read with a telescope were in a high tide roost of about 80 Crested Terns at Ricketts Point - there were two or three additional banded birds whose band numbers were not identified.

STOP PRESS!!

Two exciting Rednecked Stint recoveries just reported - movements of 7200 km N.W.

| | | | |
|---|---|---|---|
| 032-24453 | Juvenile | 26.1.80 | Werribee |
| | Killed? | 1.5.83 | Da Nang, VIETNAM |
| 032-38839 | Adult | 9.1.83 | Barry Beach, Corner Inlet |
| | Killed? | 1.5.83 | Da Nang, VIETNAM |

And some more movements unearthed in our recent retraps ("processed" as usual, by Julie Strudwick)

Rednecked Stint

| | | | | |
|---|---|---|---|---|
| 032-14340 | Fullgrown | 21.11.81 | Perth, W.A. | |
| | Recaptured | 19.2.83 | Werribee | 2700 km ESE |
| 032-35610 | Adult | 2.10.82 | Werribee | |
| | Recaptured | 5.3.83 | Queenscliff | 25 km SSE |
| 032-45224 | Juvenile | 15.11.81 | Inverloch | |
| | Recaptured | 27.3.83 | Queenscliff | 110 km WNW |

Curlew Sandpiper

| | | | | |
|---|---|---|---|---|
| 040-94744 | Adult | 15.9.79 | Darwin, N.T. | |
| | Recaptured | 19.2.83 | Werribee | 3100 km SE |

## FURTHER SIGHTINGS OF COLOUR-MARKED BIRDS

Colour banded and/or colour dyed birds sighted away from their banding location are detailed below.

### Pied Oystercatcher

- 5/12/82 — Mud Island — David Eades
  One (hydrid) - with pure Sooty Oystercatcher nearby - had blue colour band indicating it had been banded at Werribee (moved 32 km SE)

- 15/1/83 — Currie, King Island, Bass Strait — Dennis Whitchurch (via Mike Newman)
  One blue colour banded bird from Werribee (moved 220 km SSW). This is the furthest movement of a Pied Oystercatcher yet recorded in Australia.

- 13/2/83 — Mud Island — John Starks
  One pale green-banded bird from Queenscliff (moved 9 km E). Although waders are regularly seen flying towards Mud Island from Queenscliff, this is the first sighting of a colour-banded bird.

- 8/3/83 — Seaholme Mudflats, Williamstown — Brett Lane
  Out of 36 birds present 2 had come from Werribee (blue colour bands) and 1 from Queenscliff (pale green colour band) - movements of 35 km NE and 45 km N respectively.

- 19/3/83 — Shallow Inlet — Eric Jones & Clive Minton
  One, out of a flock of 22, had come from Werribee (blue colour band) - a movement of 170 km SE.

- 2/10/82 — Yallock Creek — Andrew Corrick
  One orange colour-banded bird from Rhyll, Phillip Island (banded 1/3/80) - moved 30 km NNE

### Doublebanded Plover

Reports of two more colour banded birds were received from New Zealand. They were both recorded at the Cass River Delta, Lake Tekapo, by Ray Pierce

a) The bird first seen between 19/11/81 and 15/12/81 (see VWSG Bulletins Nos. 5 & 6) was again present during the 1982 breeding season. It was seen regularly between 6/10/82 and 15/12/82 and successfully reared one chick. This bird would have been banded at Werribee or Altona in the 1981 winter.

b) A colour dyed/colour banded bird was first seen on 25/9/82 and had two chicks when seen on 5/12/82. It was a male bird and would have been banded at Pt Cook, Altona, on either 25/4/82 or 10/7/82.

The above records represent movements of approximately 2000 km ESE. The latter report brings to 7 the number of birds recorded moving between Victoria and the centre of South Island, New Zealand. All these recoveries have been derived from colour banded and/or colour dyed birds.

Curlew Sandpiper

Out of 862 Curlew Sandpipers colour-dyed during the Australasian Wader Studies Group Expedition to the Broome/80 Mile Beach/ Port Hedland area of NW Australia between 18/8/82 and 9/9/82 the following reports of sightings in Victoria were received -

a) One at Little River Mouth, Werribee on 24 September and 3 October
b) One at Reedy Lakes, Geelong, on 9 October

Both birds were seen by Bob Swindley et al. These records represent movements of approximately 3200 km SE across the centre of the continent within only a few weeks of being banded.

Rednecked Stint

Out of 994 Rednecked Stints colour dyed during the expedition mentioned above the following reports of sightings in Victoria were received.

a) One at Werribee on 3 October (David Eades)

b) Nine separate birds at Werribee on 31 October (Bob Swindley et al)

c) One at Black Rocks Sewage Outfall, Torquay on 6 November (Chris Doughty)

d) One at Yallock Creek, Westernport on 4 December (Clive Minton)

These 12 records represent movements of around 3200 km SE and almost certainly indicate wader migration across the centre of the continent on a significant scale.

## SOME INTERESTING LOCAL RETRAPS

### Redcapped Plover

032-12736 Banded as adult male at Werribee S.F. on 7 May 76 and recaptured, for the first time, on 24 July 82 - over 6 years 2 months after banding.

### Curlew Sandpiper

040-91227 Banded at Werribee S.F. on 13 March 76 and recaptured for the first time, on 28 Dec 82 - over 6 years 9 months after banding.

### Rednecked Stint

| | | | |
|---|---|---|---|
| 032-21686 | Adult | 22.12.79 | Yallock Creek |
| | Recaptured | 23.11.80 | " |
| | " | 17.1.81 | " |
| | " | 31.1.81 | " |
| | " | 20.12.81 | " |
| | " | 4.12.82 | " |
| | " | 2.1.83 | " |

This bird has been caught in almost every Rednecked Stint catch made at Yallock Creek - seven times in three years! In addition, there have been (at Werribee) 20 retraps of birds at least 4 years old, 8 retraps of birds at least 5 years old, and 4 retraps of birds at least 6 years old.
Details of the two oldest are:

| | | |
|---|---|---|
| 032-12748 | 1st year | 7.5.76 |
| | Recaptured | 24.2.79 |
| | " | 19.2.83 |

(6 years 9 months after banding; aged $7\frac{2}{3}$ years)

| | | |
|---|---|---|
| 032-13927 | Freeflying | 31.12.76 |
| | Recaptured | 17.1.81 |
| | " | 20.2.83 |

(6 years 3 months after banding; minimum age $6\frac{2}{3}$ years)

The two most frequently recaptured birds at Werribee have been:

| | | |
|---|---|---|
| 032-15768 | Freeflying | 6.11.78 |
| | Recaptured | 10.3.79 |
| | " | 26.1.80 |
| | " | 13.4.80 |
| | " | 1.11.81 |
| | " | 19.2.83 |

| | | |
|---|---|---|
| 032-18505 | Freeflying | 12.3.79 |
| | Recaptured | 13.4.80 |
| | " | 7.12.80 |
| | " | 3.4.81 |
| | " | 1.11.81 |
| | " | 19.2.83 |

# A Preliminary Note on Wader Counts at Stockyard Point, Westernport Bay, Victoria, 1973-1983

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## Introduction and aims

Ten years' frequent counts of flocks of waders roosting at high tide at Stockyard Point in the north-eastern corner of Westernport were completed on 2 March, 1983. Counts were made on 431 dates, which may be an Australian record for prolonged intensity of counting at a single site. Twenty-six species of waders were observed, though only twelve of them occurred with any regularity. The results of the counts have been entered in the La Trobe University computer. Summary tables of a number of 'accounting' aspects of the data such as monthly numbers of observations made and average counts, flock sizes and maxima and minima of birds seen have been produced by a computer program written by Dr G.C. O'Brien of the School of Economics. Detailed analyses of factors influencing variations in numbers are planned, as described briefly below.

The present note records the background to the series of counts and introduces reference tables of monthly fluctuations in numbers. These constitute a solid body of material about round-the-year (month by month) changes in wader numbers on the Victorian coast and contain some interesting features. It is suggested that readers should jot down their current expectations of relative monthly numbers in central Victoria for species they are interested in, before reading on or examining the tables. Any novelty in our results can be assessed fairly only in this way.

The scientific aims of the counts have been, firstly, to collect a body of reference data on round-the-year numerical fluctuations since this did not seem to be available in print, and second to try to generate explanations of variance in the numbers by means of correlations with tide and weather variables.

## Location

Stockyard Point consists of two small sand spits in the north-eastern corner of Westernport, just east of the tidal watershed and opposite French Island. The Point is one of some two dozen stations counted regularly since 1973 in the course of the Bird Observers' Club Westernport Survey, although most of the 431 counts reported here are additional to those and were made by the writer and his wife and other individual observers.

Stockyard Point's wader population feeds on mudflats adjacent to the spits when the flats are exposed at low tide, and is relatively self-contained. There is some exchange of birds with roosts a very few kilometres away at Yallock Creek, French Island and The Gurdies; part of this may be related to very high tides which restrict areas available for roosting and part to disturbance. But on the whole there is little interchange with other roosts and certain species (for instance Golden Plover, Ruddy Turnstone and Grey-tailed Tattler) regularly to be seen at Reef Island, only 17 km. south, very seldom appear at Stockyard.

## Origin of the counts

There are four main attributes of bird-watching: philatelic, or (record-) collecting; sporting (the chase); aesthetic; and scientific.

The bulk of the counts reported here arose from a mixture of these aims and the scientific motive is partly post hoc rationalisation. Finding time for so many counts is difficult for amateurs and explains some deficiencies in systematically collecting ancillary or more detailed information, e.g. on the age-composition of flocks.

Counts at close intervals began in December 1976 when the writer and his wife (SBJ) acquired a weekend cottage in Lang Lang. Hailing originally from the Portsmouth Group, which has so much influenced amateur birdwatching in England, partly by making since 1952 the best sequence of species counts for any intertidal system in Europe (Tubbs 1977; see also Porter 1982), it did not occur to us at first that in Australia wader counts would be so new, few and taken at such widely-spaced dates. Neither did it occur to us that some of the observers who did visit major roosts would not keep records of what they saw. We knew, after all, that the BOC Westernport Survey was in progress and we began to participate in it. When the rarity of other and more frequent local counts dawned on us, it seemed worth intensifying our own efforts and collecting together with our observations all the Stockyard Point counts made by the BOC Survey and individual birdwatchers.

In this respect we were very lucky. Andrew Corrick could supply counts made in the course of his graduate work as early as 3 March 1973. These pre-date even the Westernport Survey organised successively by Richard Loyn, Pat Bingham and Peter Dann from October 1973 (originally monthly, latterly five times per year). Kaye Turner, who originally organised the Stockyard section of the Survey, filled in some gaps and other individuals provided counts from their field notebooks. Thanks to them all.

As it is, 1974-1976 are lean years and the months from June 1979 through January 1980, when ELJ and SBJ were abroad together, are thin (few more than the Survey counts in either period). Furthermore our own records pick out weekends and vacations within the Victorian educational system, and certain months of the year, notably June-July, fall well below the monthly average of number of counts. Latterly, however, special weekday visits by Brenda Murlis and Peg Mitchell helped to offset this bunching. Overall the 431 count dates for a ten-year period seem exceptional in Australian circumstances; and the counts are continuing. All non-passerine species are counted; only waders are referred to here. The VWSG has cannon-netted at Stockyard two or three times and birds colour-ringed then and at Yallock Creek and Rhyll on other occasions are noted when field conditions permit.

Procedures

The standard approach of the BOC count at Stockyard has been followed, as laid down in notes prepared in connection with the Westernport Environmental Study in 1975. This applies to all or almost all observers. Most of the route followed is a beach walk undertaken within two hours of the high tide. A majority of observations has in practice been made by ELJ and SBJ, usually jointly, both using X10 binoculars. On most occasions it is possible to identify all individual birds present and while there is likely to have been some learning-by-doing effect, variations in counting efficiency are unlikely to have been great.

Results

The seven most regular species were Pied Oystercatcher, Masked Lapwing, Double-banded Plover, Red-capped Plover, Eastern Curlew, Red-necked Stint, and Curlew Sandpiper, with presences on between 43% and 88% of all count dates. These species are a mixture of northern hemisphere migrants, Australian residents, and a trans-Tasman migrant. There are five intermediate species, seen on 10% to 22% of all visits. At the other end of the scale are fourteen species with trivial rates of occurrence (< 1% to 3%), and these are dealt with here by a summary list (table 3) of all their records. Stockyard is not an exciting wader spot: the average chance of seeing a wader species other than the twelve commonest is only once in seven visits. The highest mean maximum count is in February, with a total of 1249 individuals of all species, although the total seen on any given day is necessarily lower than this, give or take the effect of the presence of very occasional flocks estimated at one thousand Red-necked Stints.

It is worth noting some subjective impressions which survived in our minds through so many visits and which only the computer print-out disposed of: we would never have guessed that Whimbrel or Knot really occurred as frequently as the records show, nor would we have known with any precision the peak months for individual species which show up in the summarised figures (tables 1 and 2). This stresses the need not merely to visit often and keep records, but to examine them closely if one wishes to discern the time-pattern of occurrences.

The main information tabulated here is of the mean maximum counts of the twelve commonest species by month. The reason for averaging the maximum monthly counts over the ten years, apart from smoothing away the

effects of exceptional breeding seasons, is that average monthly counts may be biassed downwards by accidental factors such as disturbance. These data are presented in two ways: table 1 gives the absolute mean values of the maximum counts by month for the ten years (3.3.73 - 2.3.83), which enables the relative numbers of the various species to be compared. These numbers have however been adjusted upwards to simulate ten-year means in cases where counts were made in a given month in only eight or nine years.

Table 2 converts the data in table 1 to relatives on a base 100 (mean July maximum = 100, except for Knot and Sharp-tailed Sandpiper for which there are no July records and where August has been taken as 100). From table 2 the patterns of month-by-month variation for different species may be compared, though not the absolute levels. Histograms on the same scale for all species would be very different in size because of the great variation in the absolute numbers of species. They would not be as easy for the eye to assimilate as the table of relative monthly fluctuations on base 100. July was selected as the base month since for many species it represents the mid-winter low and the subsequent (Australian) spring and summer build-up in the numbers of northern hemisphere migrants, and their autumn decline, may easily be seen. Australian residents such as Pied Oystercatcher and Masked Lapwing exhibit a sufficiently similar pattern, though dropping to their lowest totals in the spring, and building up again in late summer and autumn. Obviously the New Zealand Double-banded Plover does not experience a July low, but with five months total absence in the year - unlike most lingering northern hemisphere migrants - its pattern is particularly clear. Altogether July represents a suitable base month, being the lowest month for total (mean maxima) numbers.

Table 1

Means of maximum counts, by month, 1973-1983

To nearest whole number except for Whimbrel, Terek Sandpiper, Bar-tailed Godwit, Knot, and Sharp-tailed Sandpiper; peak months italicized.

| | J | A | S | O | N | D | J | F | M | A | M | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pied Oystercatcher | 24 | 16 | 8 | 3 | 4 | 4 | 7 | 30 | 28 | *34* | *34* | 26 |
| Masked Lapwing | 16 | 19 | 18 | 24 | 15 | 25 | 30 | 42 | 31 | 67 | *144* | 95 |
| Double-banded Plover | *72* | 47 | 0 | 0 | 0 | 0 | 0 | 5 | 48 | 32 | 37 | 46 |
| Red-capped Plover | 10 | 9 | 12 | 8 | 7 | 10 | 11 | *14* | 9 | 12 | 13 | 12 |
| Eastern Curlew | 33 | 63 | 122 | 173 | *373* | 220 | 215 | *375* | 213 | 51 | 39 | 45 |
| Whimbrel | 0.1 | 0.6 | 0.4 | 0.9 | 0.8 | *1.6* | 1.1 | 1.4 | 1.1 | 1.4 | 1.2 | 0.6 |
| Terek Sandpiper | 0.1 | 0.3 | 0.4 | 0.1 | *0.9* | 0.8 | *0.9* | 0.7 | 0.4 | 0.2 | 0.1 | 0 |
| Bar-tailed Godwit | 0.7 | 0 | 0.1 | 0.1 | 0.5 | 1.0 | 0.9 | *4.2* | 3.4 | 1.1 | 1.9 | 1.0 |
| Knot | 0 | 0.2 | 0.2 | 0.1 | 3.8 | *11.8* | 5.1 | 3.3 | 0 | 0 | 0 | 0 |
| Sharp-tailed Sandpiper | 0 | 0.2 | 0.8 | 2.1 | 4.8 | 17.6 | *72.5* | 16.4 | 10.1 | 0 | 0 | 0 |
| Red-necked Stint | 56 | 93 | 273 | 402 | 433 | 573 | 590 | *603* | 306 | 156 | 62 | 71 |
| Curlew Sandpiper | 20 | 17 | 32 | 27 | 71 | *253* | 214 | 154 | 34 | 37 | 12 | 17 |
| Totals | 252 | 265 | 467 | 640 | 914 | 1118 | 1148 | *1249* | 684 | 392 | 344 | 314 |
| Percentage change in total over previous month | -26 | +14 | +76 | +37 | +43 | +22 | + 3 | + 9 | -45 | -43 | -12 | - 9 |

Table 2

Relative mean monthly maxima, 1973-1983

July = 100 [August = 100 for Knot and Sharp-tailed Sandpiper]. Peak months italicized.

| | J | A | S | O | N | D | J | F | M | A | M | J | Approximate peak-trough difference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pied Oystercatcher | 100 | 67 | 33 | 13 | 17 | 17 | 29 | 125 | 117 | *142* | *142* | 108 | x 11 |
| Masked Lapwing | 100 | 119 | 113 | 150 | 94 | 156 | 188 | 263 | 194 | 419 | *900* | 594 | x 10 |
| Double-banded Plover | *100* | 65 | 0 | 0 | 0 | 0 | 0 | 7 | 67 | 44 | 51 | 64 | x 14 |
| Red-capped Plover | 100 | 90 | 120 | 80 | 70 | 100 | 110 | *140* | 90 | 120 | 130 | 120 | x 2 |
| Eastern Curlew | 100 | 191 | 370 | 524 | 1130 | 667 | 652 | *1136* | 645 | 153 | 118 | 136 | x 11 |
| Whimbrel | 100 | 600 | 400 | 900 | 800 | *1600* | 1100 | 1400 | 1100 | 1400 | 1200 | 600 | x 16 |
| Terek Sandpiper | 100 | 300 | 400 | 100 | *900* | 800 | *900* | 700 | 400 | 200 | 100 | 0 | x 9 |
| Bar-tailed Godwit | 100 | 0 | 14 | 14 | 71 | 14 | 129 | *600* | 486 | 157 | 271 | 143 | x 43 |
| Knot | 0 | 100 | 100 | 50 | 1900 | *5900* | 2550 | 1650 | 0 | 0 | 0 | 0 | x118 |
| Sharp-tailed Sandpiper | 0 | 100 | 400 | 1050 | 2400 | 8800 | *36250* | 8200 | 5050 | 0 | 0 | 0 | x363 |
| Red-necked Stint | 100 | 166 | 488 | 718 | 773 | 1023 | 1054 | *1077* | 546 | 279 | 111 | 127 | x 11 |
| Curlew Sandpiper | 100 | 85 | 160 | 135 | 355 | *1285* | 1070 | 770 | 170 | 185 | 60 | 85 | x 21 |
| Totals | 100 | 114 | 201 | 276 | 394 | 412 | 495 | *538* | 295 | 169 | 148 | 135 | x 5 |

Table 3

Records of casual species

| | |
|---|---|
| Sooty Oystercatcher | 9 records (4, 1974; 4, 1977; 1, 1978), 5 months of year, max. 4. |
| Grey Plover | 9 records (1, 1975; 4, 1977; 2, 1978; 1 each 1980, 1981), 7 times in December, max. 2. |
| Eastern Golden Plover | 6 records (2, 1976, once each 1977, 1978, 1981 and 1982), thrice in December, once February, max. 4; flock 55 on 20.6.81. |
| Red-kneed Dotterel | 1 on 21.3.82. |
| Mongolian Plover | 3 records (twice February 1978, once May 1982, all singletons). |
| Large Sand Plover | 1 on 15.10.82. |
| Banded Stilt | 1 on 25.1.79, 3 on 6.6.81. |
| Red-necked Avocet | 28 on 11.1.79. |
| Ruddy Turnstone | 6 records (6 different years, 6 different months, max. 5). |
| Grey-tailed Tattler | 2 records, October 1981, max. 2. |
| Greenshank | 6 records (4 different years, four times April, twice February, max. 2). |
| Black-tailed Godwit | 1 on 19.1.81. |
| Great Knot | 7 records (3 on 27.8.80, 1-3 birds December 1980-January 1981; 1 on 21.11.82). |
| Sanderling | 4 records (3 different years, 4 months, all singletons). |

Some comments on the commoner species are in order. As noted, Pied Oystercatcher and Masked Lapwing exhibit a real spring low and autumn peak, the latter species building up earlier (it probably breeds nearby) and falling off in numbers more steeply from autumn to winter. Double-banded Plovers pass through in March; some winter, but twice as many are present

in July, presumably on a return movement to New Zealand. Red-capped Plover exhibit the smallest variation from trough to peak month, only a doubling compared with at least a ten-fold change for migratory species. A mere doubling in numbers between November and February is consistent with a resident population breeding locally and indeed nests have been found and juvenile birds are often seen. It is interesting that the trough-peak movement for total (mean maxima) numbers of all species present is only five-fold, from July-February. Eastern Curlew seem to move through in November and February, with only half those peaks being present in December-January. They halve in numbers from February-March and fall in April to one quarter of the March number; the spring build-up is a series of near-doublings month after month. The pattern for Whimbrel is much more variable (numbers are however very small), with a long summer plateau broken by dips which may indicate complex movements. Terek Sandpipers build up to an early peak in November and fall off smoothly from January. Bar-tailed Godwits, again with small numbers, are more erratic, but with especially low numbers in the spring and a very steep February peak. Knot mainly arrive in November and climb to a (relatively) enormous December peak, falling steeply to none from March through July. The amplitude of Sharp-tailed Sandpiper fluctuations is even more remarkable, with very small numbers arriving in early spring but the peak month, January, being four times as high as either December or February - a very brief maximal stay. Lastly, because they are usually present together throughout the year, though in low numbers in winter, one tends to assume that Red-necked Stint and Curlew Sandpiper populations are subject to the same influences. This does not seem to be so, the peak for the former coming in February, whereas the latter peaks, and much more abruptly, in December.

Further Analyses

There is abundant information in the records which may be processed and presented in different ways on later occasions, to identify shorter-term movements and varying abundance from season to season. The main purpose of subsequent computer analyses will however be to try to account for ("explain") the variance in the numbers of each species in terms of the degree of correlation with factors hypothesized to be of influence. The influences that come to mind are: typical variations round the year, as demonstrated; breeding success in previous season(s); weather variables (wind strength and direction, barometric pressure, relative humidity, temperature, precipitation) for which excellent data are available for several times each day from the Weather Bureau's station at Stoney Point, 26 km. south-west; time and height of tide; proximity to sunrise or sunset; disturbance; and habitat change. Clearly only computer analysis will make possible the required correlations of thousands of pieces of data.

We do not have numerical proxies for disturbance but propose to test for a systematic difference between Saturday and Sunday counts, on the grounds that public pressure over much of the year is far less on Saturdays - shopping and football day - than on Sundays. The extent of disturbance by a public sometimes inclined to encourage its dogs to 'get among the gulls', sometimes almost unaware of the presence even of noisy flocks of birds, and usually unconscious or unconcerned that we are watching them, is distressingly higher than in the northern hemisphere. The fewer people here create much more direct disturbance. One field party of university

geographers was led slap through the roost in front of us. Stockyard is a vulnerable mainland roost and deserves protection, not least because it can now serve as a reference location for wader counts. One hesitates to propose reserve status, however, because such protection in the northern hemisphere has too often resulted in excluding the very birdwatchers who had demonstrated a locality's importance! On reflection, some disturbance irritates birdwatchers more than it drives off the birds. The same may apply to inclement weather, leaving other major weather factors, tides, daylight, and past breeding success as the more likely explanatory variables as far as fluctuations in numbers are concerned.

Similarly we have no direct quantitative information about local habitat changes. Geomorphologically Stockyard is a mobile area. Both spits and the adjacent sandbanks and mudflats have changed shape and position over the years, but although erosion and deposition can be rapid they may be merely cyclic processes. They seem to have made little difference to roosting sites, except to create behind one spit a marshy habitat now very attractive to Sharp-tailed Sandpipers. A fall in counts of small waders, especially Red-necked Stints and Curlew Sandpipers, was once thought to be due to the erosion of mud on which they had previously fed just before roosting, but now appears more likely to have reflected poorer breeding seasons in Siberia.

Finally it may be noted that we have counts for all the other non-passerine species and similar information is on the BOC Survey sheets and in private notebooks. Since almost nothing precise seems to be in print concerning the fluctuations of the non-wader species, there is here another body of conceivably unequalled data awaiting its analyst.

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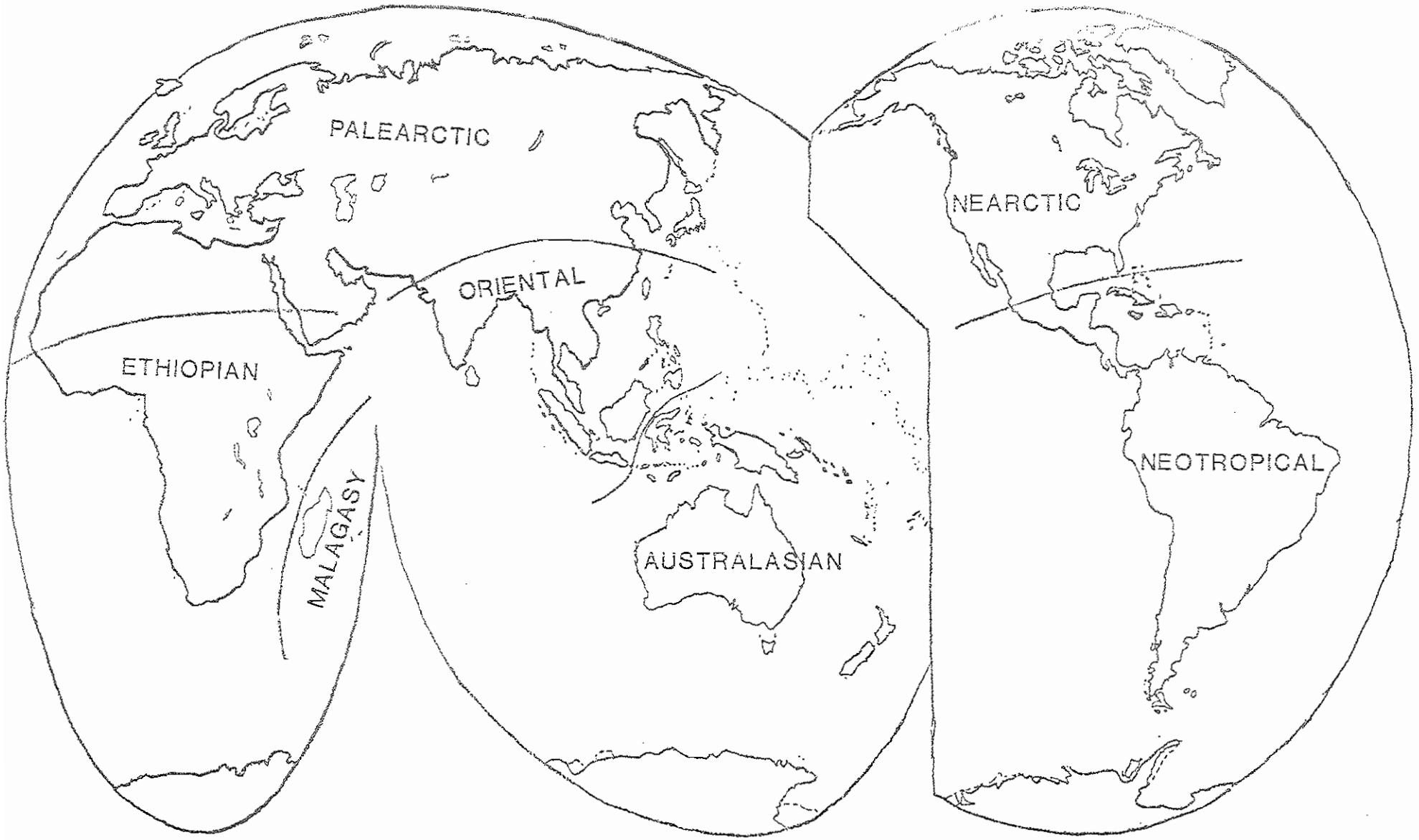



These six major and one minor zoogeographic regions were established in the mid-nineteenth century. The fauna and flora of each region tends to be distinct or better developed there than elsewhere. Antarctica and oceanic islands are not included in any region.

# DISTRIBUTION AND HABITAT OF THE RED-CAPPED PLOVER IN VICTORIA

By Brett Lane & Angela Jessop

## INTRODUCTION

The Red-capped Plover is a small resident wader distributed over all of Victoria. National Wader Counts to date have shown that they are unevenly distributed, and perhaps unexpectedly that a large proportion of the population occurs away from the coast. For example, in the Summer 1983 National Wader Count, 71.8% of the Red-capped Plovers counted in Victoria were at inland sites (> 10km. from the coast).

To explain the distribution evident from the wader counts, the habitat preferences of the species were examined. Associations between higher numbers of plovers and certain types of habitat are documented.

The Victorian part of the National Wader Counts have produced the most comprehensive results for any area of Australia. Although a state border may be a rather arbitrary boundary from the viewpoint of the birds, for analysis it conveniently encloses an area containing a representative sample of all wetland types likely to occur in southern Australia.

Further analysis of the distribution pattern is presented showing more generalized associations between high numbers and certain hydrological conditions, possibly of use in predicting the distribution in other parts of southern Australia.

This paper presents the results of the analyses, and reviews literature on the ecology and behaviour of the Red-capped Plover in explaining the observed distribution.

## METHODS

The AWSG organises National Wader Counts, which involve over 300 people (100 in Victoria) visiting as many wetlands as possible over two weekends in February and July. They aim to determine the distribution and population level of Australia's migratory and resident waders.

The results of individual counts are recorded on standard data sheets together with information on weather and habitat. Broad habitat categories are used based on water salinity, substrate type and whether the site is coastal or inland. Four categories of salinity are identified; saline (greater than sea water), marine, brackish and fresh (no taste of salt).

In all analyses, the February, 1983 count data is used as this is the most comprehensive data set available. Computer analysis enables distribution of a species to be plotted on a one-degree latitude/longitude block basis, and this was done for Red-capped

Plover in Victoria.

The proportion of Red-capped Plovers was compared to the proportion of all species of waders combined, for wetlands of differing salinities. This was done separately for inland and coastal areas. The proportions of all species were used for comparison as this would be the expected distribution of Red-capped Plovers if no preferences were shown.

The hydrological regions of Victoria as defined by Bayly and Williams (1973) were used as a basis for comparing Red-capped Plover distribution by one degree block with that for all waders. Definitions of hydrological regions are as follows:

Arheic: Runoff of water in these regions is unco-ordinated and unchannelized. Water accumulates in depressions where it evaporates. Thus, salts are washed out of the surrounding substrate and concentrated into small closed basins to form salt pans.

Endorheic: Runoff is relatively co-ordinated in a system of channels, but the drainage area is closed and channels terminate in lakes in lower lying areas of the region. This also allows salts to accumulate and water bodies are often salty in these regions.

Exorheic: Runoff of water is in streams and rivers which flow to the sea. Thus salts are continually flushed from the region and do not accumulate to form salt lakes.

One degree blocks fell naturally into six categories; arheic, mixed arheic/endorheic, endorheic, mixed endorheic/exorheic and exorheic. Exorheic were further subdivided into Murray exorheic and southern exorheic. Figure 1 shows the distribution in Victoria of these regions.

## RESULTS

Table 1 shows the numbers and percentages of Red-capped Plovers and of all waders found in wetlands of a particular salinity in inland areas. Table 2 shows this for coastal areas of the state.

In inland areas, Red-capped Plovers showed a preference for saline and brackish wetlands over freshwater lakes and swamps. In coastal areas they prefered saline lakes behind the coast, although numbers are found on purely marine areas (13.9% of state total).

Figure 2 shows the distribution of the species by one degree block. Comparison of this with figure 1 shows that the species is found in greatest numbers in arheic and endorheic regions where salt lakes are common. This would be expected in view of the above findings.

Proportions were compared using Chi-squared tests and in all cases found to be highly significant (Chi-squared greater than 200).

TABLE 1: Numbers and proportions of Red-capped Plovers and all waders counted on inland wetlands of different salinity.

| | Saline | Brackish | Fresh | Total |
|---|---|---|---|---|
| Red-capped Plovers | 1,064 | 1,007 | 297 | 2,368 |
| Percentage | 44.9 | 42.5 | 12.6 | |
| All waders | 13,084 | 6,476 | 14,584 | 34,146 |
| Percentage | 38.3 | 18.9 | 42.8 | |

TABLE 2: Numbers and proportions of Red-capped Plovers and all waders on coastal wetlands of different salinity.

| | Saline | Brackish | Fresh | Marine | Total |
|---|---|---|---|---|---|
| Red-capped Plovers | 349 | 6 | 2 | 470 | 827 |
| Percentage | 42.2 | 0.7 | 0.2 | 56.9 | |
| All waders | 10,697 | 2,102 | 2,270 | 92,707 | 107,776 |
| Percentage | 10.0 | 1.9 | 2.1 | 86.0 | |

FIGURE 1: Hydrological Zones in Victoria (1° block).

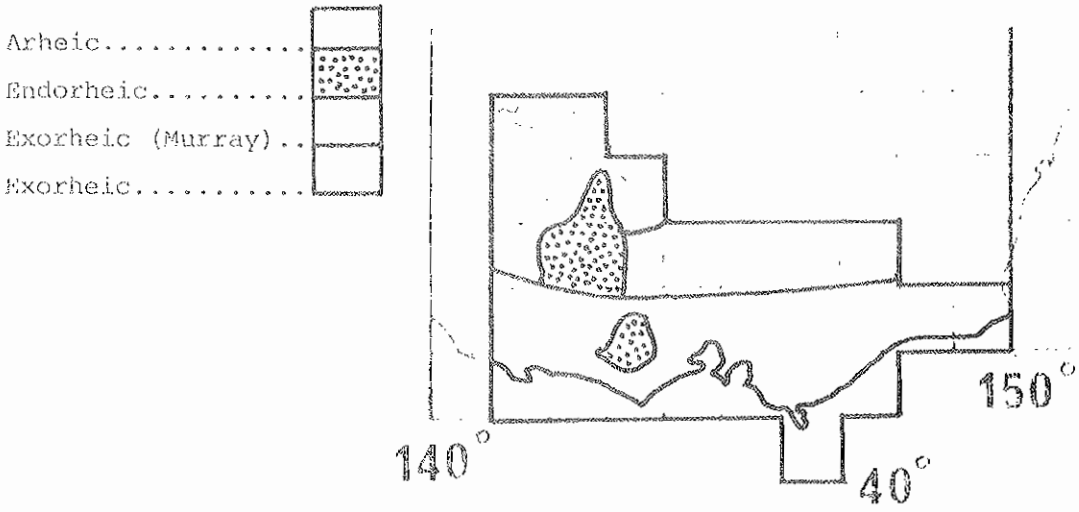
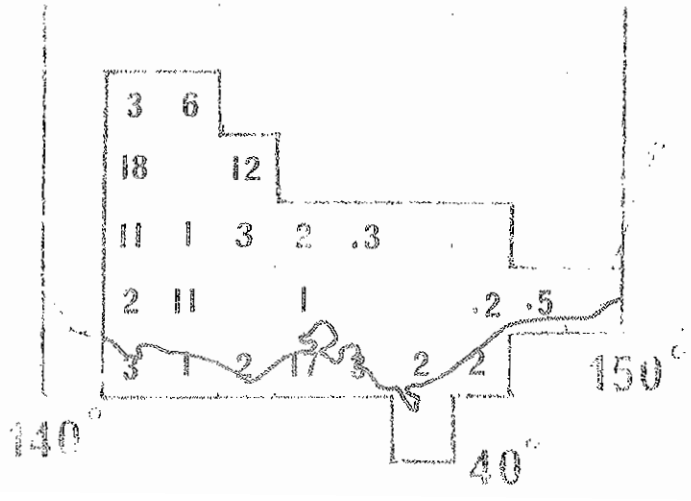



FIGURE 2: Percentage distribution of Red-capped Plovers by 1° block in Victoria.



# DISCUSSION

The influence of salinity on physical and biological characteristics of wetlands must be examined to explain why Red-capped Plovers prefer saline wetlands. Bayly and Williams (1973) examine in detail the ecology of non-marine water bodies in Australia and from their work it can be seen that salinity has a profound biological effect. This is reflected in the types of wetland available to birds. Corrick and Cowling (1975) identified the two distinctive wetland types in the Kerang area (Victoria) which were of high value to waterbird; permanent freshwater wetlands and permanent saline wetlands. The littoral vegetation of these two vegetation types is vastly different. Freshwater areas are dominated by thick marginal vegetation of reeds (Typha spp., Phragmites communus), sedges (Juncus spp., Carex spp.) and/or Lignum (Muehlenbeckia cunninghammii). Saline areas lack this thick vegetation and are relatively open , with bare mudflats and salt-tolerant herbage and shrubs in the drier upper shores. The mudflats in saline wetlands were identified by Corrick and Cowling (1975) as an important feeding area for waders.

It is this extensive feeding area which presumably attracts the Red-capped Plovers. Poore, Corrick and Norman (1980) showed that Red-capped Plovers foraged away from the water in non-tidal, saline habitat. There, they fed on adult and larval stage insects and to a lesser extent gastropods and amphipods which were abundant in wetter areas. Red-capped Plovers have also been observed taking Brine Flies (Ephydrella sp.) in similar habitat (Jessop, 1982). Thus, Red-capped Plovers are able to adapt to saline wetlands.

They breed at inland saline habitats on open ground exposed by receeding water (Favaloro, 1949; Green, 1956; Hobbs, 1972). The breeding season in inland areas is not as predictable as in southern Victoria, and in far inland areas they have been recorded breeding in almost every month of the year (Favoloro, 1949). The species does not breed all year however, and breeding can be highly synchronous when it does occur. Such an event is documented by Hobbs (1972). This is presumeably an adaptation to the increasing unpredictability further inland of conditions suitable for breeding.

Favoloro (1949) observed considerable movements of the species in inland areas involving flocks of up to 50 birds. Movements can cover a long distance. A bird banded at Lake George (north of Canberra) on 21st August, 1964, was recovered at Broken Hill on 11th September, 1964 only three weeks later. Generally, movements in this species are not well understood and more work is needed.

In coastal areas such as Westernport Bay and Laverton flocking occurs in autumn and winter (Wheeler, 1955; Loyn, 1978) after spring and summer breeding. Similar timed flocking occurs elsewhere in coastal Victoria as evidenced by the monthly catch totals of the VWSG being higher at this time of the year (birds are cannon-netted in larger numbers when birds are flocking).

It would appear from the available evidence that in mainland south-eastern Australia, the Red-capped Plover is very adaptable, occuring wherever suitable feding habitat exists, and breeding whenever conditions are favorable. Its more predictable seasonal

breeding and flocking behaviour in coastal Victoria reflects the highly seasonal nature of environmental conditions. Further inland, the species breeds more or less opportunistically in response to less predictable seasonal conditions. Considerable movement occurs inland, presumeably in response to deteriorating conditions at particular lakes.

In Victoria, wader counts have shown, perhaps rather unexpectedly that the vast majority of the Red-capped Plover population occurs inland. As well, largest numbers occur in saline and brackish habitat. Further counts will be needed to produce a longer term picture of changes in distribution in response to changing environmental conditions such as drought, flood and the effects of irrigation semes on salinity of inland wetlands.

## REFERENCES

Bayly, I A E and W D Williams (1973) Inland Waters and their Ecology. Longmans. Melbourne

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Favoloro, N J (1949) Notes on the Red-capped Dotterel in inland localities. Emu, 49: 13-18.

Green, G H (1956) Notes on the inland breeding of the Red-capped Dotterel. Emu, 56: 140-143.

Hobbs, J N (1972) Breeding of Red-capped Dotterel at Fletchers Lake, Dareton, NSW. Emu, 72: 121-125.

Jessop, A (1982) B Sc(Hons) Thesis, Dept. of Zool., La Trobe University.

Loyn, R H (1978) A Survey of the Birds in Westernport Bay, Victoria, 1973-1974 Emu, 78: 11-18.

Poore G C B, A H Corrick and F I Norman (1980) Food of three waders at Lake Reeve, Victoria. Emu 80: 228-229.

Wheeler, W R (1955) Charadriiformes at the Laverton Saltworks, Victoria, 1950-1953. Emu, 55: 279-295.

A LETTER FROM CHINA

Dear Sir,

How do you do? I'm a boy English language student of Lei Zhou Teachers' College. My home is in Tzankiang Guang-dong, China. Two days ago I caught a sea bird with a long mouth on the beach. She is gray but she is very strange. There is a iron ring on which were written WRITE = CSIRO
CANBERRA - AUSTRALIA
051 - 00412

I wonder how and why she flew from Canberra to Tsankiang, and why there is an iron ring on her leg.

I think the bird was lost by you, and you experimented on it. So you must worry now. But I don't know if I'm right. Write to me if you receive my letter. I am looking forward to hearing from you soon.

The bird eats very much and very lovely.

Your friend
ZENG PENG
Monday May 23th, 1982

ADDRESS
(In Chinese script)

DP/EW
Ref: B4/6

21 July, 1982

Mr Zeng Peng,
Tsankiang,
Guang-dong,
THE PEOPLE'S REPUBLIC OF CHINA

Dear Mr Zeng,

Thank you for telling me about the bird wearing one of our bands which you found on the beach at Tsankiang.

May I also thank you and congratulate you on the very good English in which your letter was written. They are obviously teaching you very well at the Lei Zhou Teachers' College.

The bird which you found was what we call a Grey-tailed Tattler Tringa brevipes. It was banded on 30 August 1981 at Roebuck Bay near Broome, Western Australia. I have enclosed a copy of a map on which I have indicated the banding site. I have also enclosed our official report about this bird.

Grey-tailed Tattlers breed in northern Asia and each autumn they migrate to southern Asia and Australasia where they spend the northern winter. They return to northern Asia during the following spring. The bird which you found would have been on its way back to northern Asia.

We know very little about the routes which these birds follow when they are migrating. Therefore your letter was of very great importance to us. It would be very good if you would ask other people who find banded birds in China to write to me and tell me about them.

Under separate cover I have sent to you a poster illustrating some Australian birds and a booklet about Australia.

Thank you for your help and interest.

Yours sincerely,
D. Purchase

Secretary
AUSTRALIAN BIRD-BANDING SCHEME

## NUMBERS OF WADERS "PROCESSED" BY VWSG IN VICTORIA IN EACH MONTH TO 30 JUNE 1983

"Prooessing" includes measuring wing length, bill length (where appropriate) and weight; also recording full details of primary wing feather moult (if any). Additional wing moult data has been gathered on some birds which were not fully processed. The table below will be used to plan fieldwork, with the objective of obtaining usable samples (preferably on at least 50 birds) of data for each month of the year for all the main study species.

| | J | F | M | A | M | J | J | A | S | O | N | D | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pied Oystercatcher | 4 | 13 | 82 | 28 | 30 | 62 | 7 | - | 2 | 3 | 9 | 18 | 258 |
| Sooty Oystercatcher | - | - | 3 | - | - | 2 | - | - | - | - | - | - | 5 |
| Masked Lapwing | 1 | 2 | 77 | - | - | 13 | - | - | - | 1 | 5 | 10 | 109 |
| Grey Plover | - | - | 4 | 3 | - | - | - | - | 2 | 18 | - | - | 27 |
| Lesser Golden Plover | 2 | 3 | 1 | 1 | - | - | - | - | - | - | - | 18 | 25 |
| Redkneed Dotterel | - | 10 | - | 20 | - | 44 | 11 | 14 | 12 | 8 | 7 | - | 126 |
| Hooded Plover | - | - | - | - | - | 12 | - | - | - | - | - | - | 12 |
| Mongolian Plover | 41 | - | 2 | 7 | - | - | - | - | - | - | - | - | 50 |
| Doublebanded Plover | - | - | 32 | 41 | 164 | 261 | 45 | 144 | - | - | - | - | 687 |
| Large Sand Plover | 11 | - | - | - | - | - | - | - | - | - | - | - | 11 |
| Redoapped Plover | 2 | 41 | 19 | 108 | 96 | 40 | 54 | - | 8 | 8 | 8 | 2 | 386 |
| Blackfronted Plover | - | - | - | - | 11 | 16 | 6 | 9 | 2 | - | 4 | 7 | 55 |
| Blackwinged Stilt | - | 6 | - | - | - | - | - | - | - | 1 | 1 | 1 | 9 |
| Rednecked Avocet | 3 | - | - | - | - | - | - | - | 2 | 6 | 45 | 2 | 58 |
| Ruddy Turnstone | 14 | - | 22 | 27 | - | 2 | - | - | 1 | 1 | - | 5 | 72 |
| Eastern Curlew | 8 | - | - | - | - | - | - | - | - | 34 | - | 3 | 45 |
| Greytailed Tatler | - | - | - | 3 | - | - | - | - | - | - | - | - | 3 |
| Greenshank | - | - | 1 | - | - | - | - | - | - | - | - | - | 1 |
| Terek Sandpiper | 2 | 1 | - | - | 2 | - | - | - | - | - | - | 3 | 8 |
| Latham's Snipe | 29 | 21 | - | - | - | - | - | - | - | 1 | 4 | 3 | 58 |
| Bartailed Godwit | - | - | - | 1 | - | 4 | - | - | 34 | 23 | 33 | 205 | 300 |
| Red Knot | 29 | 30 | 56 | 34 | - | - | - | - | 3 | 62 | 33 | 92 | 339 |
| Great Knot | - | - | 3 | - | - | - | - | - | 15 | 14 | - | 91 | 123 |
| Sharptailed Sandpiper | 384 | 142 | 61 | 2 | - | - | - | 1 | 368 | 142 | 197 | 464 | 1761 |
| Little Stint | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| Rednecked Stint | 1229 | 684 | 3136 | 1623 | 65 | 124 | 185 | 72 | 359 | 733 | 2168 | 1861 | 12239 |
| Longtoed Stint | - | - | - | - | - | - | - | - | - | 1 | - | - | 1 |
| Curlew Sandpiper | 401 | 462 | 724 | 60 | 1 | 3 | 4 | 16 | 81 | 144 | 440 | 604 | 2940 |
| Sanderling | 11 | -- | - | - | - | - | - | - | - | - | - | 2 | 13 |
| | | | | | | | | | | | | | 19722 |

*The majority of the 1327 birds caught in Tasmania (Nov 1979), 820 birds in South Australia (Feb 1980), 921 birds in New South Wales (Mar 1981) and 4895 in West Aust (Aug/Sept 1981 & Aug/Sept/Nov 1982) were also processed.*

# CURLEW SANDPIPER MOULT ANALYSIS
## A PRELIMINARY REPORT

Jon R. Starks

The Curlew Sandpiper Calidris ferruginea is a long distance migrant from breeding grounds in the Siberian tundra. Curlew Sandpipers arrive on our shores from late August; most adults have left by early April, thereby spending nearly eight months in Australia.

Whilst overwintering in Australia all adult and many juvenile Curlew Sandpipers undergo a primary wing feather moult.

This paper reports on the moult scores of Curlew Sandpipers caught at three locations in Victoria - 'Werribee' (Point Wilson) Yallock Creek and Queenscliff- from July 1981 to March 1983.

Moult scores were recorded as in Snow (1967), the wing primaries being numbered outwards 1 to 10 and scored on an 0 (old) to 5 (new) scale. The median moult scores were calculated per week during the moulting period.

Adult Curlew Sandpipers begin their moult around the 7th. to the 14th. of October (Fig.1). Moult is completed by mid February giving an average primary moult duration of about 120 days. (Sample size 842). This works out to a daily rate of increase in the primary moult score of 0.24 which agrees with findings of Elliot, Waltner, Underhill, Pringle and Dick (1976) of Curlew Sandpipers studied in South Africa.

Moult score was found not to progress at a lineal rate. It starts with a daily primary score increase rate of 0.47, decreasing toward the end of the moulting period to 0.18. This slowing down of the moult rate is most likely due to the use of a standard moult score of 0 to 5 for the growth of feathers which are of unequal length. The outer primaries are much longer than the inner primaries, so an outer feather would be expected to take longer to reach stage 5 than an inner one. This would caust the apparent decrease in the moult rate when plotting a graph of the molut scores vs date.

Many juvenile Curlew Sandpipers (birds in their first year) undergo a partial primary moult beginning around mid-January and ending as late as July (Table1).

Some juveniles moult 3 outer primaries, others up to 6. However some do not moult at all - the exact proportion not being known due to the lack of data after the end of March. Large individual variation in juvenile Curlew Sandpiper moult was found, and due to small numbers of juveniles being caught during moult, no more detailed analysis was possible.

In adult Curlew Sandpipers the end of their moult coincides with the start of their weight gain prior to departure. Juveniles do not commence their partial moult until after most adults have completed their moult, although a slight overlap occurs. It is not clear at this stage why only a proportion of juveniles undertakes this partial moult.

## References

Snow D.W. (1967) 'A guide to moult in British Birds', BTO Tring.

Elliot C.C.H., Waltner M., Underhill L.G., Prinlge J.S. and Dick W.J.A., 'The migration systems of the Curlew Sandpiper in Africa'. Ostrich 47:191-213.

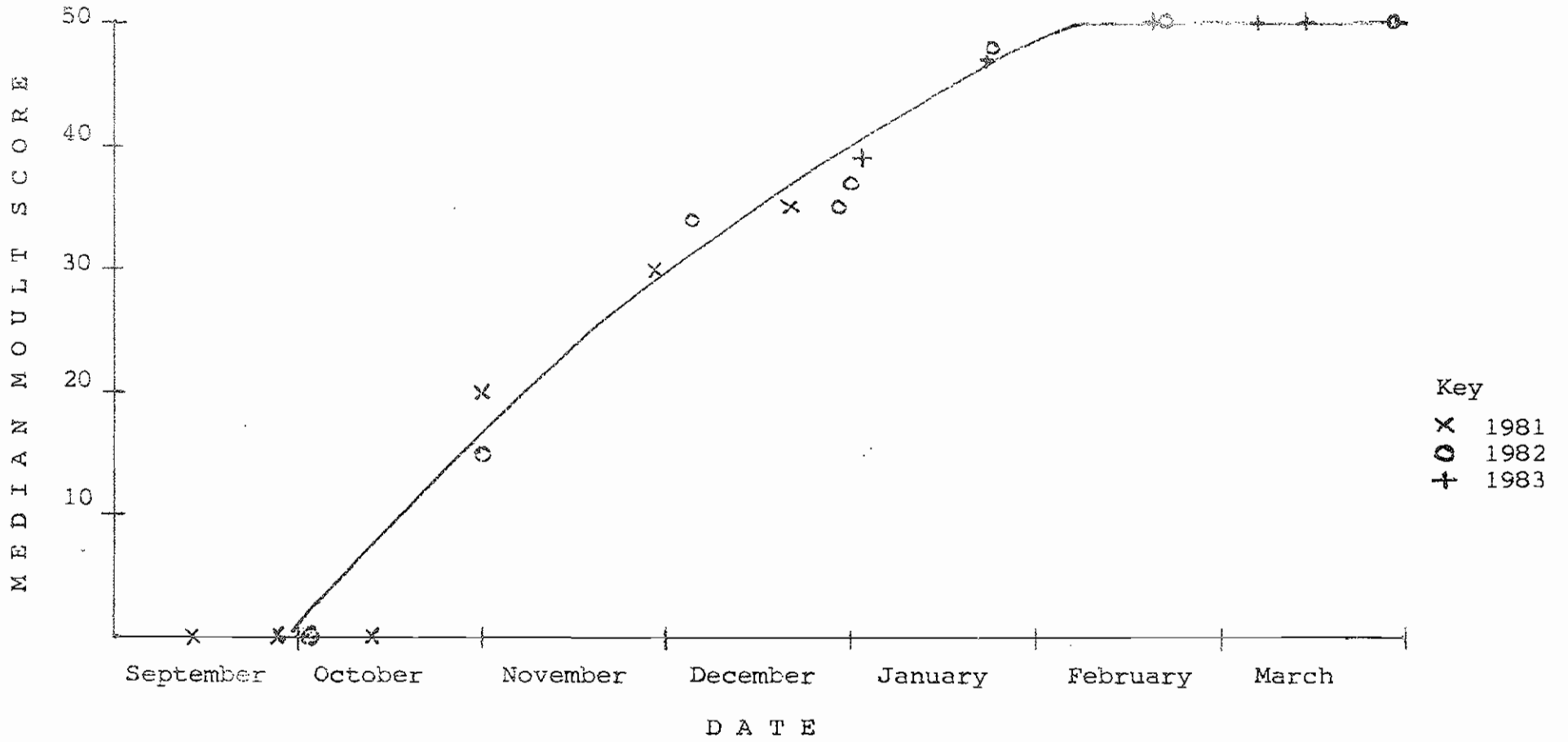
Table 1
Proportion of Juvenile Curlew Sandpipers in wing moult

| Date | Number Moulting | Number Not moulting | Proportion Moulting |
|---|---|---|---|
| Jan 1-15 | - | 5 | 0% |
| 16-31 | 1 | 1 | 50% |
| Feb 1-14 | 0 | 1 | 0% |
| 15-28 | 6 | 32 | 16% |
| Mar 1-15 | 40 | 44 | 48% |
| 16-31 | 17 | 4 | 81% |

Table 2
Number of outer primaries moulted by Juvenile Curlew Sandpipers

| Number of outer primaries | Number of birds | Proportion |
|---|---|---|
| 3 | 6 | 9% |
| 4 | 29 | 42% |
| 5 | 27 | 39% |
| 6 | 7 | 10% |

Fig. 1 Median Moult Score vs Date For Adult Curlew Sandpipers



# VICTORIAN WADER STUDY GROUP

## Financial Statement from 1/7/82 to 30/6/83

| INCOME | $ | EXPENDITURE | $ |
|---|---|---|---|
| Membership Fees | 575.00 | Equipment and repairs | 136.68 |
| Donations to Boat damages | 130.00 | Boat Repairs | 312.00 |
| Sale of Bulletins and donations to postage of same | 46.85 | Bank Fees | 13.80 |
| | | Stationery | 14.50 |
| Bank Interest | 15.84 | Subs to "Occasional Stint" | 7.90 |
| | | Photocopying | 6.65 |
| | | Postage | 72.34 |
| | | Printing | 281.54 |
| | | Stamp Duty & Federal Tax | .23 |
| | 767.69 | | 845.64 |
| Cash in Bank at 1/7/82 | 555.56 | Cash in Bank at 30/6/83 | 471.48 |
| Cash/cheques in hand at 1/7/82 | 74.05 | Cash/cheques in hand at 30/6/83 | 80.18 |
| | 1397.30 | | 1397.30 |

# VICTORIAN WADER STUDY GROUP

## DATES FOR FIELDWORK, MAY TO OCTOBER 1983

| DATE | PLACE & PRIORITY SPECIES | TIME OF HIGH TIDE |
|---|---|---|
| May 14-15 | Werribee/Altona<br>Doublebanded Plover, overwintering Curlew Sandpiper and Rednecked Stint, Pied Oystercatcher | 1645 (Sat)<br>17.32 (Sun) |
| June 25-26 | Queenscliff<br>Hooded Plover, Pied Oystercatcher, overwintering waders, Doublebanded Plover | 12.25 (Sat)<br>13.12 (Sun) |
| July 9-10 | Winter Wader count<br>National wader count, with special emphasis in Victoria on numbers and distribution of Doublebanded Plover | |
| July 23-24 | Yallock Creek<br>Doublebanded Plover, overwintering waders | 12.15 (Sat)<br>13.15 (Sun) |
| Aug 6-7 | Werribee/Altona<br>Departing Doublebanded Plover | 12.27 (Sat)<br>13.42 (Sun) |
| Aug 13 | VWSG Annual General Meeting and Wader Symposium (10.30 am) | |
| Sept 3-4 | Werribee<br>Newly arrived migrant waders | 10.41 (Sat)<br>11.54 (Sun) |
| Sept 24-25 | Queenscliff<br>Newly arrived migrant waders, especially Eastern Curlew | 13.34 (Sat)<br>14.06 (Sun) |
| Oct 15-16 | Werribee<br>Curlew Sandpipers (for start of moult) | 09.22 (Sat)<br>10.09 (Sun) |
| Oct 22-<br>Nov 12 | N.W. Australia Wader Expedition<br>Contact CDTM or Brett Lane for further details if you are interested in participating - much help needed! | |

In addition to the above programme it is intended to make a major effort to catch Japanese Snipe during the 1983-84 summer. Mist netting at Seaford Swamp and Point Henry will be incorporated into fieldwork programme as soon as the first Snipe arrive.

Members are encouraged to report (urgently - to a member of the committee) locations which they know of (or come across) which may be suitable for catching species less frequently banded by the Group e.g. Japanese Snipe, Redkneed Dotterel, Blackfronted Plover, Hooded Plover and Rednecked Avocet.

The normal meeting time will be 5 hours before high tide. Please however phone CDTM, or one of the other contacts listed below, a few days before each planned date to advise of your availability and to obtain final details of the rendesvouz time and location. It is most desirable that people do phone in in this way rather than waiting for CDTM et al to make 30 or 40 phone calls before each field work weekend!

CONTACTS (* note new phone number)

| | | |
|---|---|---|
| Clive Minton | - | 568.1017 (home)<br>661.2892 (office)*<br>Address: 10 Omama Road, Murrumbeena 3163 |
| Brett Lane | - | 428.4694 (home)* 370.1272 (RAOU office) |
| Ira Savage | - | 052-216253 (home) |
| Berrice Forest | - | 786.9717 (home) |
| Peter Dann | - | 059-56 8395 (home) |
| Brenda Murlis | - | 874.2860 (home) |
| John Dawson | - | 787.2082 (home) |
| Ken Rogers | - | 714.8433 (home) 690.7729 (office) |
| Jane Gurling | - | 49.6954 (home) 479.2191 (office) |

C D T MINTON/K ROGERS/B LANE

12/4/1983

# VICTORIAN WADER STUDY GROUP

## OFFICE BEARERS

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| | | |
|---|---|---|
| SUBSCRIPTIONS: | Full Member | $10-00 |
| | Student, Associate, Country or Interstate Member | $ 5-00 |

Subscriptions include cost of all Bulletins, are payable on 30 June to the Treasurer.

| | |
|---|---|
| CONTRIBUTIONS: | Original papers, short notes and other suitable contributions are welcome and should be submitted to the editor on A4<br>~~Dalgetty~~ Road, Beaumaris, 3193. Tel. 589 ~~2557~~<br>Tel.office 661 2892 |
| Treasurer: | Mrs Brenda Murlis, 34 Centre Road, Vermont<br>Tel. 874 2860 |
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