SEASONAL MOVEMENTS AND POPULATION OF THE SOUTHERN CRESTED GREBE IN CANTERBURY

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ABSTRACT

A summer and a winter survey of the distribution and numbers of the Southern Crested Grebe *(Podiceps cristatus australis)* were carried out in Canterbury during 1980-81. Grebes stayed on the alpine and subalpine lakes throughout the year. In summer grebes moved from lake to lake within a lake system, but during the winter they were concentrated on fewer lakes and some moved between lake systems. These observations are compared with those of the Southern Crested Grebe in Australia and the Great Crested Grebe *(P. cristatus cristatus)* in Europe. Breeding season counts of the Ashburton lakes and the Alexandrina group during 1978-1981 indicate that the Crested Grebe population in Canterbury is stable after a possible increase during the 1970s.

INTRODUCTION

In New Zealand the Southern Crested Grebe is found throughout the South Island but is known from the North Island only by subfossil remains and very few recent records (Falla *et al.* 1979). The largest grebe populations were thought to exist in South Westland (Falla *et al.* 1979) but in 1980 the New Zealand population was estimated to be 240-250 birds with Canterbury lakes supporting about 55% of this population (Sagar 1981). In Canterbury, grebes are restricted to alpine and subalpine lakes within and east of the main ranges (Kinsky 1970), with the largest concentrations being present on the Ashburton lakes (54-58 birds) and Lakes Alexandrina/McGregor (50 birds) (O'Donnell 1980, Sagar 1981).

Breeding season surveys (November-January) of the numbers and distribution of Crested Grebes in Canterbury have been reported by Sharp (1967), Westerskov (1971) and Sagar (1981). However, few observations of grebes have been made in winter and the grebes were thought to remain on high country lakes throughout the year (Falla *et al.* 1979). Therefore, we decided to complete a winter survey of grebes in Canterbury during 1981 and compare these observations with the numbers and distribution of grebes during November-December 1980 (Sagar 1981). Additional information about Crested Grebe populations on the Ashburton lakes and Lakes Alexandrina/McGregor during 1978-1980 is also presented.

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METHODS

Canterbury lakes supporting populations of Crested Grebes are clustered into five groups: the Sumner group (Lakes Sumner, Mason, Katrine, Marion, Taylor, Sheppard/Mary); the Pearson group (Lakes Pearson, Sarah, Grasmere, Hawdon, Marymere and Letitia); the Coleridge group (Lakes Coleridge, Catherine, Henrietta, Selfe, Lilian, Evelyn, Ida, Georgina and Lyndon); the Ashburton lakes (Lakes Heron, Clearwater, Camp, Roundabout, Emma, Maori, Emily and Denny); and the Alexandrina group (Lakes Alexandrina and McGregor and the Glenmore Tarns).

The summer survey was completed during the period 29 November to 14 December 1980 and the winter survey from 11 July to 8 August 1981. Because Crested Grebes move from lake to lake, especially when not breeding, all lakes of a group were surveyed within one or two days to minimise duplication of numbers. Counts were made, using binoculars and telescopes, from vantage points overlooking a lake, by canoe or by walking lake edges.

When counting grebes on a lake or part of a lake, we made several surveys of an area within a short period to get more reliable numbers. Grebes were often close to the shore and easily observed. We did not count moving birds more than once, and during breeding season surveys, we allowed for birds which may have been out of sight on nests. Grebes seen patrolling raupo *(Typha orientalis)* beds or willow trees (*Salix* spp.) overhanging the water indicated the presence of an unseen incubating bird. Additional counts were obtained from Wildlife Service files and the 1980 national survey of Crested Grebes (Sagar 1981).

RESULTS

Canterbury

The total number of grebes recorded on summer and winter surveys were similar but their distribution had changed markedly between seasons (Table 1). In winter, grebe numbers on most lakes decreased, except on Lakes Clearwater and Alexandrina, where numbers had increased greatly (11 to 23 and 38 to 76 respectively). A decrease in grebe numbers on the Pearson and Coleridge groups and the Ashburton lakes was matched by an increase of similar numbers on Lake Alexandrina. Grebes were present on Lakes Sarah, Marymere, and Emily and on the Glenmore Tarns during summer but not in winter, and single birds were seen on Lakes Lyndon and Denny during the winter, where none was seen in summer. Lake Emily and the Glenmore Tarns were completely frozen over during the winter count, forcing grebes present during the summer to move elsewhere. Bad weather prevented a winter survey of Lake Coleridge, but we assume that some grebes were present. Three grebes were seen on the lake in May 1976 and 15 in August 1976 (S. Moore, pers. comm.). Thus grebes were estimated to be present on 17 out of 41 lakes during the summer survey and 15 during the winter survey.

TABLE 1 — Numbers of Crested Grebes on Canterbury lakes, summer 1980 and winter 1981

Lake	No. of Crested Grebes			No. of Crested Grebes	
	[1] Summer 1980	Winter 1981		[1] Summer 1980	Winter 1981
Tennyson	0	n.c.	Georgina	0	0
Guyon	0	n.c.	Lyndon	0	1
Sumner	0	0	Heron	29	13
Mason	0	0	Clearwater	11	23
Katrine	0	0	Camp	0	0
Marion	0	0	Roundabout	0	0
Taylor	0	0	Emma	10	4
Sheppard/Mary	2	2	Maori Lakes	2	1
Sarah	2	0	Emily	2	0*
Grasmere	4	3	Denny	0	1
Pearson	4	5	Alexandrina	38	76
Hawdon	0	0	McGregor	8	3
Marymere	1	0	Glenmore Tarns	4	0*
Letitia	4	4	Tekapo	0	0
Henrietta	0	0	Pukaki	0	0
Selfe	3	1	Ohau	0	0
Lilian	0	0	Raupo Lagoon	0	0*
Evelyn	0	0	Swan Lagoon	0	0*
Ida	0	0*	Benmore	0	n.c.
Catherine	6	2			
Coleridge	7	n.c.	TOTAL	137	139

1 From Sagar (1981)

n.c. = no count

* lake surface frozen completely

Ashburton lakes

Grebes were recorded on the eight major lakes in the Ashburton lakes group (Table 2) and have been seen very occasionally on the minor lakes — Mystery, Spider, Seagull and Manuka Lakes and small unnamed tarns. Grebes' use of Lakes Camp and Roundabout is also very occasional and only during winter. Counts in three consecutive breeding seasons (1978-80) gave totals of 58, 57 and 54 adult grebes

TABLE 2 — Numbers of Crested Grebes on Ashburton lakes, November 1978 to July 1981

Lake	Number of Crested Grebes						
	Nov 1978[1]	6.10.79	Jan 1980	25.3.80	26.7.80	29.11.80	11.7.81
Heron	36	n.c.	37	6	20	29	13
Clearwater	5	12	8	11	1	11	23
Camp	0	3	0	0	0*	0	0
Roundabout	0	0	0	0	0*	0	0
Emma	10	8	8	14	0	10	4
Maori	1	2	2	2	0	2	1
Emily	4	2	2	2	0*	2	0*
Denny	2	0	0	0	0*	0	1
	58	27+	57	35	21	54	42

1 S. Moore, Wildlife Service, pers. comm.

n.c. = no count

* lake surface frozen completely

respectively. Distribution of grebes within the Ashburton lakes was variable. During spring 1979 grebes were very mobile between most lakes and single birds appeared briefly on isolated tarns between breeding lakes. Grebes were sedentary while holding territories from November 1979 to the beginning of February 1980. By March 1980 the weather had become much colder and grebes moved away from the main breeding lake (Heron) with some abandoning nests. Several small loose flocks formed in March and July 1980 but only 21 grebes were counted in July, less than half the breeding population of the previous summer. In July all the lakes were frozen over completely except for very small areas on Lakes Clearwater, Emma and Maori and about half of Lake Heron. As no other Canterbury lakes were surveyed at this time the whereabouts of the balance of the population is not known. They possibly moved to larger ice-free lakes such as Alexandrina and Coleridge.

Alexandrina group

Breeding season surveys of the Alexandrina group were completed in November 1978 and November 1980 and 50 adults were counted on both occasions. In winter 1981, 79 grebes were counted on Lakes Alexandrina and McGregor (Table 1).

DISCUSSION

There are few Canterbury records of Crested Grebes away from the high-country lakes. Westerskov (1971) recorded specimens (now in the Canterbury Museum) from a small lake in the Rangitata Gorge (8 May 1917), Leeston (1922), Upper Riccarton (1929) and an immature male from Temuka (no date). One bird was seen on the Avon-Heathcote Estuary on 30 October 1947 (Guy 1948), two were seen on the western end of Lake Ellesmere in October 1966 and a juvenile was found drowned in a fishing net on Lake Ellesmere in June 1973 (G. A. Tunnicliffe, pers. comm.). Therefore, even though winter weather conditions are very harsh and some favoured lakes may freeze over, grebes apparently remain in the high country throughout the year.

This behaviour differs from that of the Southern Crested Grebe in Australia, where long-distance migration occurs in winter with birds moving from the highlands to coastal (often sea) waters (Frith 1969). In Europe, the Great Crested Grebe *(P. cristatus cristatus)* also undertakes a marked movement from inland to coastal areas. After breeding, short local movements occur and birds congregate in flocks to moult. Following moult, longer-distance dispersal occurs and large concentrations gradually build up in coastal and lowland waters (flocks of up to 20 000 in western Europe). Only odd pairs are residential on highland breeding lakes and some local movements occur to avoid harsh weather conditions (Witherby *et al* 1941, Simmons 1974, Cramp & Simmons 1977).

In Europe, grebes favour deltas, brackish estuaries, tidal channels and lagoons and relatively sheltered marine inshore waters (Cramp & Simmons 1977). Coastal Canterbury lacks some of these habitats. It has no deltas, very few small brackish estuaries, and, except for some harbours of Banks Peninsula, the inshore marine waters are exposed. The shallow coastal waters of Lake Ellesmere, Washdyke Lagoon and Lake Wainono appear to offer suitable winter feeding areas for Crested Grebes but, despite extensive recent surveys (Tunnicliffe 1973, Sagar 1976, Pierce 1980), no grebes have been reported.

In November-December 1980, the Ashburton lakes and the Alexandrina group supported about 76% of the Crested Grebe population in Canterbury. Breeding season counts between 1978 and 1980 show that the population of these two groups of lakes was stable. Surveys of the Ashburton lakes show variability in the distribution of Crested Grebes throughout the year. Post-breeding movements occur from lake to lake within the group and some grebes probably move to Lake Alexandrina (about 100 km). Therefore, all lakes within each group are important and lakes with a low number of breeding birds may support higher numbers of birds during the winter.

Three breeding season counts of Crested Grebes on Canterbury lakes have now been reported. During November 1966 to January 1967, a Wildlife Service team found 68-70 grebes on 13 out of 38

lakes and tarns surveyed. These included 33 on the Ashburton lakes and 17 on the Alexandrina group (Sharp 1967). However, this is a minimum estimate as Lakes Coleridge and Letitia were not surveyed and grebes were known to be present on these lakes (Sharp 1967). Westerskov (1971) estimated that 50 pairs were present as regular breeding birds on 23 lakes during the summer of 1969-70, including 12 pairs on the Ashburton lakes and 14 pairs on the Alexandrina group. Again, this is likely to be an underestimate because, for some lakes, Westerskov depended on information from people whose primary purpose in visiting these lakes was not to count grebes; also, Lake Emily was not included in the survey. The first co-ordinated national Crested Grebe survey was completed in November-December 1980, when an estimated 137 birds were present on 17 of the 41 lakes surveyed (Sagar 1981).

Accepting the limitations of previous surveys, a comparison of results indicates that the Crested Grebe population in Canterbury has increased slightly during the 1970s. This reverses the 35-40% population decline from a minimum of 80 pairs in the 1940s and 1950s detailed by Westerskov (1971), and our study shows that the present population is probably stable. However, because of the small numbers of grebes involved, the population is susceptible to changes caused by climatic factors or human interference. One or two successful breeding seasons would result in a marked population increase while conversely a number of adverse breeding seasons could cause a significant population decline. Because the birds are susceptible to population fluctuations, we hope that these results will stimulate regular surveys to monitor the Crested Grebe population in Canterbury.

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SHORT NOTES

COMMON SANDPIPERS IN FAR NORTH

On four occasions, we have seen two Common Sandpipers *(Tringa hypoleucos)* at Pirini Creek on Rangaunu Harbour.

On 12 January 1982, we saw a single bird perching on a small mangrove. It rose from its roost, calling *twee-twee-twee,* and flew with a short jerky flight, gliding to land in adjacent mangroves. On 13 January, two flew out of the mangroves and landed nearby on the exposed tidal flats beside Pirini Creek. We watched them feeding on crabs, stretching their necks forward to stalk, rapidly pecking several times, and running quickly in search of more prey. They ran with their bodies hunched and head outstretched.

On 15 and 19 January the two were feeding near Bar-tailed Godwits *(Limosa lapponica),* Knots *(Calidris canutus)* and Turnstones *(Arenaria interpres)* out near the water's edge on the exposed tidal flats. On all occasions, the sandpipers were feeding on dried-out *Zostera* flats during an incoming tide.

Over the past 6 months, we have seen these sandpipers, godwits, knots and Turnstones roosting among mangroves, along with many native wader, swamp and bush birds. Perhaps if ornithologists were to investigate these areas more often, some of the more uncommon migrant waders of this habitat such as the Common Sandpiper, Marsh Sandpiper *(T. stagnatilis)* and perhaps the Wood Sandpiper *(T. glareola)* could be found.

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A TRANSIENT COLONY OF RED-BILLED GULLS

The transience of a colony of Red-billed Gulls *(Larus novaehollandiae)* was seen this summer on Rangaunu Harbour, Northland. On 24 October, 15 pairs had started nesting on Walker Island in the middle of the harbour, and most had laid eggs. By mid-November, however, all had shifted to a rock off Rangiputa, where 78 pairs were nesting, with eggs in 73 nests. All the nesting material had gone