

HISTORY OF DISTRIBUTION OF THE CRESTED GREBE (*Podiceps cristatus*) IN THE NORTH ISLAND AND NELSON-MARLBOROUGH

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ABSTRACT

The Crested Grebe *Podiceps cristatus australis* is a rare bird in New Zealand, now confined to the South Island. It was formerly present on a few of the large North Island lakes; there is a subfossil record from a Maori midden, carbondated to A.D. 945, and more recent observations — from the period 1870-1900 of breeding populations on Lakes Waikareiti and Waikaremoana. In Nelson-Marlborough Crested Grebes were formerly found on Lakes Rotoroa and Rotoiti; they were possibly first seen in New Zealand and identified on Lake Rotoroa in 1846 by Heaphy, and certainly observed and correctly identified at these lakes by Haast in 1860. They have disappeared as breeding birds from the lakes some time during the last 15-20 years. There is a sub-fossil grebe from Lake Grassmere, Marlborough, possibly from a Maori midden. Today there are no longer Crested Grebes in the North Island or in Nelson-Marlborough, northern South Island.

INTRODUCTION

The Crested Grebe has a limited distribution in New Zealand and while now confined to the South Island was formerly also present as a breeding bird in the North Island.

As part of a study of the ecology and distribution of the Crested Grebe, this paper presents material collected about its presence in the North Island and in Nelson and Marlborough in northern South Island. In a previous paper (Westerskov, 1970) I have discussed the distribution and history of decline of this species in Canterbury Province where some of the country's most suitable grebe lakes are found.

The decline in the population of Crested Grebes in Canterbury has been in the order of some 35-40 per cent over the last 20-30 years; while this has been alarming, the situation in the northern parts of the country discussed in this paper is even gloomier as grebes there have disappeared entirely as breeding birds. This has resulted in a shrinking of the grebe range in a southerly direction, a shrinking process still continuing.

For general information about the scope of this study, material and methods, and acknowledgement of assistance received is referred to the first paper in this series.

The Crested Grebe is a native bird in New Zealand, immigrated from Australia. The species has undoubtedly been here for some thousands of years as indicated by its former and present distribution but does not belong to an old faunal element. Its ecological counterpart with which it shares its lake habitat in Australia, the Australian Coot *Fulica atra australis*, is, however, a recent arrival in this country from across the Tasman; while stragglers have appeared occasionally for many years, it was not till the fifties that a major influx and subsequent breeding was recorded; the first nest of Australian Coot in New Zealand was found at Lake Hayes near Queenstown in November 1958 (Small and Soper, 1959). Both in Australia and in Europe, Crested Grebes are commonly seen associating with Coots

and only the further establishment and spread of Coots in the South Island will show whether also here this ecologically enforced co-existence will eventuate.

While a number of species and subspecies of New Zealand native birds have become extinct or near-extinct during the last hundred years — since the discovery of the Southern Crested Grebe — this elusive waterbird seems, according to the few accounts available, to have been uncommon to rare even then. From all accounts it never was a common bird in New Zealand as it is in north-western Europe; in New Zealand it has suffered some — and is likely to suffer much more — from the activities of man. Crested Grebes have in the last century disappeared from (been exterminated in?) Lakes Waikaremoana and Waikareiti and earlier Lake Taupo in the North Island, and several lakes including Lakes Rotoroa and Rotoiti in the South Island; the information about Crested Grebes at the latter two lakes is conflicting, and indications are that the grebes have now disappeared from these two lakes within the Nelson Lakes National Park. This is so much more sad as it was at these two lakes that the species was first observed, identified and reported upon, by Heaphy (1846, in Taylor, 1959) in 1846 at Lake Rotoroa, and by Haast during his explorations in Nelson in 1860 (Haast, 1861: 138); Haast's comment about this grebe was that "only very little is known."

CRESTED GREBE IN THE NORTH ISLAND

There are no verified records of recent breeding of Crested Grebes in the North Island and it is doubtful that it was ever fully established as a breeding bird except on Lake Taupo (altitude 1,172 ft.) and Lakes Waikaremoana and Waikareiti (altitudes 1,920 ft. and 2,900 ft., respectively). The North Island is spectacularly wanting in high country lakes suitable for Crested Grebe; neither are there the type of large lakes, fed by cool mountain streams, at lower elevations as found in Westland.

On the lakes, ponds and dams of the North Island, the endemic New Zealand Dabchick *Podiceps rufipectus* is a fairly common breeding bird while in the South Island this species is very rare and increasingly so. Indications are that the Dabchick was formerly much more common in the South Island than today; Buller (1888) even stated: "It is very abundant in all the freshwater lakes and lagoons of the South Island." A population shift to the north has certainly taken place since then. So today the two grebes are largely separated by Cook Strait in their distribution, the smaller Dabchick occurring in the warmer waters (and also some of the deep cool lakes) of the North Island, the Crested Grebe confined to the cooler snow-fed lakes of the South Island.

Lake Taupo

An extremely interesting sub-fossil find of Crested Grebe at Lake Taupo was first brought to my notice by Mr. R. J. Scarlett of the Canterbury Museum; he had identified the skeletal material for Mr. T. J. Hosking of the New Zealand Historic Places Trust, Geraldine.

This record is unpublished, and I am very grateful to Mr. Hosking for supplying me with the relevant detail and allowing me to publish this valuable find in this context.

The most interesting information about this find is undoubtedly its age. Carbondating (by Messrs. Ferguson and Rafter of the Department of Scientific and Industrial Research, Lower Hutt) of charcoal found in a hangi on the same floor as where the grebe material was found gave a date of year $1,005 \pm 57$ years at 1 January 1950, or A.D. 945; this carbondating was carried out for the New Zealand Archeological Association.

The site of the discovery was the Whakamoenga Point at Lake Taupo. The excavation was done with standard squares and baulks; the first level of human occupation was found at a depth of some three feet below the present surface.

The Crested Grebe material consisted of a single bone, a tarso-metatarsus, and it was recovered on 26 January 1962; it was first identified by Mr. R. J. Scarlett, Osteologist of the Canterbury Museum, and later confirmed by E. W. Dawson of the Oceanographic Institute, identifying bone material for the Dominion Museum. Associated with the grebe bone was moa material (not identifiable) and various shells. Bones were also found of the common bush birds — hunted in the bush surrounding the lake — and Mr. Hosking advises that from memory there were bones of Kiwi, Weka, Kaka, Kakapo, Tui, North Island Thrush, Red- and Yellow-fronted Parakeets, but no New Zealand Pigeon or Huia; there were also bones of Grey Duck.

This find is extremely interesting as it shows occurrence of the Crested Grebe in earlier times at Lake Taupo, whence there has been no record in historic times. Indications certainly are of breeding of this grebe at the period shown as well as occurrence in numbers allowing hunting by the Maoris. Future research may reveal other pre-historic finds of Crested Grebes associated with Maori kitchen middens and camp sites elsewhere in New Zealand, and one can only look forward to the development of this special branch of archeology with expectation and high hopes. Such work in some European countries has given outstanding results and has shown distributional patterns, indications of habitats, vegetation types and climatic conditions, as well as comparative abundance and avifaunistic changes.

This find shows former presence of Crested Grebes at Lake Taupo; and as none of the early explorers nor more recent observers has ever observed and reported grebes on this lake — I lived at Lake Taupo for two years, 1952-53, and never saw or heard of Crested Grebes during many trips to, along and on the lake — one may speculate as to the reasons for their disappearance. Were they eliminated by the increasing Maori populations? Or was the disappearance caused by changes in lake level, disappearance of protecting reed-beds for nesting, volcanic activities, climatic changes?

There is one recent observation published of Crested Grebe in the Taupo area. Lacking qualifying statements, details of observations or other proof of such a unique occurrence, it may be wiser to treat with some caution Vaile's observation (1935: 156) at Broadlands, between Taupo and Rotorua. Vaile described his experi-

ences and observations during the many years when he broke in and developed his farming enterprise. He stated: "Only once have I seen the Crested Grebe at Broadlands." None of the field staff of the Wildlife Division, with sub-districts in the Rotorua Acclimatisation District, has ever seen and reported observations of Crested Grebe, although constant field work and ranging take them to all parts of Lake Taupo and other lakes within the district. I have personally on a number of occasions been in the Broadlands area, and have neither seen Crested Grebes, nor even remotely suitable habitat for them.

Lakes Waikaremoana and Waikareiti

Our earliest record of Crested Grebe occurrence in historic time in the North Island is Buller's statement (1877: 200): "I have never met with this species in the North Island, but Captain Mair informs me that he has on two occasions seen it in Waikaremoana Lake in the Urewera country, and once on the Waikareiti, another lake in the same country."

In 1888 in his classical 'A History of the Birds of New Zealand' Buller again mentioned occurrences of Crested Grebe in the North Island: "The late Mr. Wilmer informed me that during an expedition with Major Goring to Waikareiti, in the spring of 1879, he shot seven or eight of them on that lake, and he sent me the skin of one he had preserved. This is a curious fact in the distribution of this bird, seeing that Waikareiti is at a much higher elevation than Waikaremoana, where this Grebe has never been found." The last remark, incidentally, is not in agreement with Buller's 11 years earlier published account, quoted above, that Captain Mair had seen this species twice on Lake Waikaremoana.

There is a further record of Crested Grebe from Waikareiti. Best (1897: 61) on his travels to 'Waikare-Moana, the Sea of Rippling Waters' remarked on the birds of Waikareiti: "wild-fowl were formerly numerous, including the whio, maka, weweia, and kaha, the latter a large bird which nested in the branches trailing into the water on the shore-line." Kaha is one of the Maori names for the Crested Grebe (Williams, 1957: 82), and the description of the floating anchored nest fits accurately; Best appears either to have seen this bird and its nest at Waikareiti, or to have obtained a description of the nest which bears the mark of observation.

The above is practically the total of available evidence of Crested Grebe in the North Island, indicating a formerly very sparse and scattered occurrence with breeding birds established at Lakes Waikareiti and Waikaremoana, Lake Taupo and possibly Broadlands (the Crested Grebe observed at Broadlands if properly identified could have been a straggler).

To this can be added the following interesting account which shows that Crested Grebes may still persist in (or visit?) Lake Waikareiti. Mr. David R. Rosenberg, Lecturer in Biology at Hamilton Teachers' College, writes in a letter dated 25 June 1968 as follows: "In late January 1961 I was carrying out a limnological survey of a bog area behind Lake Waikare-iti near Lake Waikaremoana, Urewera National Park. Late in the afternoon I returned to my camp in Sandy Bay on the north-eastern side when I saw a crested grebe

less than twenty yards from the rocky point on the right hand side. There was no mistaking the features with the prominent 'ears' and the body low in the water. It was in full view for about twenty minutes just paddling backwards and forwards, then disappeared around the point. No sound was made."

This observation made under ideal conditions can hardly refer to any other bird than the Crested Grebe although some specimens of the polymorphic White-throated Shag *Phalacrocorax melanoleucos brevirostris*, maybe with a light hind-wind stirring up their long crest feathers, can look deceptively like the Crested Grebe. At the 1968 New Zealand Ecological Society Conference, held in Auckland, Mr. I. L. James of the Forest Research Institute, Rotorua, read a paper (James and Wallis, 1969) on a study of the effects of introduced mammals at Lake Waikareiti. As James had had recent field experience at and in Lake Waikareiti (Rahui Island was visited as one of the sampling areas), I asked him whether he had seen any Crested Grebes during field work at the lake and sailing on the lake, but he had not. James' co-worker, Mr. F. P. Wallis, has kindly advised me (pers. comm.) that during field work at the lake during a six days' stay in May 1967 and a visit to the lake on 11 March 1969 no grebes were seen. Mr. A. E. Reiher, New Zealand Forest Service, Ruatahuna, advises (pers. comm.) that he has never seen nor received information about Crested Grebes in the area. Mr. Reiher further writes that Mr. W. Sander, Chief Ranger of Urewera National Park, has advised him that he has never heard of grebes being present on the lake. Forest and Park staff have been alerted as to the possibility of Crested Grebes on Lake Waikareiti.

Crested Grebes are large conspicuous birds, with an elaborate and spectacular courtship display, with a loud and penetrating call, and it is unlikely that it should have nested at Lake Waikareiti all these years without having been detected. But there is history of Crested Grebe occupation at Lake Waikareiti and Rosenberg's recent observation spurs to renewed attention. Could some of the keener North Island field ornithologists put in a full and careful study and establish whether Crested Grebes may be present on Lake Waikareiti? Or does a straggler occasionally reach the North Island after the breeding season in the south? Or is it possible that very rarely an Australian Crested Grebe, storm-caught and wind-borne, may find its way to our shores? In the first place both our Crested Grebes, and Dabchicks (the latter related to and originating from blown-over *Podiceps poliocephalus* from Australia) came from there; and over recent years the influx of Australian birds, in particular to the South Island, has been astounding; a most interesting arrival is the Australian Little Grebe *Podiceps novaehollandiae*, observed in a pond near Arrowtown, Otago in November 1968 (Chance, 1969).

CRESTED GREBE IN THE SOUTH ISLAND

Of the only two published maps known to me, showing world distribution of the Crested Grebe, one (Dementiev and Gladkov, 1951: 264) shows presence of this grebe in both North and South Islands, while the other (Voous, 1960: 26) rightly shows presence in South Island only although incorrectly all of this island is marked as being occupied by Crested Grebe. The distribution of the Crested Grebe

in the South Island is, however, very limited and probably was never extended except for a few peripheral occurrences, such as in some of the larger lakes in Nelson and Marlborough.

Nelson District

The area corresponds to the Nelson Acclimatisation District and its borders to the west are the Tasman Mountains, The Twins, Nuggets Knob, and Mt. Montgomery, to the south the Brunner and Victoria Ranges, and to the east the Spenser Mountains, St. Arnaud and Richmond Ranges, and Saddle Hill east of Nelson City. There are very few inland lakes in Nelson; there are no suitable coastal lakes or lagoons and only two large high country lakes so the area is not and never was suitable Crested Grebe habitat.

The only two lakes in Nelson which have supported populations of Crested Grebe are Rotoroa and Rotoiti.

Rotoroa is a large lake in a picturesque setting, and at an altitude of 1,460 ft. Both this lake and Rotoiti are situated within the Nelson Lakes National Park and are thus theoretically safeguarded.

What is probably the first published observation of the Crested Grebe in New Zealand originates from Lake Rotoroa. The 24 years old Charles Heaphy, who had come to New Zealand on a three years' contract as artist and draughtsman with the New Zealand Company, visited Lake Rotoroa in February 1846. With him were Thomas Brunner (after whom Lake Brunner was named) and the Maori Kahu. In his account of the trip, published in the *Nelson Examiner* for 7 and 14 March 1846 (and re-published pp. 188-203 in Taylor, 1959) Heaphy has this entry from Lake Rotoroa for 11 February 1846: "As we left the shore the whole expanse of the lake became visible, with its densely wooded shores, and the high snowy mountain range at its head, in its wild grandeur, closing the view. Grebes and divers with other water-birds, were floating about on the surface, nor did the instability of our shallop deter us from getting a shot at them." Heaphy also reports that while at Lake Rotoroa, Kahu for food snared four Wekas, caught ten eels, and shot six New Zealand Pigeons and four Blue Ducks, but grebes were not mentioned as being shot. While not fully satisfactory and convincing, this description suggests that Heaphy observed Crested Grebes on Lake Rotoroa in 1846. In his earlier book about New Zealand, Heaphy (1842: 47) who had spent two months in the Nelson district and altogether three years in various parts of New Zealand, had this to say about waterbirds observed by him: "The paradise and common duck, teal, widgeon, water-hen, and diver, are all found in great numbers in the rivers." But this statement is so general and vague — and downright incorrect if taken literally — that only an appreciable stretching of the imagination and an over-generous amount of good-will can equate Heaphy's 'diver' with the Crested Grebe of interest in this connection.

While Heaphy's observation of 'grebes' at Lake Rotoroa in explorations in Nelson Province, Haast (1861: 138) mentions that: 1846 may be doubted (and not considered acceptable as the first New Zealand record of the Crested Grebe), Haast's 1860 observation at this lake cannot be discounted. In the detailed report of his

"On the lakes, besides the several inhabitants before enumerated, we found the crested grebe (*Podiceps cristatus*?), of which only very little is known." From the narrative it is evident that Haast by the lakes means Lakes Rotoiti and Rotoroa; furthermore, it is also evident from the report as well as from Haast's map of Nelson Province (not published with the report but later published as an appendix to his son, H. F. von Haast's 1948 biography) with his line of route shown, that Haast only visited Lakes Rotoiti and Rotoroa during his whole expedition. He did not visit Lakes Hochstetter and Brunner as he had planned ("the rain again pouring down, I resolved to return to the pah instead of going, as I had previously intended, to Lake Brunner"). Haast visited Lake Rotoroa in January 1860, and the observations at this lake and at Lake Rotoiti of Crested Grebes — although details are lacking and now untraceable — are the first published observation of Crested Grebes in New Zealand.

Lake Rotoroa became a well-known haunt of the Crested Grebe. Around the year 1900 Mr. Dudley Win, formerly a settler of Owen River, recorded some 20 Crested Grebes on the lake (Bull, 1965: 91). Grebes were recorded present in 1925 (Moncrieff, Emu 25: 24), and in 1928 Mrs. P. Moncrieff about Crested Grebes records: "On a large lake near Nelson it nests yearly; 1927 it built its nest, but never hatched its brood owing to floods, which, although the bird endeavoured to build its nest up to meet the fast rising waters, eventually swamped the structure." M. M. Small (pers. comm.) saw Crested Grebes on this lake in November 1952. In a letter dated 8 January 1968 R. H. Taylor of the Ecology Division states: "Crested Grebes are not present on the two lakes in Nelson Lakes National Park. Since 1962 I have travelled on, or around, these lakes extensively and have not seen these grebes or heard of any being sighted." Bull (pers. comm.) did not see any grebes during two visits in 1963 and 1965, neither did I see any in the northern end of the lake in January 1968. The only recent record obtained is the observation of two Crested Grebes in October 1967, in the top end of the lake (R. T. Brown, Nelson, pers. comm.). Indications are that Crested Grebes have ceased to breed at Lake Rotoroa some time during the last 15-20 years but that they may still occur as occasional visitors, or stragglers, maybe looking for suitable nesting habitat.

Lake Rotoiti is a smaller and narrower lake, surrounded by bush-clad ranges; elevation 1,997 ft. While no extensive reed-beds or other suitable nesting areas are found, this lake formerly harboured a small population of breeding grebes. Haast (1861), as mentioned above, saw Crested Grebes at both Lake Rotoiti and Lake Rotoroa in 1860 without, however, giving further details. Buller (1888: 284) mentions "A down-coloured chick killed by Mr. Cheeseman (out of a brood of seven) on Rotoiti lake, South Island, in January 1881, is preserved in the Auckland Museum" and (l.c.: 286) that his son in his collection has a particularly small Crested Grebe egg (51 x 32 mm.) from Lake Rotoiti. M. M. Small (pers. comm.) saw the species when surveying the lake in November 1952. P. C. Bull (pers. comm.) did not see any Crested Grebes during several crossings of the lake in 1963-65; as mentioned above under Lake Rotoroa, R. H. Taylor (pers. comm.) saw no grebes between 1962 and 1967 during extensive travel on and around Lake Rotoiti. I failed to see any grebes in the north end of the lake in January 1968.

At the small Lake Cobb in the Tasman Mountains, Ranger D. V. Zumbach (pers. comm.) of the Nelson Acclimatisation Society saw in 1961 what he believed was a Crested Grebe; the bird was seen from some distance and when approached dived: "I am certain it was one although I was not able to get close enough to be certain of its colour, etc. The position in the water was what drew my attention and there were no other waterfowl of any species on the lake at the time."

No Crested Grebes were seen on the two small lakes in Nelson Lakes National Park, Lake Constance, visited in March 1963, and Lake Angelus, visited in November 1962 and February 1963 (L. C. Batcheler, pers. comm.).

In 1938 "Grebes and water-fowl are definitely decreasing" in Nelson Province (Moncrieff, 1938: 228). Indications are that there are no more breeding Crested Grebes in Nelson, but a closer look at Lake Cobb may be worth the effort (although maybe only stragglers occur or have occurred there); the recent observations of Crested Grebes at Lake Rotoroa (1952 and 1967) may be of stragglers, but potential breeding in the future may be worth watching for by visitors and local bird-watchers.

Marlborough District

The area corresponds to the Marlborough Acclimatisation District. Its borders are the Sounds area to the north, the Southern Alps (the St. Arnaud and Richmond Ranges) to the west, the Kaikoura Mountains and the sea to the east, and Mt. Humboldt, Dillon Cone and the Conway River to the south. There is a dry high-altitude central plateau north-west of Molesworth. In the whole district there are no large lakes and only very few small lakes and tarns.

Although it has been stated that the Crested Grebe: "is rare in Marlborough" (Oliver, 1930: 88), there is little past evidence except the specimen labelled "Marlborough 1892" from the Buller collection, now in the Canterbury Museum, and mentioned further below.

There is a new and unpublished record of a sub-fossil Crested Grebe found in Marlborough which Mr. R. J. Scarlett of Canterbury Museum has generously allowed me to publish in this paper. The skeletal part is a left tarso-metatarsus, collected on 4 October 1954 by Dr. R. S. Duff and Mr. J. R. Eyles in sand-dunes at Marfill Beach, Lake Grassmere. This specimen (now in the Canterbury Museum, AV 10729) was probably associated with man and may stem from a Maori midden.

There is an unconfirmed record of Crested Grebes occurring or having occurred on Lake Chalice at the headwaters of the Goulter River, north of the Wairau River (D. V. Zumbach, pers. comm.). Verification is needed.

Poorly labelled old museum specimens are of little value in establishing former distribution; for what it is worth, there is a male Crested Grebe (AV 1223) labelled "Marlborough 1892" from the Buller collection and now in the Canterbury Museum.

Apart from the above, I know of no published record of past or present occurrence of the Crested Grebe in Marlborough, nor have I received reports of any. M. M. Small (pers. comm.) informs me that he saw no Crested Grebes during his extensive waterfowl survey in Marlborough in June-December 1952: during this survey practically all lakes, dams and lagoons in the district were visited.

During my own several visits to the district I have not heard of any reports or seen Crested Grebes in Marlborough; Mr. S. R. Kennington (O.S.N.Z. Rec. Scheme) also reported this species as not recorded in Marlborough; and Mr. J. A. Cowie, Regional Representative of the Ornithological Society of New Zealand reports (pers. comm.): "As far as I know there are no Crested Grebe in Marlborough. In the 12 years I have been here I have never heard of them in this region and if anyone has recognised the bird here, there would have been considerable publicity."

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