INTRODUCTION

The Chickens (or Marotere) Islands (35°53'S, 174°45'E) constitute the northern part of the Hen and Chickens Group, which lies 10 km south-east of Whangarei Heads off the east coast of north Auckland, New Zealand (Fig. 1). The Chickens consist of three main islands (Lady Alice, Whatupuke and Coppermine), 5 smaller islands of the ‘Western Chickens’ (Wareware, Muriwhenua, Pupuha, Mauitaha, Araara) and numerous smaller, named and unnamed stacks and rocks (Fig. 1-3).

Lady Alice Island (Motumuka) is the largest in the group, approximately 138 ha, and rises to 170 m. The coastline is mostly surrounded by cliffs leading to a plateau, in places dissected by drainage valleys. Two sandy beaches, backed by small streams, occur at the western and southern coasts, respectively named West (or Grave) Bay and South Cove. The majority of expeditions to the Chickens utilise campsites at either of these two bays, although access at West Bay is more difficult due to offlying rocks. Our party established camp at South Cove, where a series of terraces beneath low coastal vegetation allows protection for small tents.

Whatupuke (Middle Chicken) is the second-largest island, at 90 ha and rises to 240 m, the highest peak in the group. Several boulder beaches occur on the northern and southern coasts.

Coppermine Island is the eastern-most of the Chickens and approximately 72 ha. An automatic lighthouse is sited at the island’s eastern end and supplied by helicopter, for which there is a nearby landing pad. Prior to automation, power was provided by a generator and battery shed in the southern bay.

Mauitaha and Araara Island form the South-western Chickens and are 22 ha and 2 ha respectively. Both are steep-sided and landing is physically restricted to a few negotiable sections of coastline.

The North-western Chickens consist of Wareware and Muriwhenua Islands, which are joined by a sandspit, giving a total area of 4 ha. Pupuha Island (1 ha) is situated 500 m south-east of Wareware and Muriwhenua Islands and is sometimes termed one of the North-western Chickens.
Lady Alice, Whatupuke, Coppermine and Mauitaha Islands appear to have been modified by the prehistoric Maoris, who at various times would have cleared the vegetation - in part to establish gardens, and in part during birding activities. Pas, terraces, middens, stone walls and occupation sites have been recorded from many of the islands and stacks in the Chickens Group, but it is possible that the Maori occupation was not continuous and the only garden sites appear to be restricted to Whatupuke Island (Prickett 1984). Visits to the Chickens from the nearby mainland were probably frequent, coinciding with the breeding seasons of shearwaters and petrels, especially the northern muttonbird or grey-faced petrel (*Pterodroma macroptera*). The last Maoris to occupy the islands are said to have left in 1821 (Cranwell and Moore 1935), which would have occurred during the increased tribal warfare of the early nineteenth century, when small isolated populations would have been vulnerable to attack.

The first European to see the group was Captain James Cook, who on 25 November 1769 named them the Hen and Chickens Islands, because of their resemblance to a brooding hen and her chickens (Wharton 1893). In 1845, Samuel Polack claimed to have bought the Chickens Islands from the local Maoris, but the Crown did not recognise his ownership.
and in 1849 the islands were leased to Isaac Merrick, for a period of 21 years, who attempted to mine copper ores on Coppermine Island. In 1864, the islands were granted to Robert Thompson and in 1882, they were owned by William Grahame, who sold them to the Crown later in that year.

The island group was designated for Scenic Purposes in 1920, a Scenic Reserve in 1928, a Wildlife Refuge in 1929 and is now classed as a Nature Reserve for the Protection and preservation of fauna and flora. Landing is restricted to bona fide scientific research and management personnel who have obtained a permit from the Hauraki Gulf Maritime Park Board, which administers the islands.

Parts of several of the larger islands have obviously been burned in European times and it appears that even some of smaller Chickens were cleared by the prehistoric Maoris. Whereas these areas are in dense tea tree scrub, most of the remainder of the larger islands are covered in regenerating coastal forest. Grave Bay on Lady Alice Island was used by Waipu fishermen in the 1880s as their base, to which they introduced cattle in 1890. The last cattle were removed in 1924. Flax was also harvested on Lady Alice Island during this period and taken by scow to Whangarei for processing. A number of fires were also lit on Lady Alice Island, occurring in Grave Bay at the end of last century and the last in about 1902 or 1903 (Skegg 1965).
Coppermine Island was the other site of human activity in the period between the Maori occupation and the protection of the islands for their wildlife value. In 1849, Isaac Merrick shipped copper ore to England and in 1852 the island was prospected for gold, without positive results. In 1898, J.W. Mackay established the Marotiri Copper Syndicate and mining commenced between June and September 1899, when a number of adits were dug at the western end of the island. However, the ore did not contain notable gold or silver values as hoped and the venture closed in November 1899 (Moore 1984).

A second exploration period began in 1965, when CRA Ltd. applied for exploration rights on Coppermine Island. Geological surveys, amidst concern from conservationists for the islands’ wildlife potential, were conducted in February 1966, March 1967 and December 1968, the latter comprising a drilling team which sited 4 holes on the hill at the western end of the island. However, the copper deposit was not an economic proposition due to the small amount of high-grade ore and in March 1969, CRA abandoned its prospecting warrant (Moore 1984).

The geology of the Chickens Islands is formed on a basement of Waipapa Group greywacke, consisting of indurated sandstone and mudstone beds of a probable Jurassic age. Volcanism during the Miocene period resulted in a number of diorite intrusive plutons and andesite dikes, which have been responsible for the

Fig. 3. Looking west along the chain of Chickens Islands. Coppermine Island is in the foreground with the high crest of Whatupuke behind, hiding most of Lady Alice. In the right distance are Muriwhenua and Wareware. The high peaks on the horizon to the right are Whangarei Heads on the east coast of Northland. Photo: Lloyd Homer, N.Z. Geological Survey.
mineralisation on Coppermine Island and the western end of Whatupuke Island.

The vegetation of the islands ranges from the virtually undisturbed coastal scrub communities on the smaller islets, which is often influenced by the activities of breeding seabirds, to mature coastal forest, dominated by kohekohe (*Dysoxylum spectabile*), pohutukawa (*Metrosideros excelsa*), taraire (*Beilschmiedia tarairi*) and pukanui (*Meryta sinclairii*) and regenerating tea tree stands (*Leptospermum ericoides* and *L. scoparium*) on the larger islands. Pukanui is noted for its peculiar distribution on the Hen, Chickens and Three Kings Islands.

The Chickens are noted for their populations of breeding seabirds, which include the rare Pycroft's petrel (*Pterodroma pycrofti*), grey-faced petrel, sooty shearwater (*Puffinus griseus*), fluttering shearwater (*P. gavia*) and flesh-footed shearwater (*P. carneipes*). The colonies of flesh-footed shearwaters at the Chickens Islands are the largest in New Zealand waters. Saddlebacks (*Philesturnus carunculatus*) were introduced from Hen Island (which became their last stronghold after the extinction of the North Island subspecies elsewhere) to Whatupuke Island in 1964. Two previous attempts in 1949 and 1950 were less-

![Fig. 4. Map of Lady Alice Island, Chickens Islands. Place names in italics are unofficial, having been coined by previous parties to visit the island.](image_url)
successful. In 1971, saddlebacks were transferred from Whatupuke to Lady Alice Island and have subsequently colonised Coppermine Island by themselves.

Tuataras (Sphenodon punctatus) are also common on the three larger islands and collectors visited the Chickens prior to the reptile's protection to remove specimens for museums and zoos. Occasional young tuataras are found, despite the occurrence of kiore rats (Rattus exulans), which are thought to have a detrimental effect on tuatara populations. Kiore occur on all the islands except the North-western Chickens and some of the smaller stacks.

Among the first natural scientists to visit the Chickens were Hutton and Kirk, who went there in search of pukanui in 1869. Reischek was another early visitor, staying on the islands in April and December 1880 to study the prehistoric Maori occupation, birds and reptiles. Since then, a large number of scientists have visited the Chickens Islands. Among those making notable contributions to our knowledge of their natural history were Lucy Cranwell and Lucy Moore, who studied the botany in 1933 and 1934 (Cranwell and Moore 1935); members of the Auckland Museum's Will Watch expedition who briefly landed on Coppermine and Lady Alice Island in 1935; and members of two Auckland University Field Club scientific expeditions to Lady Alice, in 1955 and 1964 (published in Tane volumes 6, 7 and 11).

In the last 30 years, there have been increasing numbers of parties of scientists visiting the islands. Much of the research has been related to the introduction of saddlebacks from Hen Island, and also related to applications to prospect for and possibly mine copper from Coppermine Island in the late 1960s. The most recent focus of research is a long-term study on the relationship between kiore and tuataras being undertaken at West Bay, Lady Alice Island by Wildlife Service officers.

Despite these previous visits, there were many aspects of the natural history of the Chickens Islands that had not been adequately studied, documented or recently updated. With the aim of filling some of these gaps, the Offshore Islands Research Group organised a scientific trip to the Chickens Islands over the New Year period, 1981—1982.

The party left Leigh on 30 December 1981 and established camp on the much-used camp site adjacent to 'Staircase Creek', South Cove, Lady Alice Island (Fig. 4). Despite it being summer, plenty of water was flowing in 'Staircase Creek', 'Ruatuna Creek' and the creek behind West Bay. Two aluminium dinghies with outboards were used to make day trips to the other islands. Every island and most of the rocks and stacks were visited by at least two or three members of the party. The expedition returned to Leigh on 8 January 1982.

The party of 18 consisted of Jessica Beever, Ross Beever, Peter Bellingham, Vivienne Bull, Ewen Cameron, David Court, Anne Grace,
Roger Grace, Rod Hay, Bruce Hayward, John McCallum, Phil Moore, Murray Potter, Nigel Prickett, Lin Roberts, Clare Ward, Anthony Wright and Lands and Survey ranger Neville Jones. Studies were conducted on the islands’ geology, archaeology, bryophytes, lichens, vascular plants, insects, spiders, reptiles, rats and birds, as well as the fish, marine benthic biota and sediments in the surrounding sea, and the results of some of these follow.

ACKNOWLEDGEMENTS

Members of the party are grateful to the many people and organisations whose assistance ensured the success of the trip. In particular, we thank the Hauraki Gulf Maritime Park Board for permission to stay on the islands and undertake research, and also in providing us with ranger Neville Jones. For the generous loan of gear, we thank the Auckland University Field Club, AHI Minerals Ltd., Entomology Division - DSIR, the Mado Underwater Club. The Department of Botany, University of Auckland loaned a dinghy and Mrs Saies an outboard motor. Mr Bull provided meat towards the trip and Mrs Wright cooked and froze much of the other meat, and once again we acknowledge their generosity.

BIBLIOGRAPHY

Anon. 1966: Coppermine Island must be preserved as a scenic reserve. Forest and Bird 160: 2.
Anon. 1967: Petitions on exploitation of Coppermine Island. Forest and Bird 166: 3.


