WILDLIFE and SITES OF SPECIAL WILDLIFE INTEREST in the WESTERN WAIKATO REGION

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1. INTRODUCTION

New Zealand, at the time of the arrival of man, had a distinctive native fauna reflecting a history of survival and continuing colonisation since the ancestral land mass lost contact with other southern land about 80 million years ago (Stevens 1983). The original residents and early colonisers, isolated on these islands from many of the pressures which shaped the faunas of other lands, were able to survive with, or evolved, ways of life which made them very vulnerable to the devastating changes which occurred when man arrived. Large-scale destruction of habitat and introduction of new predators, competitors, and possibly new diseases, combined with other ecological changes to take a heavy toll. A total of nearly 50 species of birds has become extinct and others have been reduced to remnant populations on islands or isolated parts of the mainland (Williams 1962). The losses in other groups are difficult to estimate.

In many cases, the most distinctive New Zealand species are the ones which have been lost or reduced in numbers (McDowall 1969). The species which have accommodated to changes are often the relatively later colonists which, perhaps through past contact with predators in their countries of origin, have breeding and feeding habits which make them less vulnerable. Often also they have less specialised requirements and a high reproductive rate, attributes which assisted colonisation initially and now assist survival in the face of changing conditions.

The present status of the remnants of New Zealand's native fauna can be summarised as follows:

1. Species which have not accommodated to changes and are now confined to islands or small mainland populations. Many of these require more or less intensive management, or at least continuing surveillance, to improve their survival chances. Examples are saddleback, little spotted kiwi, kokako and giant weta.

2. Species which are more widespread but which have been greatly reduced in numbers and show trends causing concern for their future, at least on parts of the mainland. Examples are brown kiwi and kaka.

3. A larger group of more or less widespread species not causing particular concern but which require retention of natural habitat in good condition to maintain their present distribution. Examples are bellbird and NZ pigeon.

4. The most versatile species which readily use exotic forest, gardens or pastoral country as well as natural habitat. Examples are grey warbler and fantail.

2. THE SURVEY REGION

2.1 Area Covered by the Report

For the convenience of users of the reports the data are compiled on the basis of political boundaries of regional government rather than on biological units such as ecological districts and regions. To reduce the potential bulk of the report on the Waikato Planning Region a report has been compiled for each of two groups of three Counties. This split has some logic on geographical grounds, the western hill country (Raglan County, Otorohanga County and Waitomo District), which is covered by the present report (Fig. 1), being quite distinct from the predominantly plains country to the east. This division reflects also the timing of the survey, the bulk of field work for each group of Counties having been carried out in separate summers.

2.2 Physiography and Geology of the Survey Area

Raglan County and the west of Otorohanga and Waitomo are linked geologically by the Kawhia Regional Syncline, a structure of sedimentary rocks of Tertiary and Jurassic age exposed in many places between Waikato Heads and Awakino. This structure is important in contributing to the hilly nature of the western part of the survey area. The western limb of the syncline forms the Herangi Range from Awakino to Kawhia Harbour and the eastern limb outcrops along the divide between the Waipa Valley and the western-draining waters south of Pirongia and again to the north in the Hakarimata Range. The eastern limit of the syncline is the Waipa fault. East of the fault underlying rocks are greywackes of Jurassic age which outcrop in the Rangitoto Range (Suggate 1978).

In many places older rocks of the Kawhia Syncline are covered by softer Tertiary sandstones, siltstones and limestone. The limestone forms conspicuous escarpments and outcrops in many parts of the survey area and strongly influences the landscape where these sediments are more continuous in the Mairoa Plateau south of the Marokopa River. The well-known Waitomo Caves and other caves in the district have been formed by the action of water on these limestones. In the extreme south of the survey area more recent Tertiary sediments include the coal measures on the Mokau River which are currently being investigated for mining potential. The rocks in this part are related to those beyond the survey area in North Taranaki and support a forest type which is different from forests in the north.

A third factor contributing to the hilly nature of the survey area is its history of volcanism. The large cones of Karioi and Pirongia are prominent in the centre of the region and smaller domes and cones occur in many parts. The influence of eruptions in the Taupo zone reaches the west of the survey area where the ignimbrite sheet of the western volcanic plateau covers the greywacke of much of the Rangitoto Range and extends eastwards beyond SH 30 between Te Kuiti and Mangapehi. The eastern boundary of Waitomo District bisects the cone of Pureora Mountain.

adjoining land. Beds of Zostera are often present on the tidal sand and mudflats of the estuaries and, where saltmarsh has developed at the upper tide level, common species are half-star, jointed rush, sea rush, saltmarsh ribbonwood and species of Scirpus and Baumea. Saltmarsh is generally present in minor areas only, often forming a narrow band along sheltered shorelines, but more extensive in bays and in inlets where freshwater drainage enters the estuary. Where fresh water is present, saltmarsh often grades to freshwater wetland vegetation further from the tidal influence, with species such as willows, manuka, flax, raupo, cabbage trees, Cyperus, species of Scirpus, Juncus and Carex and exotic pasture grasses being common.

Patches of the exotic saltmarsh grass Spartina were found in the three large harbours. This grass forms colonies which trap sediment and rapidly build up areas of tidal flats above tidal influence and is thus destructive of estuarine habitat. The grass has the potential to colonise new areas and spread rapidly so control measures should be carried out while patches are still limited in extent. Because of its threat to estuarine habitat it is Wildlife Service policy to eradicate or recommend eradication of Spartina wherever it occurs.

The peripheral dry vegetation of the estuaries is commonly of developed pasture species right to the saltmarsh zone, but in many places a band of secondary scrub, including gorse, hangehange, mahoe, treefern and bracken is present. Older, well-developed, secondary forest is less common but occurs in some places, particularly around Aotea Harbour. Much is kanuka-dominant, with rewarewa, lancewood, mamaku, cabbage tree, heketara, puriri and, commmonly, pohutukawa and kowhai on rocky outcrops. With further development, and in favourable sites, such species as northern rata, kohekohe, tawa and rimu also occur.

As was the case with coastal vegetation, the rough scrubby vegetation around estuaries provides habitat which holds good populations of pheasant and quail.

8.3 Coastal and Estuarine Wildlife of the Survey Area

Estuarine Wildlife

The three large estuarine harbours and the rivermouth estuaries are the most valuable wildlife habitats on the coastline of the survey area. Estuaries are important to several migratory marine fishes and their quality is vital in the life histories of native freshwater fishes, many of which at least pass through them on upstream and downstream migrations (McDowall 1976). They provide food, shelter and breeding requirements for large numbers of bird species and have international significance in providing habitat during the northern winter for trans-equatorial migratory waders.

The wading birds are a conspicuous part of the bird fauna of estuaries and are often important in terms of numbers. They may be conveniently divided into three broad groups on the basis of their migratory habits, as follows:-

not large. The most widespread species was found to be the banded rail. Spotless crake were found occasionally, usually where freshwater wetland occurred at the inland edge of a saltmarsh.

Another important species of this zone is the fernbird. In saltmarsh vegetation of the three large harbours fernbirds were commonly recorded where saltmarsh ribbonwood, manuka or some other shrub species formed a second tier over rushes. Bitterns were recorded in or reported from saltmarsh vegetation of the harbours, but because of the limited extent of this habitat may have been present only seasonally.

Coastal Wildlife

Many bird species use the coast but the majority of species, and usually greater numbers of individuals, were recorded in the vicinity of river and stream mouths, where greater variety of habitat is available.

Southern black-backed gulls are present in moderate numbers and breed at scattered localities along the whole coastline. Little blue penguins also breed at suitable places along the coast and were reported to be numerous in the south of the region. White-fronted terns and spotted shags breed at Ngatutura rock stacks which were registered as SSWI. About twenty breeding pairs of terns were estimated on the southern stacks and 115 individuals, including juveniles, were counted at Waikaretu stream mouth.

Banded dotterels, New Zealand dotterels, South Island pied oystercatchers (SIPOs), pied stilts, wrybills, variable oystercatchers, godwits, white-faced herons, reef herons, Caspian terns, red-billed gulls, black shags, mallards, paradise shelducks and welcome swallows were all recorded, generally in low numbers. Most of these birds were recorded around stream or river mouths but scattered individuals of some species could be observed anywhere along the coast. Gannets were often seen patrolling the coastal waters.

Searches were made for lizards at apparently suitable localities along the coastline but their presence was confirmed at Manu Bay only. Three copper skinks (Cyclodina aenea) were found at this boulder beach south of Raglan Harbour.

8.4 Coastal and Estuarine Sites of Special Wildlife Interest

Coastal and estuarine sites were rated according to the criteria set out in Appendix 5. Importance of these sites is strongly related to size - a large habitat usually provides a larger food resource and is often more diverse and can support a greater diversity of species.

Smaller estuaries of river and stream mouths, are important for the wildlife of the coast generally, and four of these have been recorded as SSWI. A further stream mouth recorded, the Owhiro Riverine Area, is a tidal arm of Kawhia Harbour which is unusual in retaining a vegetation sequence from saltmarsh to native forest. The only coastal SSWI not associated with valley mouths are the Ngatutura rock stacks which support breeding colonies of spotted shags and white-fronted terns.

in total, significant populations of these species were present around the harbour. Bitterns were recorded in a large area of saltmarsh on Tiritirimatangi Peninsula. This saltmarsh also had banded rails and fernbirds, and a sandspit of the Peninsula is one of the few high tide roosts for estuarine birds in the harbour. The Peninsula is a valuable part of the estuary and should be protected. Te Motu Island and sandbanks is another important high tide roost and nesting area, and should also be protected from any disturbance.

Colonies of the exotic grass Spartina were noted in several locations around the estuary with one, in an arm west of Te Waitere, being some 4 ha in extent. These colonies should be eliminated before further spread occurs.

Aotea Harbour (Site 119) (High rating)

This estuary, lying north of but very close to Kawhia Harbour, could be regarded in some ways as part of the same estuarine complex. There is little doubt that each harbour enhances the value of the other, at least for the migratory species. The harbour is about half the size of Kawhia but is very shallow and a large expanse of sand and mud is exposed at low tide. The harbour is very clean (slightly polluted, McLay (1976)) and considerable lengths of shore are vegetated with scrub and coastal forest.

The bird fauna of Aotea Harbour is not as well known as that of Kawhia but several OSNZ counts have covered both harbours. Although numbers of wading birds are generally much fewer than those on Kawhia they are still considerable. In the national census of November 1983 Aotea Harbour, with 1240 waders, ranked 14th amongst the 15 localities surveyed which had more than 1,000 birds (OSNZ 1984b). The godwit is by far the most numerous species using the harbour - 1100 were counted during the 1983 census, 1200 were counted by FSU during the survey, on 21 October 1980, and 1556 were recorded during an OSNZ count on 12 February 1977 (OSNZ 1977). The harbour was not so well used during the 1984 winter census, when a total of about 500 birds was recorded.

Other wading birds recorded are South Island pied oystercatcher (150), New Zealand dotterel (one pair), pied stilt (70+), white-faced heron (75), all recorded by FSU on 21 October 1980, and variable oystercatcher, two juveniles recorded with 4 adults on South Head beach (OSNZ 1984a).

Considerable numbers of waterfowl were recorded in creeks and bays during the survey and the harbour is reportedly used by large flocks of ducks in the autumn.

Reef herons were not recorded during the survey but Aotea Harbour has been a favoured locality in the past with one record of 23 birds seen together in 1951 (Edgar 1978).

There is a high tide roost at the southern end of the harbour and other roosts at the harbour entrance. In addition, waders may use roosts in Kawhia Harbour.

The SSWI is rated highly because of the presence of breeding populations of New Zealand dotterel and several other species. Breeding of white-fronted terns was recorded by FSU (86 eggs counted) and 12 New Zealand dotterel were counted when the sand spit was surveyed on 12 January 1982. Breeding of Caspian terns and variable oystercatchers has also been confirmed and good numbers of these birds, up to 222 terns and 31 oystercatchers, have been recorded.

The sandspit and a sand island in the river mouth are used as high tide roosts and were occupied by 180 South Island pied oystercatcher, 66 Caspian terns and 30 ducks when surveyed by FSU.

The tidal flats and waters of the SSWI provide an important food resource and, in addition to the above, the following bird numbers have been recorded, mostly by OSNZ - banded dotterel 150, wrybill 16, godwit 60, little tern 10, little black shag 170, shoveler duck 500+. White herons and little egrets have been recorded and reef herons observed regularly for many years with seven recorded in May 1975 (Edgar 1978).

The native sand-binding plant, pingao, which is regarded as threatened because of modification of its habitat and competition from introduced plants (Given 1981), is present with other vegetation on the more stable sand dunes. These dunes are being damaged by use of trail bikes and dune buggies. The use of these vehicles should be prevented in the SSWI as it is inimical to the success of nesting birds, both by disturbance and by direct destruction of nests and eggs.

8.5 Discussion

The estuaries of the survey region are important links in the chain of estuarine habitat in the north of the North Island. They provide the seasonal or total needs of a large number and wide variety of birds, including several species which have been significantly reduced in numbers and distribution since Maori and European colonization of this country. In addition, New Zealand has an international obligation to maintain the habitat used by the northern hemisphere migratory waders which come to this country as part of their annual cycle.

Threats to Estuarine Habitat

Estuarine habitats can be damaged and their values eroded in a number of ways. Foremost among these is direct reclamation of parts of estuaries and tipping of refuse or spoil. The perception of estuaries as wasteland waiting to be reclaimed and used can no longer be upheld. Tipping into estuaries should never occur and reclamation should only be sanctioned for very good and important reasons (Morton 1976). Ministry of Transport policy is to permit reclamation to take place only for essential port-related facilities and requirements.

Clearing of vegetation, when carried out right to the edge of an estuary, and in the watersheds of streams draining into an estuary, causes siltation of streams and an increase in fine sediments carried into the estuary. These problems are alleviated by leaving a broad strip of natural vegetation around the estuary and

9. WILDLIFE OF THE SURVEY AREA

9.1 Birds

NI Brown Kiwi (Map O, Appendix 4)

The North Island subspecies of brown kiwi was formerly common in all forested areas of the North Island but clearing of forest following settlement led to its extinction in many parts (Falla et al. 1979). Although kiwis are still found in Northland and in many forest areas from Coromandel to eastern Taranaki and northern Hawkes Bay, there are large gaps in their distribution and, even where present, kiwis are often quite rare. Kiwi populations appear to be strongest in Northland where the bird inhabits scrub, secondary forest, and some pine forests (see Section 10.2) as well as remnants of the original native forest, but resurgence of land clearing for farming and forestry is again reducing their range in Northland and elsewhere.

During the survey intensive night work was not carried out and few direct records of kiwis were made. However, kiwis are often known to local residents, who may hear the distinctive calls at night or may have observed the birds while clearing land, and reports from these people help to build up a picture of distribution. The map in Appendix 4 includes such reports, the observations on the survey, and records accepted by the OSNZ bird mapping scheme.

Kiwis were recorded or reported in the main block of Pirongia Forest Park, in Hauturu S.F., in several places close to the western coast between Kawhia Harbour and the Mokau River, including Whareorino and Mahoenui forest blocks, in several places in the southern part of Waitomo District and in the Rangitoto-Pureora forest block. Some of these records are likely to have been of kiwis rescued from land clearing operations in Northland and liberated in the Rangitoto Range and in two nearby forest sites.

In most of these locations kiwis are probably in very low numbers. Some large forest blocks did not have any local history of their presence and many reports were received of kiwis formerly present but now gone, or of greater numbers in the past. Kiwis fall prey to carelessly set possum traps, to pig or farm dogs and to other introduced predators, their range is still being reduced by clearing of scrub and forest, and remaining habitat is rendered less suitable by browsing and other depredations of cattle, goats and pigs.

The general picture in the survey area is one of continuing decline, and loss of kiwis from further parts must be anticipated if the factors working against them are not halted or reduced.

Blue Penguin (Map 1, Appendix 4)

Blue penguins come ashore at night and usually nest in rock cavities or burrows. They are difficult to detect in a habitat survey but are often reported by local people who use the coast. Burrows of this species were observed only at the Mokau River mouth, but reports were received of blue penguins north of the Mokau,

wetland protection in District Planning Schemes and later by reservation or protection by public agencies or private owners.

2. all freshwater wetland SSWI identified in the survey area be reserved or protected, and, where appropriate, managed, to protect and enhance their wildlife values, with initial emphasis being on the reservation of the more highly-rated sites.

3. all possible steps be taken to prevent damage to the lower Waikato wetlands during exploitation of the Waikato coalfields, and in particular that water discharges from any mining operation be required to be treated to high standards before being released into natural waterways, and that restoration or replacement of wetlands be included in conditions when wetlands are required for open-casting or other mining activity.

4. the effect of using Lake Taharoa for water storage in ironsand mining operations be monitored to ensure protection of the important wildlife values of the lake.

5. buffer zones of natural vegetation be maintained or established around important wetlands to prevent damage to the edges of the wetland and to reduce disturbance.

Estuaries

The Wildlife Service recommends that:-

1. the protection of estuarine SSWI in the survey area be promoted and that those parts of estuaries which have particular values to wildlife, such as high tide roosts and saltmarsh zones, be reserved and steps taken to protect them. Protection should include prohibition of vehicles, including trail bikes, from sand dunes and other fragile areas, and prevention of disturbance of nesting areas and roosts by dogs and people.

2. buffer zones be reserved around estuaries and be left to regenerate in natural vegetation or planted, using local stock, to protect the edge zones, reduce disturbance and enhance the scenic qualities of the site.

3. any proposals to clear land, or subdivide for housing development, in the vicinity of estuaries be permitted only with conditions preventing clearing of buffer vegetation from both the estuary and streams or rivers flowing into it.

4. because of its outstanding wildlife value Kawhia Harbour should be reserved in its entirety including the tidal zone and an adequate buffer zone above mean high tide.

3. MODERATE-HIGH VALUE ESTUARINE AND COASTAL SITES

NAME	SITE NO.	COUNTY	GRID REF.	AREA (HA)	FEATURES
Marokopa River Estuary	212	Waitomo	2255-4843	65	Tidal rivermouth, areas of unmodified saltmarsh - marsh ribbonwood/rushes, sedges. Small areas of mud and sand flats. Wading species include reef heron. Fernbird and banded rail present. 11 species of coastal/wetland birds recorded.
Mokau River Mouth	310	Waitomo	2171-4359	100	Tidal rivermouth, saltmarsh - Cyperus ustulatus - jointed rush, large area of mudflat at low tide. Food resource attracts wading birds, more than 50 South Island pied oystercatchers recorded. Reef heron. Fifteen species of coastal/wetland birds records.
Owhiro Riverine Area	152	Otorohanga	2382-5035	80	Tidal arm of Kawhia harbour, saltmarsh flats, remnant kahikatea forest, forested hills. Vegetation sequence uncommon. High numbers spotless crake, fernbird. Five species of wetland birds, 15 of forest including bellbird.
4. MODERATE VALUE ESTUARINE AND COASTAL SITES					
Awakino River Mouth	308	Waitomo	2171-4419	40	Tidal rivermouth, saltmarsh margins, diverse vegetation but limited in extent. Vegetated sandspit. White-faced heron only wading species recorded but reef heron, banded dotterel, pied stilt reported. Ten coastal/wetland bird species recorded.
Kaawa Stm. Estuary	18	Raglan	2270-5810	25	Sand beach, tidal stream and mudflat habitat bordered by extensive sand dunes and rough pasture. Good numbers of waterfowl and common wading birds, shags and gulls.
Ngatutura N. Rock Stack	46	Raglan	2268-5795	0.125	Rock stack capped with taupata. Spotted shag breeding colony (15 juveniles), southern black-backed gulls breeding, black shag roost.
Ngatutura S. Rock Stack	47	Raglan	2269-5790	1	Two rock stacks, mostly unvegetated. White-fronted tern breeding colony (c. 20 pairs estimated). Southern black-backed gulls and unidentified shags also present, possibly breeding.