

# A DIRECTORY OF WETLANDS IN NEW ZEALAND

Compiled by

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Edited by

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for the

New Zealand Department of Conservation

International Waterfowl and Wetlands Research Bureau (IWRB)

Ramsar Convention Bureau

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The presentation of material in this book and the geographical designations employed not imply the expression of any opinion whatsoever on the part of the Department of Conservation, IWRB or the Ramsar Convention Bureau concerning the legal status of country, territory or area, or concerning the delimitation of its frontiers or boundaries.

The Directory describes 73 wetlands and wetland complexes that meet the criteria for international importance (it is not a comprehensive listing of ALL wetlands in New Zealand). The wetlands have been selected on the basis of criteria developed in relation to the Ramsar Convention. Although special attention is paid to the importance of the wetlands for wildlife, all wetland values including water storage, flood control, coastal protection and fisheries production have been taken into consideration.

Note that the pdf files (web-mounted in 2004) are an accurate representation of the text as first published, except for some minor formatting changes (e.g. line and page breaks may be slightly different). This is effectively a reprint, not a revision of the 1996 publication. Some hardcopies are still available for purchase: <mailto:science.publications@doc.govt.nz> (NZ\$40.00).

## FOREWORD

Driving north from Wellington, State Highway One winds through hilly suburbs and patches of bush and farmland, heading towards the Kapiti Coast. Before joining the coast at Pukerua Bay, the road runs alongside the Taupo Swamp. This wetland is an impressive sight, with its undulating flax leaves and wands of toetoe and flax flowers which change colours with the seasons.

Taupo Swamp was formed by the uplifting of the seabed during an earthquake and now plays host to a variety of indigenous fish and plant species. Before the earthquake a headland to the south of the swamp was a significant Maori "pa" (fortified settlement) and the adjacent sea, now swamp, provided a defence. Earlier in this century, flax from the wetland has provided weaving material for Maori and fibre for the rope industry. The human history and ecological richness of Taupo Swamp has been protected for future generations.

The Taupo Swamp is one of 73 wetlands and wetland complexes which meet Ramsar Convention standards for international quality. Remnants of a much greater number, they cover saltwater lagoons to high country peat mires and their protection is vital to our biodiversity and the well being of future generations.

Caring for these important wetlands requires a knowledge of where they are and what is precious about them. The publication of this Directory of Wetlands in New Zealand is an important step in making this information readily available. It includes both those wetlands on private land and those managed by local authorities and the Department of Conservation, and sets out their location and special attributes.

By making this vital information available more widely to councils, communities, researchers, conservationists and historians, it is hoped that the directory will contribute to the preservation and restoration of these important and fascinating natural features.

Denis Marshall  
Minister of Conservation  
3 February 1996

## INTRODUCTION

In the development of an effective conservation programme for wetlands, one of the first steps is the compilation of an inventory of the most important wetland sites. This directory was initiated as part of the Oceania Wetland Inventory being prepared under one of the objectives of a joint venture between the International Waterfowl and Wetlands Research Bureau (IWRB), Asian Wetland Bureau (AWB) (now combined as Wetlands International), the Ramsar Bureau and the South Pacific Regional Environmental Programme (SPREP). The New Zealand inventory follows the Oceania and Australian inventories closely in approach and objectives so that the three together constitute a comprehensive inventory of important wetlands throughout the entire Australasian/Pacific region.

*A Directory of Wetlands in New Zealand* begins with an introduction which summarizes the general situation of the wetlands in New Zealand, and provides information on the institutional and legal base for wetland conservation and research. Then follows a series of accounts of those wetlands, grouped according to Department of Conservation Conservancies, which are known or thought to be of greatest importance from the point of view of nature conservation. The site descriptions include basic information on size and location, physical features, ecological features, ownership, degree of protection, land use, threats and conservation values.

The term "wetland" is used in the sense defined in the text of the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention). Thus, wetlands are "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres".

Outline maps of the North and South Islands show the location of the sites described in the Directory. For reasons of space, it has not been possible to include detailed maps of each site. However, the many individual site maps and the datasheets which have been provided by contributors are on file at the Department of Conservation in Wellington and at IWRB headquarters in the United Kingdom, and constitute an important reference source. Conservancies also hold maps, accurate geographical co-ordinates and data on the wetlands in their area.

The list of wetlands in the Directory has a wide coverage which is based on the best of the information available. Many other wetlands exist in New Zealand, some of which may, on further investigation, be of international significance under the criteria used in this Directory.

The list of wetlands in the Directory has a wide coverage which is based on the best of the information available. Many other wetlands exist in New Zealand, some of which may, on further investigation, be of international significance under the criteria used in this Directory. The information in the directory was compiled over a year period. For up to date information on wetlands, particularly land tenure and conservation measures taken contact the relevant Department of Conservation conservancy office.

## Site Descriptions

Contributors were requested to submit their information on standard wetland data sheets developed for use in the Oceania Wetland Inventory. These data sheets are very similar in design to the information sheet currently being used by the Ramsar Convention Bureau in the presentation of information on sites listed under the Ramsar Convention. Information presented on the completed data sheets has been reproduced in this Directory in a slightly condensed form. The following data categories have been employed in the site accounts:

**Title:** The name of the wetland with a reference number used in the accompanying maps.

**Location:** The geographical co-ordinates (Greenwich) and general location of the site.

**Area:** The area of the wetland habitat in hectares. In the case of some rivers and coastal zones, only the approximate length of the site is known.

**Altitude:** The altitude of the wetland in metres above sea level.

**Overview:** A brief description of the wetland, summarizing the principal physical and ecological features and highlighting the main conservation values.

**Physical features:** A brief description of the principal physical features of the site, including information on hydrology, soil type and chemistry, water quality, depth, fluctuations and permanence, as well as a note on climatic conditions.

**Ecological features:** A brief description of the main habitats and vegetation types present, with information on the dominant plant communities and species present.

**Land tenure:** Details of the ownership of the wetland and of surrounding areas.

**Conservation measures taken:** Details of any protected areas established at or around the wetland, and any other conservation measures taken at the site.

**Conservation measures proposed:** Details of any proposals for the conservation of the wetland.

**Land use:** Details of the principal forms of land use and human activities at the wetland and in surrounding areas.

**Possible changes in land use:** Any information available on proposed changes in land use and its wildlife.

**Hydrological and biophysical values:** Information on the principal hydrological and biophysical values of the wetland.

**Social and cultural values:** Details on the principal social and cultural values of the wetland.

**Noteworthy fauna:** The importance of the wetland for wildlife including mammals, birds, reptiles, amphibians, fish and invertebrates.

**Noteworthy flora:** Information on any plant species or communities for which the wetland is particularly important.

**Scientific research and facilities:** Information on major research activities at the wetland and any existing facilities for research.

**Conservation education:** Information on any existing programmes and facilities for conservation education and training.

**Recreation and tourism:** Information on the present and potential use of the wetland for or recreation and tourism.

**Management authority:** Details of the authority or authorities responsible for the conservation and management of the wetland.

**Jurisdiction:** Details of the authority or authorities with territorial and functional jurisdiction over the wetland.

**References:** Abbreviated references to published literature and unpublished reports relevant to the site. The references are given in full in a bibliography at the end of the Directory.

**Reasons for inclusion:** An indication of those features for which the site is considered to be internationally important, with a numerical reference to the criterion or criteria which justify the inclusion of the site in the Directory. The criteria used in the selection process are those developed for the identification of wetlands of international importance for designation under Article 2 of the Ramsar Convention. A wetland is suitable for inclusion in this Directory if it meets any one of the criteria set out below:

- (1) Criteria for representative or unique wetlands. A wetland should be considered internationally important if:
  - (a) it is a particularly good representative example of a natural or near-natural wetland, characteristic of the appropriate biogeographical region; or
  - (b) it is a particularly good representative example of a natural or near-natural wetland, common to more than one biogeographical region; or
  - (c) it is a particularly good representative example of a wetland which plays a substantial hydrological, biological or ecological role in the natural functioning of a major river basin or coastal system, especially where it is located in a trans-border position; or
  - (d) it is an example of a specific type of wetland, rare or unusual in the appropriate biogeographical region.
  
- (2) General criteria based on plants or animals A wetland should be considered internationally important if.
  - (a) it supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant or animal, or an appreciable number of individuals of any one or more of these species; or
  - (b) it is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna; or
  - (c) it is of special value as the habitat of plants or animals at a critical stage of their biological cycle; or
  - (d) it is of special value for one or more endemic plant or animal species or communities.
  
- (3) specific criteria based on waterfowl. A wetland should be considered internationally important if:
  - (a) it regularly supports 20,000 waterfowl; or
  
  - (b) it regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity or diversity; or
  - (c) where data on populations are available, it regularly supports 1 % of the individuals in a population of one species or subspecies of waterfowl.

**Source:** Names of individuals providing information on the site.

## ACKNOWLEDGEMENTS

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# WETLANDS AND WETLAND CONSERVATION IN NEW ZEALAND

## Introductory Note

The New Zealand archipelago consists of three main islands (North, South and Stewart Islands) and a widely separated group of smaller islands spanning a temperate zone from 29° to 53° south in the south west Pacific Ocean. Total land area is 270,534 square kilometres including the Kermadec, Chatham and subAntarctic island groups. On the larger islands oceanic conditions continue to prevail as no place is more than 205km from the sea. Much of the land surface is hilly or mountainous, giving rise to a variety of local climates. Westerly winds predominate over much of the country, bringing rain to the western side of the mountain range-divided main islands and ensuring moisture levels on offshore islands.

Wetland ecosystems are characteristic of New Zealand; their presence is associated with the fact that New Zealand experiences a lot of storms, earthquakes and ice - factors that contribute to the formation of wetlands. This linkage of physical processes with physical features is reflected in the hydrological classes typical of New Zealand wetlands - rivers and bogs from frequent rain; lakes from glaciation and volcanic actions; swamps from the deposition of erosion products by rivers and the sea; estuaries and lagoons from tidal flooding of old Pleistocene valleys. Associated with these hydrological classes are wetland communities which are particularly distinctive of the country, contributing to the national landscape identity and the uniqueness of the New Zealand biogeographic region. They include flax swamps of *Phormium* spp.; braided rivers which form good waterfowl habitat; high country cushion bogs and tams; salt rush and reed estuaries with *Leptocarpus* and *Juncus* spp.; and kahikatea (*Dacrycarpus dacrydioides*) swamp forest.

There is considerable history of modification and use of wetlands by both Maori and Europeans. The history of wetland conversion and modification often relates to expansive phases of New Zealand history: The dominance of primary products in New Zealand's export commodities reflects the high proportion of fertile lowland and hill country used for agriculture and silviculture purposes. As a result of all these modifications it has been estimated (Hughes 1981) that only about 10% of the country's former wetlands remain. There is great regional variation in the extent of depletion. For example in Southland unmodified wetland associations presently occupy about 37% of their original area; in South Canterbury 25%; in the Waikato 15%; and in the Bay of Plenty less than 1%. These variations reflect both the extent of the initial wetland cover and the degree of land use change. It is likely that in the last one hundred years some characteristic New Zealand wetland types have been lost completely, while very few examples are left of others such as kahikatea swamp forest and some kinds of flax swamp and salt marsh.

## Summary of Wetland Situation

Wetlands are found throughout the length and breadth of New Zealand, but the distribution is far from uniform. All districts have saline/estuarine wetlands, though the nature of these differs eg mangroves only occur in the northern half of the North Island, and most have freshwater lowland swamps. Montane wetlands and peatlands are more concentrated in location. The former occur mainly in the South Island high country and the latter in Northland, Waikato, Hauraki and Hawke's Bay in the North Island, and in Otago, Southland

and Westland in the South Island as well as in the Chatham Islands. Montane wetlands and peatlands are absent in a number of districts.

An estimate of the present wetland resource is based on vegetation cover abstracted from the New Zealand Land Resource Inventory (Wetlands a diminishing resource, 1983). Relevant cover classes included vegetation dominated by:

swamp associations or rushes	145,000 ha
salt-tolerant associations	8,800 ha
pakihi associations	43,900 ha
indigenous forest and pakihi	35,600 ha
grassland with minor swamp associations	78,000 ha
Total in the North Island of approximately	115,400 ha
Total in the South Island of approximately	195,900 ha

In addition rivers occupy approximately 294,600 ha and lakes occupy approximately 339,800 ha. In summary, wetlands occupy a small part of New Zealand, less than 2% of the total land area.

The New Zealand population of 3,524,800 (as at December 1993, source: New Zealand Year Book 1995) is mainly concentrated in cities, with areas of intense horticultural and agricultural development in the North Island and north of the South Island. The population size of itself is not a great threat to remaining wetlands except in the greater Auckland area where sewage treatment, subdivision, marine recreation developments and industrialisation create increasing pressures on coastal wetlands.

Pervasive changes to wetland continue throughout the country: the extension of urban settlements on to wetlands; extraction of sand and gravel and reclamation of estuaries, lagoons, lake shores and river margins; draining of on-farm swamps; runoff, encroachment of exotic weeds, broom, lupin, gorse and willow into terrestrial wetland habitats and planting of spartina on coastal mudflats. The greatest single need is the establishment of buffers of indigenous vegetation along rivers (from their headwaters to the sea), and around the margins of lakes, swamps and estuaries; and the protection of corridors linking wetlands of all kinds to other terrestrial and marine protected areas.

Wetlands have always had an important role within Maori communities - in an intricate, interconnected relationship that links the wetland with the people in more than just the material sense. Wetlands have provided food; plants for weaving; medicines; dyes; canoe landing sites; places to season timber; and to store taonga. Increasing recognition of and respect for the rights and traditions of Maori, bring some new responsibilities and more importantly give enrichment to an emerging bicultural perspective on conservation, which opens opportunities for new and innovative approaches in protected area management.

## **Wetland Research**

Department of Conservation The Department of Conservation funds some research, both in-house and external, into specific wetland related issues including: the responses of various



wetland species to habitat restoration and control of threats (brown teal); conservation status of aquatic invertebrates; studies of threatened fish species in areas with different riparian habitats; rules/guidelines/methods for facilitating downstream migration of fish species (ie fish by-passes); development of strategies to protect the whitebait fishery and species in it; guidelines for management of riparian zones.

The Department holds inventories on wetlands: WERI database (Wetlands of Ecological and Regional Importance), Coastal Resource Inventory (including wetlands such as mangroves) and SSWI (Sites of Special Wildlife Interest). These inventories, particularly WERI, form an important basis for the Department's advocacy of appropriate management of wetlands by private landowners. Conservation Management Strategies and Regional Policy Statements have provided Department of Conservation and Regional Councils with the chance to identify and state management goals for wetlands on a regional basis.

WERI (Wetlands of Ecological and Representative Importance), a computer database which contains records on approximately 3,000 wetlands throughout New Zealand. Information includes size; location; land ownership; classification (hydroclass, geomorphic origin, community class, dominant plant species); modifiers and threats; buffer, wildlife and vegetation values; other ecological values; cultural values; significance; and sources of information.

The Sites of Special Wildlife Interest (SSWI) wildlife habitat ranking system was developed by the Fauna Survey Unit of the former New Zealand Wildlife Service. The Fauna Survey Unit surveyed the whole of New Zealand between 1977 and 1985 on a region by region basis to identify all "sites of special wildlife interest". All natural or semi-natural areas important as habitat for one or more species of wildlife were evaluated and each site ranked, according to a set of standard criteria, into five groups on the basis of their value to wildlife, ie, outstanding, high, moderate-high, moderate and potential. SSWI ranking system is officially recognised and continues to be used by the Department of Conservation.

National Institute of Water and Atmospheric Research Ltd. (NIWA) A Crown Research Institute, that was formerly part of government organisation, the Department of Scientific and Industrial Research (DSIR), undertakes research into a wide range of wetland related issues. NIWA holds freshwater fish database, and updates the database every six months.

Universities: Most universities within New Zealand contain a department or departments with some specialist knowledge on wetlands, including botanical, biological, zoological, ecological, agricultural and engineering aspects. Lincoln University has a Department of Natural Resources Engineering which can provide specialist advice on hydrology (surface and groundwater), small earth dams and reservoirs and wetland waste treatment. Waikato University have specialist knowledge on wetland botany and have a long association with wetland issues. Both staff and students from the university are regularly involved in carrying out research on wetland issues.

The Ecological Society, Botanical Society, Limnological Society Hydrological Society and Ornithological Society: all have a general interest in the scientific and management aspects of wetland issues both at a local and national level. The Ornithological Society of New Zealand (Inc) operates a 'national wader count' programme throughout New Zealand. The programme has been operating since 1983. For migratory waders the programme has produced reliable

estimates of the total numbers in New Zealand, indications of year to year variations in the numbers of these waders and indices of their breeding success during the previous northern summer. The programme has also contributed information on New Zealand waders; minimum population estimates for wrybill, pied oystercatcher and pied stilt, an indication of the proportion of the banded dotterel population which remains in the country during winter and an understanding of the distribution of all species during the winter.

## **Wetland Legislation**

Resource Management Act 1991: The Act is driven by the principle of sustainability, and this applies to wetland areas as it does other natural resources. The Act identifies the consideration of wetlands as a matter of national importance which must be taken into account when powers are being exercised and decisions are being made under the Act. The Act also lists "additional matters" which must be taken into account although they are of less significance than "national importance". Wetlands are covered in a general way by those provisions. These include protection of the intrinsic value of ecosystems, the protection of heritage and amenity values, the maintenance and enhancement of the natural quality of the environment, the recognition of any finite characteristic of natural and physical resources, and the protection of trout and salmon spawning habitat. The Act also provides for wetlands to be covered by water conservation orders. Previously, this level of protection was only available for rivers which flowed through wetland areas.

Development activities require resource consents from local territorial authorities under the Resource Management Act. The consent process includes provisions for consultation with affected landowners and public consultation. The Department of Conservation and other parties interested in protection of wetlands are able to lobby for protection for wetlands and for appropriate activities on wetlands and surrounding land, using the provisions of the Resource Management Act.

The Resource Management Act requires regional and district plans to be drawn up by regional and district councils. Department of Conservation and other interested parties are able to use the public notification process for regional and district plans to identify wetlands, including coastal and estuarine areas, for special protection under these plans.

The New Zealand Coastal Policy Statement, under the Resource Management Act 1991 requires Regional Coastal Plans to identify Areas of Significant Conservation Value. As an example, the proposed regional coastal plan for the Auckland Region identifies 62 areas, including most of the harbours and estuaries on the east coast of the region and the Manakau and Kaipara Harbours on the west coast. This reflects the high biological productivity of these areas and their role as nursery and feeding areas for fish and birds. The plan protects these areas by giving them special status as Coastal Protection Areas, which also includes parts of adjoining foreshore containing breeding and roosting areas for birds. In effect the policies and plans produced by local government under the Resource Management Act 1991 implement a number of policies in the "New Zealand Wetlands Management Policy 1986".

The Reserves Act 1977: includes a purpose which requires "ensuring, as far as possible, the survival of all indigenous species of flora and fauna, both rare and commonplace, in their natural communities and habitats, and the preservation of representative samples of all classes of natural ecosystems and landscape, which in their aggregate originally gave New Zealand its

recognisable character". Several categories of reserve are distinguished. They include scenic, nature and scientific reserves. These reserves can be either directly controlled and managed by the Department of Conservation or by another agency appointed by the Minister of Conservation. This can be a voluntary organisation, a Local Council, or a specifically set up Board. Under the Act, the Department of Conservation and local government agencies are able to arrange conservation covenants over private land.

The Conservation Act 1987: promotes the conservation of New Zealand's natural and historic resources. This Statute gives the Minister of Conservation the power to declare any land or interest in land held under the Conservation Act for conservation purposes, to be held for particular purposes, so as to confer additional protection or preservation upon that land. Categories of protected areas include conservation parks, wilderness areas, ecological areas, and sanctuary areas. Such areas are established to preserve indigenous natural resources in their natural state. Restrictions can be placed on access (by humans, livestock, vehicles, aircraft) and construction. Under the Act, the Department of Conservation and local government agencies are able to arrange conservation covenants over private land.

The National Parks Act 1980: provides for the creation and management of national parks. The principal purpose of the National Parks Act is to ensure that nationally important areas are preserved.

The Marine Reserves Act 1977: The Marine Reserves Programme operated by the Department of Conservation is important for identifying a variety of marine habitats, including primarily coastal rocky shore. Marine reserves under the Act are used to protect estuarine areas, such as in Whanganui Inlet, Long Bay and Pollen Island. Thirteen marine reserves are in place around New Zealand and proposals for several more are under development.

Wildlife Act 1953: Under this Act there is a general presumption that native animals are absolutely protected throughout New Zealand. However, there are some exceptions, which are listed in the schedules to the Act. This Act provides for the protection of most indigenous animal species: all bats, frogs, most birds and reptiles and some larger invertebrates. Where wildlife refuges have been created, restrictions can be placed activities that may affect fauna and habitat, such as restrictions on the use of boats in the wildlife refuge.

Freshwater Fisheries Regulations 1983: are administered by the Department, included are regulations to ensure the passage of fish. Dams and floodgates can severely restrict the movements of migratory fish. The regulations also cover fish licences, obligation on seasons fishing, marking fish, control of noxious fish, indigenous management.

Whitebait Fishing Regulations 1993: include provisions controlling whitebait fishing equipment and practice. The Department of Conservation manages the whitebait fishery on a precautionary basis.

New Zealand Wetlands Management Policy was adopted by the New Zealand Government in 1986. The objectives of the policy include the preservation and protection of important wetlands (particularly those of international, national and representative importance); the maintenance of an inventory of wetlands; and the promotion of public awareness of wetland values. It is intended that the provisions of the policy be reflected in local, regional and

## **Wetland Area Administration**

Actions undertaken by the Department of Conservation at particular wetland sites have included statutory advocacy (e.g. making submissions on water right applications, submissions on Regional and District Plans), reservation, covenanting, investigation of potential Ramsar sites, preparation of management plans, survey and monitoring, research, threatened species management, restoration, plant and animal pest control, water level management, publicity and educational work.

Fish and Game Councils, whose main statutory role is to manage and enhance sports fish and game birds in New Zealand, are advocates for conservation of wetlands. In order to achieve their aims Fish and Game Councils have bought and continue to purchase areas of wetland throughout New Zealand and are actively involved in wetland restoration.

In early 1994 Gamebird Habitat Stamps were introduced to New Zealand as a way of raising revenue for wetland protection, restoration and enhancement. Expenditure of the first year's income has been approved for a range of wetland protection, restoration and enhancement activities. Among the activities supported was the weir at Whangamarino Wetland, one of New Zealand's Ramsar sites.

Harvest of fish and game bird species, including traditional harvest, on a sustainable basis is supported as part of wetland management (i.e. commercial eel fishing and recreational game bird hunting at Whangamarino Wetland and Kopuatai Peat Dome, and commercial flounder fishing at Firth of Thames).

## **Organisations Involved With Wetlands**

The Department of Conservation: is responsible for the conservation of New Zealand's natural and historic resources. The Department manages some wetlands, those occurring on land managed and administered by the Department, and has a statutory role in advocating and advising on the conservation of other wetlands. Collectively, the Department has specialists in the fields of botany, zoology, ecology, and in wildlife and fisheries management, wetland management, landscape architecture and nursery aspects.

Local Authorities (Regional and District Councils): are responsible for issuing resource consents under the Resource Management Act 1991. Any action likely to affect the water in or near a wetland will require the consent of the local regional council. The Minister of Conservation has a role in consents for Restricted Coastal Activities under the Resource Management Act. The Minister also approves Regional Councils' Coastal Management Plans. Regional Councils and the Department of Conservation (both as land manager and in its advocacy role) generally work closely together on environmental matters.

Ministry of Agriculture and Fisheries: Is responsible for research on freshwater fisheries and provides advice on the identification, habitat requirements and management of fish which inhabit wetlands. The Aquatic Plant Section of MAF Tech can advise on the types, requirements and management of aquatic and marginal wetland plants.

National Institute of Water and Atmospheric Research Ltd NIWA): A Crown Research Institute, that was formerly part of government organisation, the Department of Scientific and Industrial Research (DSIR).

Universities: Most universities within New Zealand contain a department or departments with some specialist knowledge on wetlands.

Queen Elizabeth II National Trust: The Trust was established to encourage and promote the provision, protection and enhancement of open space for the benefit and enjoyment of the people of New Zealand. The most common form of protecting wetland on private land is through open space covenants negotiated by the Trust.

Fish and Game Councils: The main statutory role of the fish and game councils is to manage and enhance sports fish and gamebirds in New Zealand, and as such, they are advocates for conservation of wetlands.

Royal Forest and Bird Protection Society Inc.: The society is a broad-based conservation organisation which concerns itself primarily with the advocacy and protection of natural habitats in New Zealand. The society actively seeks protection for natural wetlands and, in some instances provides voluntary assistance and finance for wetland protection. The society has a national office and 57 branches throughout New Zealand.

Ducks Unlimited Inc.: This is a non-profit organisation dedicated to the preservation, restoration and maintenance of wetland habitat in New Zealand, to the propagation of rare indigenous *Anatidae* and to liaison with conservation organisations, fish and game councils and government departments. The organisation has undertaken a number of projects to assist waterfowl such as brown teal, grey teal, blue duck and Canada goose. They have also provided finance for purchasing, restoring and maintaining wetlands.

Other Non Government Organisations: The Ecological Society, Botanical Society, Limnological Society and Orthinological Society all have a general interest in the scientific and management aspects of wetland issues both at a local and national level. Other groups with an interest in wetland values include farmers, industries which use water (eg wood treatment plants) or take resources (eg eel fishers, sphagnum moss harvest) and formal or informal community groups.

## **Species Of Conservation Concern in New Zealand**

The following lists the species (and sub-species) of plants and animals occurring in New Zealand's wetlands which are of special "conservation concern":

### Birds

*Anarhynchus frontalis* Wrybill Plover; endemic, status: vulnerable

*Anas aucklandica chlorotis* Brown Teal; endemic, status: endangered

*Botaurus poiciloptilus* Australasian Bittern; status: vulnerable in New Zealand, but its range extends beyond New Zealand

*Bowdleria punctata punctata* South Island Fernbird; endemic, status: regionally vulnerable

*Bowdleria punctata vealeae* North Island Fernbird; endemic, status: regionally vulnerable

*Calidris acuminata* Sharp-tailed Sandpiper; migratory wader, rare in New Zealand

*Calidris ferruginea* Curlew Sandpiper; migratory wader, rare in New Zealand  
*Calidris mauri* Western Sandpiper; migratory wader, rare in New Zealand  
*Calidris ruficollis* Red-necked Stint; migratory wader, rare in New Zealand  
*Calidris tenuirostris* The Great Knot; migratory wader, rare in New Zealand  
*Charadrius bicinctus bicinctus* Banded Dotterel; endemic, status: vulnerable  
*Charadrius obscurus* New Zealand Dotterel; endemic, status: vulnerable  
*Egretta alba modesta* White Heron; status: endangered in New Zealand, but its range extends outside New Zealand  
*Egretta sacra sacra* Reef Heron; status: vulnerable in New Zealand, but its range extends outside New Zealand  
*Haematopus unicolor* Variable Oystercatcher; endemic, status: rare  
*Himantopus novaezelandiae* Black Stilt; endemic, status: endangered  
*Hymenolaimus malacorhynchos* Blue Duck; endemic, status: vulnerable  
*Numenius madagascariensis* Eastern Curlew; migratory wader, rare in New Zealand  
*Numenius phaeopus hudsonicus* American Whimbrel; migratory wader, rare in New Zealand  
*Numenius phaeopus variegatus* Asiatic Whimbrel; migratory wader, rare in New Zealand  
*Platalea regia* Royal Spoonbill; status: vulnerable in New Zealand, but its range extends outside New Zealand  
*Pluvialis fulva* Pacific Golden Plover; migratory wader, rare in New Zealand  
*Pluvialis squatarola* Grey Plover; migratory wader, rare in New Zealand  
*Podiceps cristatus australis* Australasian Crested Grebe; status: endangered in New Zealand, but its range extends outside New Zealand  
*Poliiocephalus rufopectus* New Zealand Dabchick; endemic, status: vulnerable  
*Rallus philippensis assimilis* Banded Rail; endemic subspecies, status: vulnerable  
*Sterna albifrons* Eastern Little Tern; migratory species, rare in New Zealand  
*Sterna albobriata* Black-Fronted Tern; endemic, status: vulnerable  
*Sterna caspia* Caspian Tern; status: vulnerable in New Zealand, but range extends outside New Zealand.  
*Sterna nereis davisae* Fairy Tern; status: endangered in New Zealand, but its range extends outside New Zealand  
*Tringa brevipes* Siberian Tattler; migratory wader, rare in New Zealand  
*Tringa flavipes* Lesser Yellowlegs; migratory wader, rare in New Zealand  
*Tringa incana* Wandering Tattler; migratory wader, rare in New Zealand  
*Tringa terek* Terek Sandpiper; migratory wader, rare in New Zealand

## Fish

*Galaxias argenteus* Giant Kokopu; endemic, status: vulnerable  
*Galaxias fasciatus* Banded Kokopu; endemic, status: vulnerable  
*Galaxias postvectis* Short jawed Kokopu; endemic, status: threatened  
*Neochanna apoda* Brown Mudfish; endemic, status: threatened

## Plants

*Acaena rorida* Bidibid; endemic, status: rare.  
*Christella cf. dentata*; associated with hydrothermal activity, nationally rare  
*Crassula peduncularis*; a tiny creeping herb, nationally vulnerable  
*Cyclosorus confuensis*; nationally vulnerable  
*Cyclosorus interruptus*; - associated with hydrothermal activity, nationally rare  
*Desmoschoenus spiralis*; Pingao; endemic, status: threatened  
*Dicranopteris linearis*; associated with hydrothermal activity, nationally rare

*Eleocharis neozelandica*; endemic, status: vulnerable  
*Euphorbia glauca*; endemic, status: threatened  
*Fimbristylis squarrosa*; status: rare  
*Hebe cupressoides*; status: vulnerable  
*Helichrysum dimorphum*; threatened  
*Hibiscus diversifolius*; indigenous, status: vulnerable.  
*Hydatella inconspicua*; endemic, status: endangered.  
*Iphigenia novae-zelandiae*; a tiny bulbous lily; endemic, nationally rare  
*Lepidium bksii*; Coastal Peppercress; endemic, status: endangered  
*Mazus novae-zelandiae*; endemic, status: vulnerable  
*Mazus pumilio*; indigenous, status: vulnerable  
*Myriophyllum robustum*; endemic, status: vulnerable.  
*Nephrolepis cf. cordifoli*; associated with hydrothermal activity, nationally rare  
*Pimelea arenaria* Sand Daphne; endemic, status: threatened  
*Ranunculus urvilleanus*; endemic, status: vulnerable.  
*Sebaea ovata*; a herb; status: endangered  
*Syzygium maire*; status: regionally rare.  
*Thelypteris confluens*; status: vulnerable  
*Todea barbara*; indigenous, status: vulnerable.

Other - amphibians invertebrates. etc

*Ericodesma aerodana*; rarely recorded moth

### **Categories of Protected Area**

Many of the wetlands in the Directory are protected under New Zealand legislation. The categories of protected areas referred to in the Directory are as follows:

#### **Reserves Act 1977:**

Esplanade Reserves and Riparian Reserves protect riparian land under the Reserves or the Conservation Act., depending on the mechanism by which the land has been set aside. Both Acts offer protection to flora and fauna, as well as restrict development or use to those activities compatible with the ecological values present.

Nature reserves are protected and preserved for their outstanding natural features. "Management of scenic, biological, geological and other scientific features must be compatible with the protection and preservation of indigenous flora and fauna in its natural state." Entry is by permit only.

Scientific reserves are protected and preserved for their "ecological associations, plants and animal communities" and other matters of special interest for research and education purposes. Management of scenic, biological, geological and other scientific features must be compatible with the primary purpose of the reserve. Public access can be prohibited or restricted.

Government purpose reserves allow management for wildlife purposes. Management of scenic, biological, geological, cultural, scientific, natural features or wildlife must be compatible with the primary purpose of the reserve. Public access can be prohibited or restricted.

Scenic reserves possess "such qualities of scenic interest, beauty or natural features or landscape that their protection and preservation are desirable in the public interest". Appropriate development and the introduction of exotic and indigenous flora are possible.

The public has freedom of access, moderated only where bylaws are in place or through arrangements with any lessee.

Recreation reserves combine management of natural environment and recreation, "with the emphasis on retention of open spaces and on outdoor recreational activities". The public has freedom of access similar to scenic reserves.

### **Wildlife Act 1953:**

Wildlife sanctuaries and refuges can apply to private or crown land. They protect ecosystems and species by Proclamation, prohibiting or restricting a variety of actions. For example, access, disturbance of vegetation and fauna, camping and use of firearms can be prohibited or restricted. Wildlife within a sanctuary, except for undesirable species, is absolutely protected. Wildlife refuges make it unlawful to disturb wildlife in any way, unless authorised in writing. Vegetation is not however protected. Restrictions on the use of boats within the reserve can be put in place. Wildlife refuge status has tended to be used to create areas for gamebird shooting and is not as protective of species and ecosystems as wildlife sanctuaries and wildlife management reserves.

Wildlife management reserves also offer protection of ecosystems and species by Proclamation, prohibiting or restricting a variety of actions. Wildlife management reserves differ from wildlife sanctuaries in that there is no provision offering absolute protection to wildlife not covered by any Proclamation. This category applies to crown land.

### **Conservation Act 1987:**

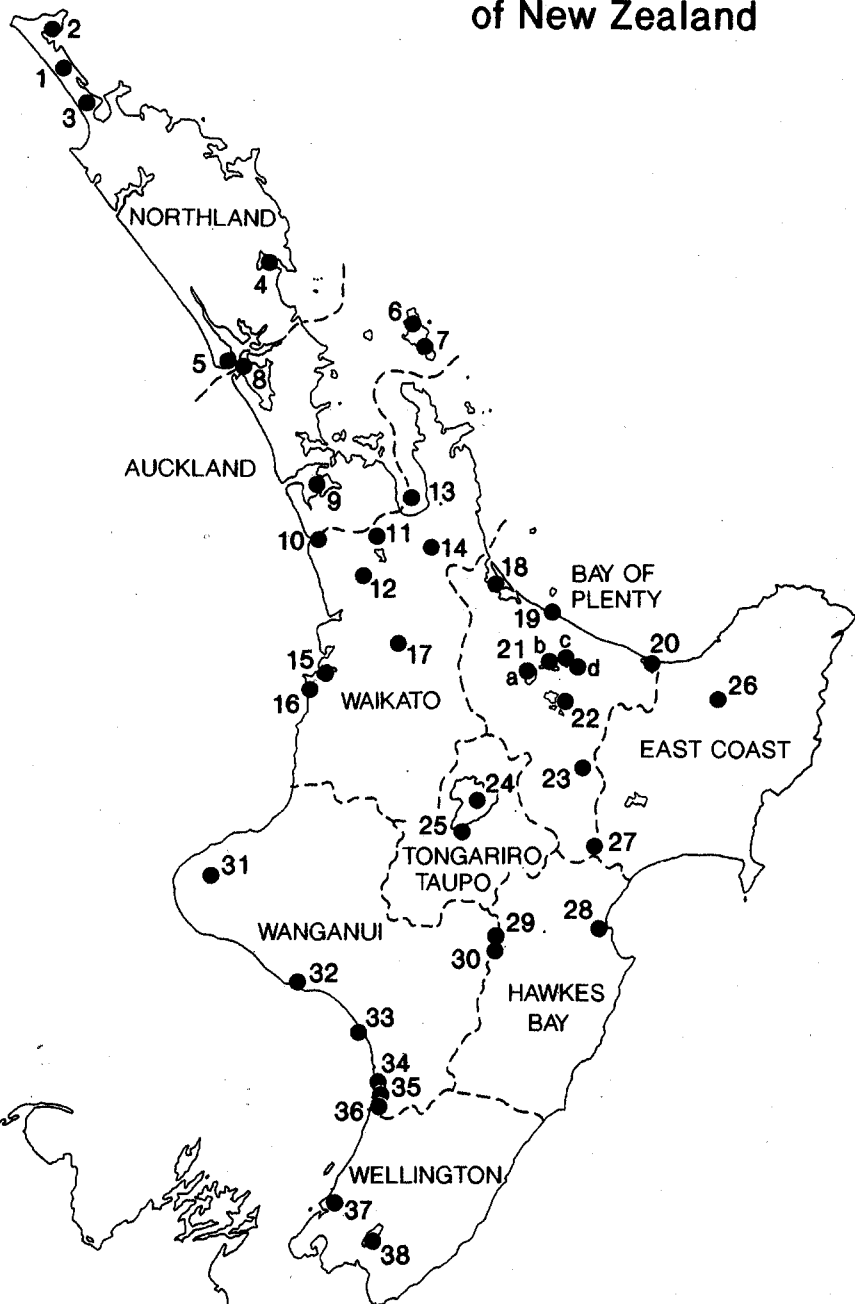
Conservation areas are managed "for conservation purposes." Conservation being "the preservation and protection of natural resources for the purpose of maintaining their intrinsic values, providing for their appreciation and recreational enjoyment by the public and safeguarding the options for future generations." Recreation and tourism use of natural resources is allowed, to the extent that it is not inconsistent with the conservation of those resources. Special additional protection can be given to conservation areas. Ecological areas and sanctuaries can also be created. Ecological areas are managed to protect the values for which the area is held. Sanctuaries are managed to preserve flora and fauna in their natural state, or for scientific purposes.

### **National Parks Act 1980:**

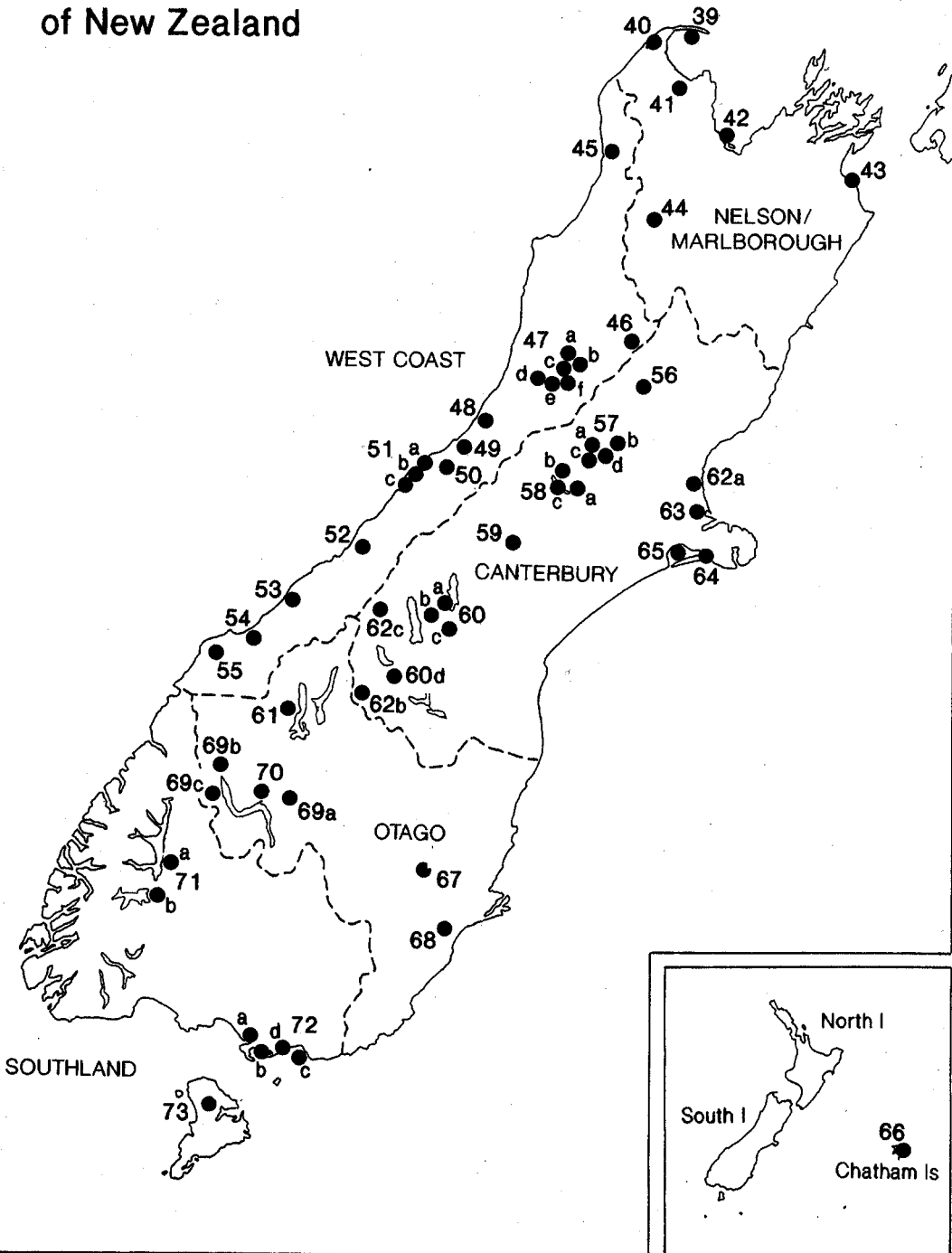
National Parks are managed to preserve in perpetuity distinctive scenery, ecological systems or beautiful, unique or scientifically important natural features. The emphasis is preservation of resources in their natural state as far as possible. Management actions in national parks are determined by The General Policy for National Parks and individual national park management plans. The General Policy states that **special areas** within National Parks "will possess indigenous plant and animal life, or ecological features of such significance that they should be preserved intact with the minimum of human interference." Access to such areas is by permit only.



# Wetlands in North Island of New Zealand



# Wetlands in South Island of New Zealand



**APPENDIX 1**

**GEOGRAPHICAL COORDINATES OF THE WETLANDS INCLUDED IN AUPOURI PENNINSULA WETLANDS (SITE 1)**

S			E			Name of Wetland
°	'	"	°	'	"	
34	26	45	172	43	10	Tapotupotu Wetland
34	28	15	172	41	20	Te Werahi Wetland
34	31	05	172	45	25	Te Paki Lake
34	31	15	172	46	15	Lake Ngakeke ta
34	32	00	172	47	30	New Lake
34	32	10	172	47	40	Heart Lake
34	26	25	172	52	05	Kapowairua Wetland
34	27	15	172	49	25	Waitahora Wetland
34	29	25	172	51	40	} Te Hapua Swamps
34	30	25	172	50	55	
34	33	55	172	51	05	Karatia Swamp
34	33	25	172	49	25	Upper Karatia Swamp
34	33	20	172	51	45	Whakatereohao Stream Swamp
34	25	35	172	59	15	Tom Bowling Bay Wetland
34	27	45	172	59	50	Whareona Bay Environs
34	29	20	172	59	50	Ponaki Lagoons
34	32	50	172	49	40	The Big Lake
34	34	20	172	49	55	Lake Austria
34	35	05	172	49	50	Pretty Lake
34	35	10	172	51	10	Dead Lake
34	35	15	172	51	15	Waipara Lake
34	36	10	172	52	30	Lake Waikanae Junior
34	36	25	172	52	35	Lake Waikanae
34	35	50	172	53	05	Ngatuwhete Peak (Corks) Lake
34	38	45	172	52	55	Pukekura Creek Swamp
34	37	50	172	54	05	Lake Kihona
34	39	10	172	55	10	Lake Wahakari
34	38	45	172	53	55	Toetoe Road Pond
34	39	35	172	56	55	Te Ahu Swamp South
34	38	40	172	59	50	Lake Morehurehu
34	39	00	173	00	15	East Coast Roadway Swamp and Lake
34	39	45	173	00	55	Wairahi Swamp

S			E			Name of Wetland
°	'	"	°	'	"	
34	40	10	172	58	15	Te Kao (South) Swamp
34	40	50	173	01	25	Lake Taeore
34	42	10	172	58	25	Ngatumoroki Lake and Swamp
34	42	50	172	59	40	Bulrush Lake
34	42	45	173	01	10	Onepu Swamp
34	42	30	173	01	30	Salt Lake
34	45	35	173	03	05	Land Corp Swamp
34	45	30	173	02	40	Lake Waihopo
34	43	45	173	00	00	Bull Paddock Lake
34	43	55	172	59	50	Dabchick Lake
34	44	05	172	59	35	Eleocharis Lake
34	44	15	173	00	00	Half Lake
34	44	40	172	59	50	Lake Wingy
34	44	55	173	00	05	Swan Lake
34	43	25	173	04	55	Rarawa Beach
34	44	50	173	04	35	Henderson Farm Pond
34	45	00	173	03	55	Henderson Bay Road Swamp No. 2
34	45	45	173	07	10	Wageness Swamp
34	45	10	173	04	15	Henderson Bay Road Swamp No. 1
34	47	50	173	05	35	Cemetery Road Pond
34	49	15	173	05	35	} Lambs Road Swamps
34	49	20	173	05	50	
34	49	30	173	04	45	Gully Lake
34	49	40	173	06	20	Arethusa Swamp
34	47	15	173	08	55	Kowhai Swamp
34	54	30	173	09	10	Turks Lake and Swamp
34	55	30	173	09	30	Selwyn Flat Wetland
34	56	45	173	09	50	Katavich Lake/Swamp
34	56	55	173	09	25	Artorial Road No. 3
34	57	00	173	09	55	} Western Waiparera Wetlands
34	57	15	173	09	35	
34	58	25	173	10	35	Martinkovich Road Swamp
34	56	55	173	10	25	Western Waiparera Wetlands
34	58	40	173	10	35	Jones Lake

A Directory of Wetlands in New Zealand

S			E			Name of Wetland
°	'	"	°	'	"	
34	59	15	173	11	15	Pages Lake
35	00	20	173	11	15	Herberts Swamp
35	00	40	173	11	40	Forestry Swamp
35	00	55	173	11	25	Headquarters Pond
36	01	05	173	11	30	Lake Ngakapua
36	01	20	173	11	30	Pumphouse Pond
36	01	30	173	11	15	Lake Ngakapua West
36	01	35	173	11	35	} } Dunes "Swamps" }
36	01	40	173	11	05	
36	01	45	173	11	15	
36	02	05	173	11	00	West Coast Road Lake
36	02	00	173	11	55	Lake Ngatu
36	02	25	173	11	45	Ngatu Pond
36	02	45	173	11	30	Waipapakauri Beach "Lake"
36	02	30	173	12	10	} } Andrews Swamp
36	02	45	173	12	15	
36	02	45	173	12	35	Spains Road Swamp
34	54	30	173	09	45	Bacica Road Lake
34	56	40	173	10	50	Lake Waiparera
34	56	05	173	12	45	Waiparera Creek Wetland
34	57	25	173	30	35	Johnson Swamp
34	57	55	173	12	20	Heath Road Powerline Swamp
34	58	45	173	12	25	Hearlings Swamp
34	59	15	173	12	10	Broadhursts Swamp
35	00	20	173	12	45	Paparoro Swamp
36	00	50	173	12	45	Alex McCrae Wetland
35	01	15	173	12	20	Lake Rotokawau
36	01	30	173	11	40	Dean's Swamp
36	02	15	173	12	15	Sweetwater Road Swamp
35	03	15	173	11	35	Lake Heather
35	03	10	173	12	10	Bird Road Swamp
35	03	30	173	11	50	Lake Rotoroa
35	04	10	173	11	15	Split Lake Wetland
35	04	20	173	12	05	Woolshed Swamp

S			E			Name of Wetland
°	'	"	°	'	"	
35	04	30	173	11	25	
35	04	35	173	11	15	
35	05	50	173	11	15	
35	06	20	173	11	10	Sandhills Road Wetland No. 2
35	06	35	173	11	30	Sweetwater Station Peat Bowl
35	07	40	173	11	10	Kaikoura Farms Wetland
35	07	05	173	11	40	Sandhills Road Wetland No. 1
35	08	55	173	11	15	Clarke Road Wetland
35	08	25	173	10	10	} Waimimiha and other
35	08	55	173	10	10	
35	03	20	173	12	10	Lake Rotoroa
35	07	10	173	12	40	Tangaonge Wetland

**APPENDIX 2**

**GEOGRAPHICAL COORDINATES OF THE WETLANDS INCLUDED IN  
MURIWHENUA WETLANDS (SITE 3)**

<b>S</b>			<b>E</b>			<b>Name of Wetland</b>
°	'	"	°	'	"	
34	47	30	173	07	05	Houhora Harbour
34	54	15	173	13	15	Kaimaumau/Motutangi
34	56	55	173	16	25	Rangaunu Harbour
34	52	15	173	18	45	Lake Rotokawau
34	51	25	173	21	55	Upper Waimango Swamp
34	54	10	173	20	45	Lake Waipotohita
34	54	45	173	21	35	Northern Tokerau Swamp
34	56	30	173	21	50	Southern Tokerau Swamp
34	57	40	173	22	55	Tokerau Beach Swamp
34	58	20	173	21	20	Lake Ohia
34	59	05	173	20	05	South Western Lake Ohia

**APPENDIX 3**

**GEOGRAPHICAL COORDINATES OF THE WETLANDS INCLUDED IN THE POUTO PENINSULA WETLANDS (SITE 5)**

S			E			Name of Wetland
°	'	"	°	'	"	
36	19	55	174	02	10	South West Pouto Peninsula
36	15	15	174	02	25	Lake Rototuna Upper
36	16	00	174	05	15	Purahaere Creek
36	15	35	174	03	05	Lake Rototuna Lower
36	18	15	174	04	40	Phoebe Lake
36	18	05	174	06	00	Pukemiro Road Swamp
36	19	25	174	07	25	Lake Rotopouua
36	20	50	174	08	35	} Rotokawau Ponds } }
36	20	50	174	08	20	
36	20	55	174	08	30	
36	22	00	174	08	40	Lake Kanono
36	19	05	174	06	45	Rotopouua Swamp
36	19	40	174	07	15	Lake Humuhumu
36	19	55	174	08	20	Lake Rotootuauru
36	20	15	174	08	30	Swan Egg Pond
36	20	40	174	08	05	Bishops Road Swamp
36	20	55	174	08	45	Lake Rotokawau
36	21	10	174	09	00	Lake Waingata
36	21	45	174	09	15	} The Spectacles }
36	21	45	174	09	30	
36	22	15	174	09	30	Lake Kahuparere
36	22	00	174	09	10	Finlaysons Lake



**APPENDIX 4**

**WAIKATO LOWLAND LAKES AND MINERALISED SWAMP LANDS (SITE 12)**

	<b>Depth (max) (metres)</b>	<b>Open Water (hectares)</b>	<b>Assoc Wetland (hectares)</b>
Okowhao	2.2	12	-
Waahi	5.0	522	-
Kimihia	0.9	58	-
Hakanoa	2.5	52	-
Rotoawau	1.2	22	260
Waikare	2.0	3,442	-
Rangiriri	1.5	52	30
Rotognaro	3.3	482	-
Whangape	3.5	1,450	910
Ohinewai	4.5	16	-
<b>TOTAL (open water and associated wetland)</b>		<b>7,308</b>	

## APPENDIX 5

## THE WAIPA PEAT LAKES (SITE 17)

	<b>Depth (max) (metres)</b>	<b>Open Water (hectares)</b>	<b>Assoc Wetland (hectares)</b>
Rotokauri	4.0	77.0	
Rotoroa (Hamilton)	6.0	55.0	
Koromatua	0.5	6.7	0.8
Mangahia	3.2	10.0	9.2
Maratoto	7.0	18.0	33.0
Te Koutu	1.5	6.0	
Mangakaware	4.0	9.5	1.6
Ruatuna	3.2	13.0	3.8
Rotomanuka	8.7	5.4 + 12.3	10.0
Ngaroto	4.0	108.0	
Pataka	5.0	5.65	0.10
	4.0	2.90	
Te Otamanui Lagoon	3.0	3.95	11.23
Horsehoe	3.0	3.02	0.05
Cameron	1.5	4.49	1.54
Unnamed	2.0	2.17	1.14
Ngarotoiti	1.0	2.26	5.05
Serpentine	4.0	13.54	14.23
Rotopataka	1.0	2.08	0.90
Rotongata	1.0	3.84	1.13
Turnbull Pond	-	0.8	2.7
<b>TOTAL</b>		<b>365.61</b>	<b>138.48</b>

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