

COASTAL RESERVE INVESTIGATION  
WANGANUI COUNTY

Planning Team:

G. A. Turner  
W. F. Carlin

Department of Lands & Survey  
Wellington Land District  
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## PREFACE

The objective of the Department of Lands and Survey's National Coastal Investigation is the stocktaking of New Zealand's Coastal fringe with a view to reservations for both preservation and public enjoyment.

The first step in the investigation is the undertaking of critical analysis of the coast on a county basis from field observations and extensive research. Consideration has been given to a wide range of natural features, historic associations, likely and possible utilisation and relativity to important features such as urban areas and transport systems.

An Inventory of coastal areas is necessary because of the pressures of conflicting interests on the coast. The results of the initial study lead to specific recommendations for reservation of land along the coast to achieve the following aims:

- (a) To provide public access to and along the coast
- (b) To preserve the quality of the coast for future generations.
- (c) To provide a well-balanced hierarchy of reserves along the coast for public recreation.
- (d) To preserve any natural, historical, scenic, scientific or other special features.
- (e) To preserve habitat for species of waterfowl, wildlife and marinelife.

Any investigation should recognise the interrelationship between land and water; there are many land uses, such as recreation, which have an impact on the water and its associated flora and fauna. Also the ocean is often the major reason for attracting the use of the coast. Whether or not directly mentioned in the report, the ocean therefore is an integral part of the coastal resource.

This needs to be taken into account when looking at any reserve proposals as there may be areas which, either should be included as part of any reserve proposal or management techniques such as water classification, should be related to the proposed uses along the coast. The significance of a proposal relates to the relative importance and significant quality and degree of use of the area, and ratings are defined as follows:

- (a) Local - where the use of the area will in the main be by residents of the county or immediate locality.
- (b) Regional - where a significant proportion of the use is or will be from outside the county or immediate locality
- (c) National - where the area is of such importance and attraction that it will be used by people from throughout New Zealand; or so unique or possessed of such historic or other values that its preservation is in the national interest.

These significance ratings are defined in planning terms and should not in any way be considered to reflect financial or administrative responsibility.

The urgency for action will depend upon the pressures on the area and a priority rating is indicated as follows:

(i) High Priority

- (a) Areas generally of easy access where public use is high in the near future ; or
- (b) Areas which have a particularly important significance and which should be protected by reservation because of likely loss to the public or the nation; or
- (c) Areas of medium rating which should eventually be acquired but where subdivision is imminent and the area is in immediate danger of being lost; or
- (d) Areas that are strategic from the point of view of providing public access.

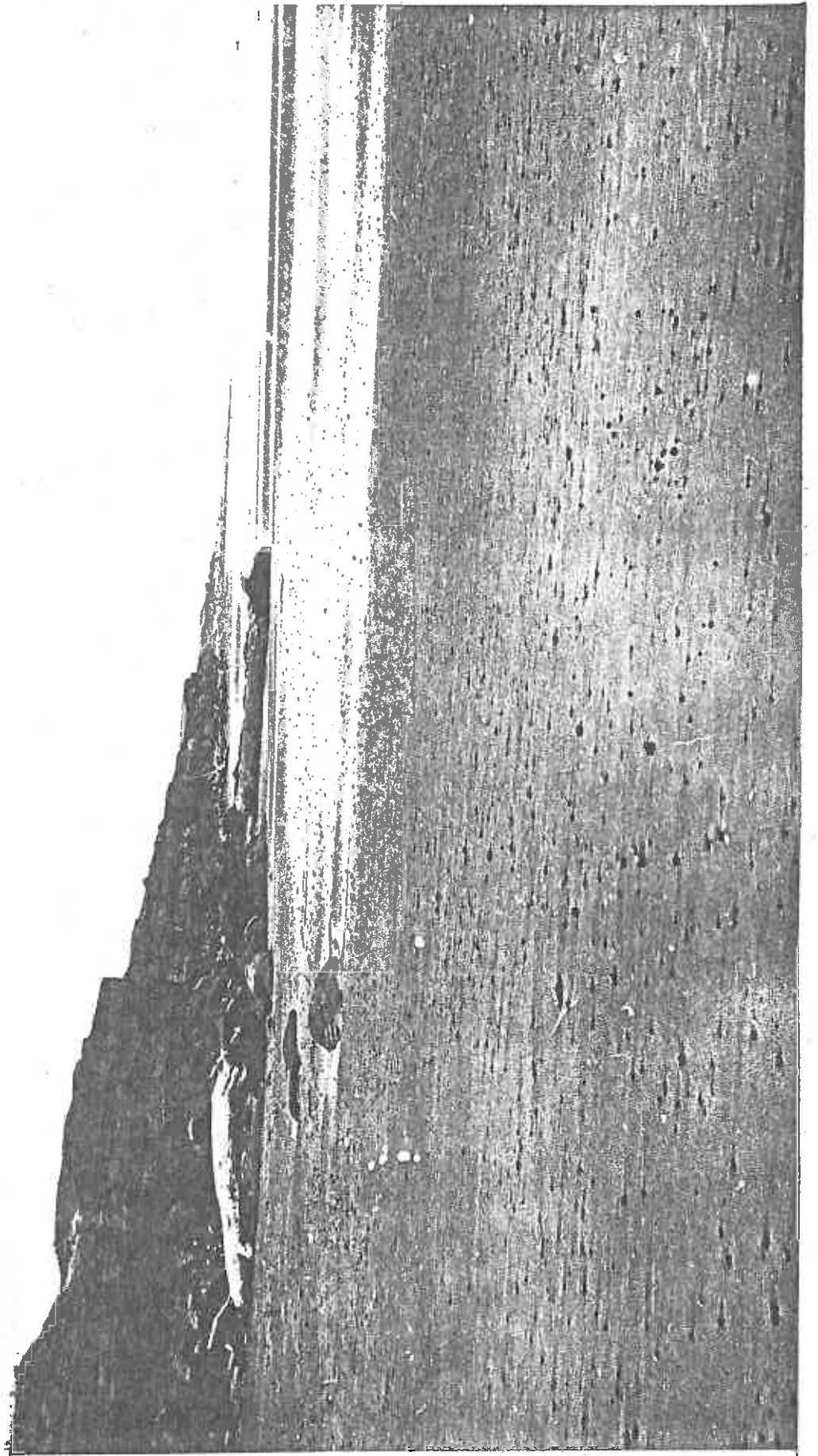
(ii) Medium Priority

Areas which would attract use if available as reserve but where there is no great danger of being lost through subdivision or other development. These areas would, to a lesser degree, have some of the features of high priority areas.

(iii) Low Priority

Areas which have long term potential as reserves but where acquisition is not necessary within the next few years.

This study is a re-evaluation of the initial Coastal Reserve Investigation completed in 1968. This report was done within a regional context and is not expected to define final proposal details such as boundary lines, fencing etc. which would be negotiated when under detailed consideration. Any input from other government departments, private organisations or individuals was most appreciated and continued criticism of the report is needed in order to evolve a workable and satisfactory coastal programme.





INTRODUCTION

Wanganui County has the shortest coastline in the Wellington Land District and this study exemplifies the reserve planning of four other West Coast counties which have somewhat longer coastlines. The county is located between Waitotara County in the north and Rangitikei County in the South, physically bounded at the coast by the Wanganui and Whangaehu rivers. Wanganui County has had a decreasing population over the past 25 years and has a high proportion of Maori residents. It is estimated that 80% of the employed population work in farming or allied industry. Adjacent to the county in the north lies the City of Wanganui with a population of 37,290. The city is a dominant factor in drawing people away from the land and will be the focus of pressure on coastal lands for recreation within the county.

The Wanganui River which forms the northern boundary is not only an historic waterway for Maoris and Europeans alike and a navigable river for pleasure boating 144 miles upstream to Taumarunui, but is also the architect of the beaches along the length of Wanganui County. This feature makes the county's coast unusual in its physical situation and yet akin to related situations north and south. This raises the important question to be considered on this coast and that is whether it is eroding or accreting. The answer to this question will reflect not only size and boundary of any reserve but the types of use and public access to be planned. However, the nature of the question precludes any firm answer at present and both possibilities will be examined and carried to their conclusion.

Wanganui County's coastal land is controlled entirely by various public agencies. This situation appears satisfactory from the point of view of providing for reserves, but conflict between the objectives of the various public bodies will have to be resolved as previous policies have not allowed for public access to any part of this coastline. The Forest Service is acquiring land throughout the county for commercial forests, dune stabilisation and possible future forest parks. The Wanganui Harbour Board controls the mole and the foreshore from the southern sand spit to the Kaitoke Stream as well as the tidal estuary of the Wanganui River which supports a heavy concentration of wildlife. Behind this coastal strip is the Wanganui airport which is controlled by the Wanganui City Council. The Justice Department, which is replacing its borstal with a medium security prison, the Department of Lands and Survey, and the Forest Service have control of the coast from the Kaitoke Stream to the Whangaehu River and each has a different objective and technique in land use which has to be reconciled with the establishment of reserves along the coast. Thus this coastal reserve study could serve as a basis for multi-departmental planning and co-operation to provide the public with access to coastal reserves for recreation, on public lands.



The coastline of Wanganui County is 14 km long, comprising of cliffs and wide, undeveloped beaches at low tide, and is all publicly owned land.

### INVESTIGATION

The study is based on a wide ranging research of factors considered relevant to coastal reservations for public use or preservation, along with a thorough field inspection.

For convenience the investigation has been done in three parts; Land based aspects form Part I; the Ocean and marine influences are considered in Part II; and conclusions drawn from this information along with the initial background data forms the logical basis for the proposals in Part III, entitled Reserve Proposals.

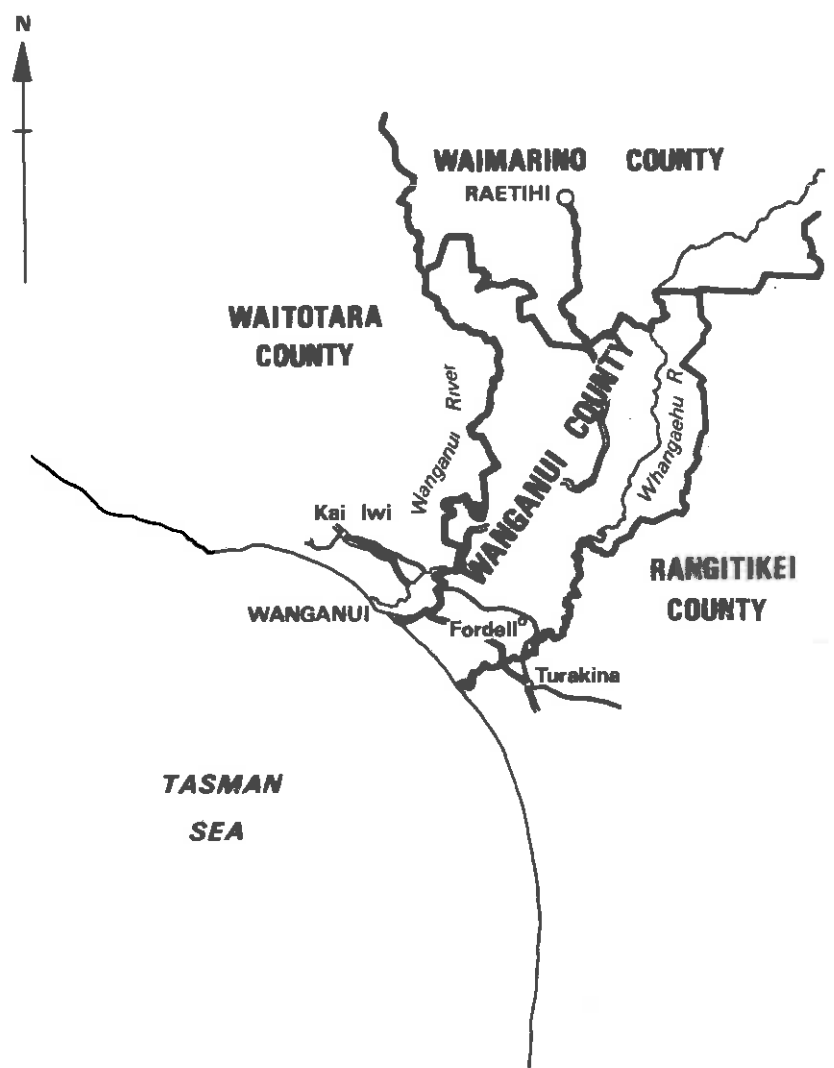
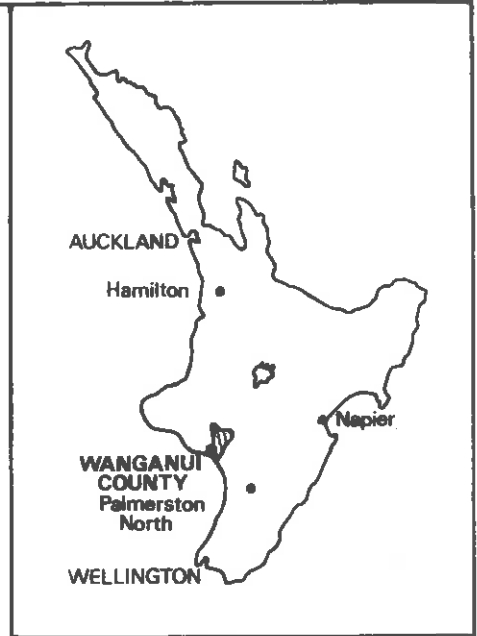
An appendix of unpublished reports and a bibliography is attached to assist in updating the study from time to time.



# Map 1

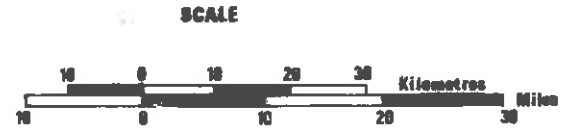
COASTAL RESERVE SURVEY

# WANGANUI COUNTY

LOCALITY



**REFERENCE**  
Roads   
Railways 

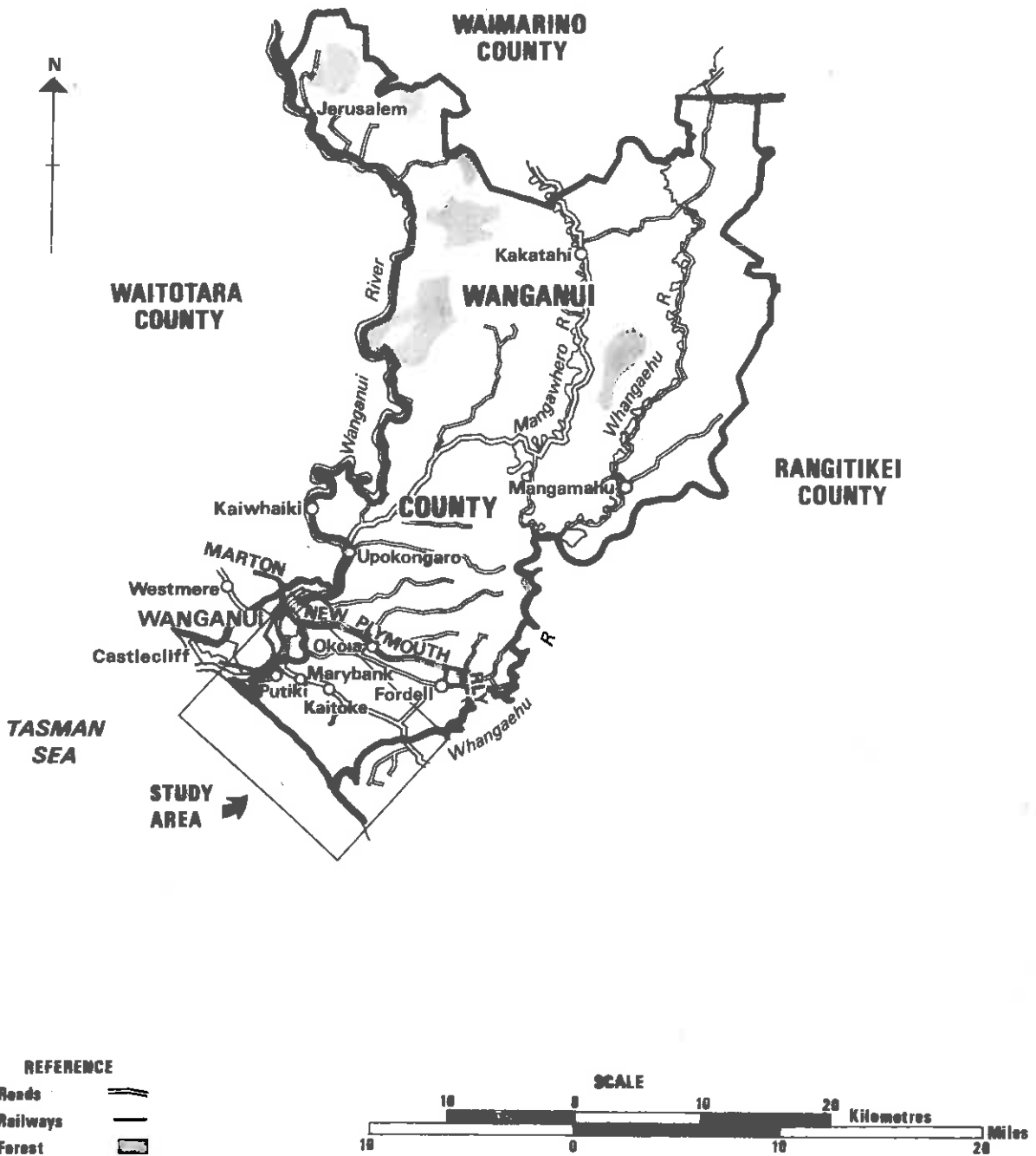




# Map 2

COASTAL RESERVE SURVEY

## WANGANUI COUNTY





PART I - THE LAND

(a) Geology and Physiography

Wanganui County forms part of the landward edge of an incomplete marine basin called the Wanganui Basin. This basin is a geosynclinal structure of the Pliocene period and all exposed rocks are of recent origin. Three series are distinguished by Dr C.A.Fleming in 1953.

1. Recent Series : Beach and dune sands, alluvium and volcanic ash showers.
2. Hawera Series : Marine, fluviatile and terrestrial deposits on elevated coastal and river terraces believed to be Pleistocene, with a thickness seldom exceeding 45 metres.
3. Wanganui Series : Marine and estuarine geosynclinal sediments, usually correlated with the Pliocene. Thickness may reach in excess of 2,500 metres.

The geological history of the area along the coast shows continuous deposits of shell conglomerates, estuarine and deltaic sands, silts and muds as well as periodic layers of pumiceous sediment from inland volcanoes. The sea bed was raised several times to produce the current coastal plain and was subsequently covered by volcanic sediment and advancing sand dunes. The rivers and streams have cut deeply and rapidly into the moraine sediments and loose volcanic debris.

The large areas of sand dunes along the coast have been modified only slightly by the sea. The beach is narrow and backed by the Rapanui Terrace composed of fossiliferous deltaic and beach gravel conglomerate from 1.5 to 10.5 metres in depth. At high tide the ocean reaches the base of the embankments, actively eroding them. This erosion situation applies particularly to the small zone of raised marine terrace rock .6 km north of the Whangaehu River where a low rock bluff has been exposed. Mr J S Burgess in his PhD study of the areas says, "This bluff and sandbank are occasionally undermined by large seas but changes are not great."

It is at this point that conflict arises over whether in fact the coastline is actively eroding or accreting. It may over a period of years, shift from one to the other depending on tide height, overall ocean level, frequency of high seas, supply of river silt and man made constraints (i.e. moles). Thus both possibilities must be looked at when reserve boundaries and designs are considered.

The sand dunes extending about one kilometre inland and their effect on land use along with coastal accretion-erosion, are the over-riding physical features of the Wanganui Coast.

(b) Climate

New Zealand Meteorological Service data collected at Wanganui shows that rainfall is spread over the entire year and increases inland and to the south, ranging from just below 899 mm (annual mean) at Wanganui to over 2,540 mm. Although rainfall tends to be uniformly spread over the entire year, the catchments are occasionally subject to prolonged heavy rains when warm, moist northwesterly air associated with a warm front, comes into contact with the high country of the interior.

Mean temperatures are not unlike other coastal areas of New Zealand, with the annual minimum of 8°C in July and a maximum in February of 18°C.

Wind speeds at Wanganui vary from season to season. Spring and summer months are characterised by higher percentages of winds in excess of 10 kph approaching from the west and northwest. During autumn and winter the predominant wind direction is northeast. The more frequent occurrence of higher speed winds from the west and northwest during the hotter spring and summer months promotes greater movement of dry sand on the foreshore.

In summary, the lack of topographical variation along the coast reflects its climate, in that summer rain-bearing winds precipitate inland while the coast remains a dry hot locality which generally indicates an area climatically suitable for outdoor recreation. However, the climate adversely affects coastal agricultural uses and physical features which has led to a low recreational value being placed on this coast in the past.

(c) Soils, Vegetation and Forestry

The soils of the Wanganui coastal area are grouped with soils of flat-rolling land and called yellow brown sands. A narrow strip of open sand dunes lies between the MHW mark and the yellow brown sand soil. This soil has medium to low fertility but additions of phosphate and potash can make them high quality pastures for dairying and fat-lamb farming (if the water table is near the surface.) The sand dunes have moved inland over the yellow brown soils, forcing farmers to abandon sections of land. This has occurred further inland, nearer the Kaitoke Stream than elsewhere, but extensively in Rangitikei County to the south. Historically this land has been used by the Crown for forest planting and harvesting, prisons, bomb ranges and pipeline routes and some leases have been approved over the years to allow for limited grazing on the Crown land. The pattern of land tenure of the coastal hinterland is at present in a state of flux and it is hoped that where relevant the reserve recommendations in this report will assist in this rationalisation.

The sand dunes themselves are very infertile and subject to wind erosion, leaching and drought. Where the yellow brown soils are well drained such as old sand dune formations, exotic forest species thrive.

Fair quality pastures of cocksfoot, ryegrass and subterranean clover can be maintained but with little summer growth. Soils of this type occur only between Patea and Paekakariki though small enclaves occur near Kaipara Harbour, Auckland.

Coastal vegetation is typical of growth found on land classified as sand country by the D.S.I.R. The main species include marram grass, lupin, box thorn, gorse and toitoi. The original vegetation was removed last century as a result of over grazing and burning. Problems associated the resulting drifting sand have been encountered along the entire south west coast and recognised by Parliament as early as 1908 by passing the Sand Drift Act that year. The current vegetation is introduced or noxious weeds which have stabilised much of the sand hills allowing the Forest Service to undertake extensive planting. This will be the case in the recently acquired Blyth Estate in Wanganui County. Semi-permanent or permanent swamps have developed between dunes producing rushes, lilies, algae, peat and mosses. These make excellent wildlife habitats or fresh-water recreation areas.

Forestry is a key element in any reserve or general land use plans for the Wanganui coast. The Justice Department through its Borstal Institute was the first to try tree planting (*Pinus radiata*) in the coastal area. Their first commercial crop was blown down during a storm and recent attempts near the ocean to grow a shelter belt have failed because of a pebble hard-pan layer stunting root growth. Salt burn has also plagued young trees because of the lack of shelter.

Recently the New Zealand Forest Service has purchased an area of the Blyth Estate inland from the block of Crown land on the coast and is preparing to begin a more professional pine planting programme. To date there are no plans for joint development with the Justice Department which could involve joint use of labour, land, machinery and expertise.

The Justice Department because of the recent failure may welcome the assistance and yet help to minimise costs by supplying labour, housing, and some machinery. The proposed reserve land along the foreshore is mainly unstable dune country and afforestation management of the hinterland would probably require this area to be planted professionally with grasses, lupin and eventually trees as a buffer strip in order to prevent the sand from encroaching on pine plantations and farm land further inland.



It is at this point that Forest Service policy with respect to reserves must be analysed to find compatibility with purely reserve consideration which could require that trees planted on the reserve land be shade oriented, multi-specied and clustered where possible. The desired effect is to facilitate the development of recreational and scenic values of the reserves while filling the role of wind breaks, production forests or soil stabilisers. The Forestry Department could treat the opportunity as scientific as well as utilitarian by researching dune stabilisation, native bush regeneration or exotic tree growing. This could be an extension of work done at Santoft. Not all areas would have to have uneconomic tree stands since profits from reserve tree felling could help to maintain the reserve or pay for further planting.

Another advantage of the Forest Service having control over the hinterlands is that the fire hazard to grass and trees in summer is usually very high. This danger would increase with any public use and the Forest Service is experienced in prevention of, spotting and fighting fires. The many roads throughout forest plantations could provide public access and yet be controlled by Forest Service in danger areas such as fire risk or logging. Obviously therefore mutually acceptable management policies could be derived for the control of a coastal reserve in this area.

(d) Wildlife

The only wildlife in evidence along the coast was extensive gull nesting areas though it can be assumed other sea birds are transitory inhabitants of the coastal dunes. The lack of vegetation and forest allows for no deer, wild pigs or goats, and few rabbits or pheasants. The establishing of commercial and protection forestry along and inland of the proposed reserve areas would attract these other animals as has happened at Santoft in the past.

Approximately three kilometres inland from the ocean and formed between old dunes lie several large permanent lakes. One, Lake Kaitoke is a successful wildlife refuge while two others are privately owned for hunting and fishing, and a fourth, Lake Wiritoa is a County developed shooting, boating and fishing area. Small semi-permanent swamp areas near the ocean could be developed for limited wildlife habitats with pheasant and grouse released as game birds.

The only other area of wildlife importance is the tidal prism or wide sheltered bulge in the Wanganui River behind the south spit. At low tide, many different species of land and sea birds frequent the area. Motor bikes use this same area at low tide to reach the coast illegally and should be prevented from continuing the practice.

(e) Historical

There are no known archaeological sites along this coast though this may only be through lack of investigation. A population of up to 30,000 Maoris lived at the mouth of or inland on the Wanganui River, and over the centuries many passed through this area on food collection sorties or war parties. The shifting sands were primarily begun by fires and European grazing practices (though some began naturally) and have covered evidence of past occupation but future erosion or excavation may reveal occupation sites and artifacts. Appendix I is a Historic Places Trust analysis of the dune country along the West Coast. Although there is a scarcity of archaeological information these values are now protected by recent legislation i.e. (H.P.A.A. & Antiquities Act)

Europeans have settled in the area since the mid-1850's and artifacts of their past may also be buried in the area. It can be noted that no digs should be undertaken on reserves unless sanctioned by governing authorities and no major earthmoving works commenced until the area has been surveyed briefly by Historic Places Trust personnel. The Forest Service has mentioned recently the possibility of making the old Blyth Station homestead and gardens area a garden-cum-arboretum with walkways once they establish a management plan for their property.

(f) Access

The absence of any legal access to the coast is initially surprising but the reasons for this are obvious when the situation is looked at in detail. The Justice Department with its Borstal Institute must take into account security and fire risk to its forests. These roles are not likely to diminish as a new and large medium security prison is currently being built adjacent to the borstal.

The Forest Service has become a recent owner of land in the coastal area and is concerned with fire hazard, vandalism, commercial production continuity and sand dune stabilisation. There is comment that a recreation forest area may be established but no definite plans have been made.

The third owner, the Wanganui Harbour Board, controls the area around the airport, the south spit and the Wanganui River bank. The spit is unstable and has been breached twice recently by the sea, requiring the Harbour Board to rebuild and strengthen it. The coastal land adjoining the airport must also be stabilised to protect planes and the runways from drifting sand.

Coupled with a lack of demand by the public for access in the past, all three bodies had no reason to provide roads to the coast and probably preferred to control public entry in this way. Increased pressure for public utilisation along with a governmental policy to provide coastal reserves for public use has now created a situation where it is desirable to design access for the public now or in the future which will not conflict with the policies of the three government agencies adjoining the proposed reserves

