

**THE ENVIRONMENT AND RESOURCES
OF THE DISTRICT**

Banks Peninsula first emerged as an island thrust out of the sea by volcanic eruptions estimated to have started between 10 and 15 million years ago. The two harbours of Lyttelton and Akaroa, which indent the coastline, are eroded remnants of those eruptions and the highest peak in the district, Mount Herbert, is also an ancient volcanic cone. Many of the rocky outcrops which form some of the most striking landscape features on the Peninsula are a result of the volcanic activity which ceased about 6 million years ago.

Since the time of the first eruptions, the erosive action of the sea and streams has shaped the land to form the pattern of valleys, coastal cliffs and indented bays that characterises the Peninsula today.

Glacial action during the ice ages of the last two million years has also contributed to the form of the Peninsula. As the glaciers ground away the Southern Alps, fine silt was produced which was carried by the prevailing north-westerly winds and deposited as loess over the existing volcanic landform. At the same time, rock eroded by the glaciers was carried by rivers and deposited at the coast which, in turn, gradually moved eastward forming the Canterbury Plains. Some 20,000 years ago, the plains met the volcanic island and linked it to the South Island.

The out-washing of eroded gravels and sands from the erosion of the Alps also enclosed and formed the two lakes of the district, Waihora/Ellesmere and Wairewa/Forsyth.

The long and intricate coastline is a legacy of the geological processes of uplift, erosion and deposition which have shaped the Peninsula. Rocky cliffs and headlands punctuated by intimate sheltered, sandy bays and the dramatic harbours of Akaroa and Lyttelton form a spectacular link between the land and the sea and contribute to the scenic value of the District.

Maori tradition recognises three waves of ancient settlement on Banks Peninsula. The most distant wave, "Te Tai Pamaomao" was that of Waitaha who called Banks Peninsula A te Whata o Rakaihautu (The storage place of Rakaihautu). Rakaihautu was the ancestor of the Waitaha traditions and captain of the Uruao canoe.

The next and longest wave, 'Te Tai Roa' was that of the settlement of Ngati Mamoe (the descendants of Hotu Mamoe) who occupied and dominated the southern isle for a lengthy period.

Ngai Tahu settlement came with the most recent wave, 'Te Tai Nui' which in recent times has shaped the relationship of Maori with ancestral land, water bodies, waahi tapu (sacred sites) and other taonga. Included among Banks Peninsula's Ngai Tahu leaders remembered for their authority and influence were Tutekawa, Moki, Te Maiharanui, Te Rangi Whakaputa, Huikai, Mako, Te Ruahikihiki, Tikao, Taiaroa and Karetai. Virtually every bay on the Peninsula had its settlement and trading and cultural links were maintained with other Maori settlements throughout the South Island including Kaiapoi, Temuka, Otakou and Kaikoura.

Ngai Tahu settlement differed from that of earlier waves and has been described as a "classic" pre-European Maori culture characterised by fortified pa, greenstone working, woodcarving and kumara growing.

In the early 1800s the Ngai Tahu population of the Peninsula was severely reduced by civil war, raids by Ngati Toa from Kapiti Island and European diseases introduced by sealers and whalers. The census of 1848-1849 estimated that the Maori population of the Peninsula was only 300.

Initial European contact occurred around the same time, when Maori living on Banks Peninsula were confronted by the French and English explorers who wished to claim dominion over lands that Maori had occupied and travelled.

Though Captain Cook sighted Banks Peninsula as early as 1770, the first Europeans known to have landed were Captain Grono and his crew from the sealing ship Governor Bligh, at Akaroa in 1815-16. Other sealers and flax traders followed, but the most significant contact between Maori and European began with the whalers. From 1836 American, French, English and Australian whaling ships used the bays of the Peninsula for bay whaling and for shore whaling stations.

Ngai Tahu bartered water, firewood, pork and potatoes for blankets, biscuits, firearms and alcohol, especially at Onuku, Port Levy and Port Cooper (now Lyttelton Harbour). Many whalers married Maori women and chose to stay in the colony. Numbers of Maori men worked at the shore whaling stations and aboard the whaling ships.

The "purchase" of a large tract of Banks Peninsula by a French Whaler, Captain Jean Langlois of the Cachalot, led to the founding of the Nanto-Bordelaise Company and the French and German settlement at Akaroa in August 1840. It was the first French colony in the Pacific. Akaroa swiftly attracted numbers of

British settlers as well, some of whom had been living in whaling communities on the Peninsula since 1836-37.

The signing of the Treaty of Waitangi, before the French settlers had even left home, frustrated French hopes to eventually take possession of the whole of the South Island. The French at Akaroa soon learned to accept British jurisdiction. Akaroa has its place in history as the first planned township in the South Island, with the South Island's first post office, police force, magistrate and customs house.

In late 1850, after a great deal of preliminary exploration, survey work and land acquisition, the Canterbury Association settlement began. Lyttelton and Christchurch soon overtook Akaroa as the principal townships in the province. Lyttelton's initial function was as a port facility to provide the immigrants with accommodation and facilities and orientated them to life in Canterbury before they moved over the Port Hills to settle on the Plains.

The Peninsula's European settler population grew as large areas of land had been purchased (or otherwise acquired) from Maori by the Crown and other agents. Many Maori consider that those land transactions were not properly conducted in accordance with the principles set down in the Treaty of Waitangi. Appendix I of the Plan sets out the text of Maori and English versions of the Treaty. The difficulties which have resulted from the manner in which much land was originally acquired from Maori are only now being addressed through the deliberations of the Waitangi Tribunal.

Licences were also granted for the felling of timber. Prior to the arrival of Europeans an estimated one-third of indigenous forest had disappeared and between 1850 and 1890, much of the prime timber was removed from the Peninsula. The cut over forest was subsequently burnt off and the land sown in grass. By 1900, almost all of the ancient forest was gone.

Following clearance of the indigenous forest, farming quickly became established as the principal economic activity of the District. Up until the 1940s, dairy farming and the growing of cocksfoot as a seed crop were dominant. However, in the last thirty-five years, sheep and beef production have formed the basis of the rural economy. More recently, the rural economy has diversified with woodlot forestry and various forms of horticulture increasing as alternatives to conventional pastoral farming.

The various settlements of the District grew to service the farming hinterland and the other industries, such as fishing and forestry, which had become established on the Peninsula.

Settlement of Banks Peninsula continues to grow steadily as roads improve and communications infrastructure becomes more sophisticated. While Lyttelton is still dominated by the activities of the port, increasing numbers of residents commute to work in Christchurch. Similarly, other settlements around the harbour have grown as commuting into Christchurch from the Peninsula has become more practical. Banks Peninsula has developed as a popular holiday area with a high portion of absentee owners.

LAND AND SOILS

The District covers 107,597 hectares. The relief of the District is dissected and hilly with level land confined to coastal valleys.

Most soils in the valleys and lower slopes are derived from loess with pale coloured, compact subsoils. Deep, fertile alluvial soils are found in many valley floors. The soils on valley slopes are moderately fertile but tend to be prone to the effects of drought and tunnel-gully erosion is common. On more elevated land, transported volcanic soils result from the weathering of bedrock. However, on the high slopes, soils are mostly derived from loess, basalt or a mixture of both. Basaltic soils are susceptible to slip erosion.

The mineral resources of the Peninsula have not been extensively researched or exploited. Clays, aggregate and rhyolite may, however, be present in commercial quantities.

VEGETATION

The variety of topography, aspect, micro-climate, altitude and soils has created a wide range of natural habitats on the Peninsula. In pre-human times, the Peninsula was almost completely covered in forest. By 1900, successive waves of human occupation had reduced forest cover to approximately 1% of the original coverage. Forest regeneration this century has increased the indigenous forest cover to approximately 10% of original ground cover.

Indigenous forest is now confined to small remnants, mainly located in reserves or in gullies. Areas of native scrub are also scattered across the District in gullies and in other areas, some of which is land of moderate to high fertility.

Broom and gorse are the most common exotic scrub species in the district. They are classed as noxious weeds and their management is the responsibility of the Canterbury Regional Council. These species can have a beneficial effect by acting as a nursery for native plants in particular locations.

Tussock and grasslands are the most extensive vegetative cover of the District and extend from the highest ridges of the interior to the coastline. The large areas of tussock and grassland contribute strongly to the open character of the Peninsula today with the discontinuous areas of remnant forest and scrublands providing a visual counterpoint.

CLIMATE

The rugged topography of the Peninsula contributes to marked variations in climate over the District. The western parts of the District tend to be relatively dry (400-700 mm of precipitation per annum) with warm summers and cool winters. There are frequent frosts and occasional snowfalls on the ridge tops.

The microclimate of the Kaitorete Spit makes it the driest part of Canterbury. The remainder of the District tends to have a moister, milder climate and precipitation varies between 650 mm and 1600 mm per annum. The dissected topography creates a number of micro-climates with conditions in sheltered valleys contrasting markedly with the exposed uplands of the interior.

WATER

There are limited fresh water resources on the Peninsula. Few high yielding wells from aquifers have been found. Most valleys and gullies carry a stream but, although consistent, discharges are generally low. The streams are often found in conjunction with forest and scrub remnants and are important to the long-term conservation of the vegetation. The only significant bodies of fresh water in the District are Te Waihora and Wairewa.

HABITATS

The variety of vegetation and landforms provides a range of habitats for native and introduced species. Much of the indigenous fauna which exists today is limited in comparison to that which existed when the Peninsula was forested.

The indigenous forest remnants are important as wildlife habitats and as refuges for rare and endangered plant species. Despite their limited size and location, forest remnants have been found to support a diverse range of native fauna and also make an important contribution to the landscape character of the District.

Wetlands, sandy/shingle dune environments and the lakes provide a variety of breeding sites for birds, waterfowl, fish, invertebrates and insects. The rocky coastline and cliffs are specialist habitats for a number of birds. In some of the isolated outer bays, species such as the white-flipped and yellow-eyed penguins breed. Tussock and grassland also support a range of bird species, or adaptable species such as fantails and introduced species which are able to live in orchards and pasture.

THE BUILT ENVIRONMENT

This includes all the settlements of the District within which the most common structures are dwellings. As at March 1995 there were 3160 dwellings in the District housing 7420 people. Department of Statistics projections indicate there will be approximately 3000 more people in the District by the year 2011. Based on a household size of 2.34 persons, some 1300 more homes will be required within the District by 2011.

While the greater proportion of those will be accommodated within the existing settlements there is an increasing demand for residential opportunities in rural areas and the District Plan makes some provision for this through the Rural-Residential Zone.

Within the settlements, business premises form an important part of the physical resources of the District.

There are also a large number of structures within the District which have cultural and heritage significance. These include many historic buildings of European origin and also a large range of settlements, gardens and fortifications of heritage significance to tangata whenua.

INFRASTRUCTURE (Updated 2 July 2011)

Infrastructure includes all of those services which are basic to economic activity. They include roads, ports, power supplies, communications, and water and sewage disposal systems.

State Highways 74 and 75 are the principal road links to the District. In addition, there are 647 kilometres of local road which are maintained by the District Council.

The Port of Lyttelton is a facility of national importance. It is the principal port for exports and imports to and from Canterbury and the South Island.

Power and communications services are now provided by companies operating in a market environment and the District Plan must make appropriate provision for further expansion of those utilities.

The District Council is responsible for the reticulated sewage systems in the District. Settlement growth, particularly in Akaroa and Lyttelton is potentially constrained by the capacities of the public water and sewage disposal systems and this is recognised in plan provisions which relate to the growth of those settlements. Because the expansion and upgrading of these utilities is constrained by the cost involved it is considered that the Long Term Council Community Plan, the Development Contributions Policy within that Plan and the Annual Plan for the District are the most appropriate documents for identifying and prioritising the further provision of these services.

