Flora and Fauna

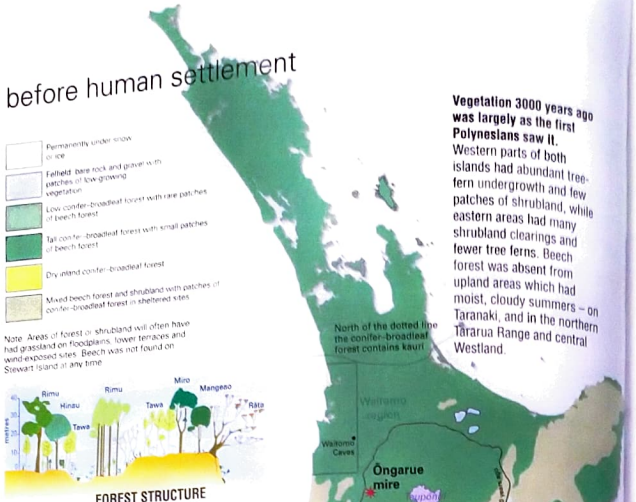
The New Zealand islands just before human settlement

7000 years ago most of the New Zealand land area was covered by rainforest. Treelines were similar to those of today, while annual temperatures were possibly 1–2 °C warmer than at present. The climate was less frost-prone, probably less windy, and had less frequent westerly winds than today's. Throughout both islands summers were typically cloudy and moist because of a predominance of northerly and easterly winds. Winters were often relatively calm, with few pronounced cold fronts, a weaker overall southerly wind flow and more fine weather than today.

In this period, the tall conifer–broadleaf forests were dominated by rimu in northern and western areas, and by matai and tōtara in the east. Beech forest was scarce, with conifer–broadleaf forest extending to the treeline. Only in dry Central Otago were there still the kinds of grassland and shrubland that had characterised the vegetation of almost all the South Island during the last glaciation.

Subsequently the climate cooled. Cold-tolerant species thrived in upland areas, while frost-sensitive species declined in the lowlands. The most striking consequence of the change was the spread of beech forest through many areas of the high country. The climate change meant that a low forest developed in Central Otago, whilst in the North Island different broadleaf and conifer species, including kauri, became more common.

Fires became more common from about 3000 years ago, and limited outbreaks permanently destroyed some low forest and scrub in the south-eastern South Island. A further climate change most likely caused these fires.



Vegetation 3000 years ago was largely as the first Polynesians saw it. Western parts of both islands had abundant tree-fern undergrowth and few patches of shrubland, while eastern areas had many shrubland clearings and fewer tree ferns. Beech forest was absent from upland areas which had moist, cloudy summers – on Taranaki, and in the northern Tararua Range and central Westland.

FOREST STRUCTURE
WAITOMO REGION

Conifer–broadleaf forest structure, Waitomo Caves: this site includes a young stand of rimu on an alluvial terrace, and rātā growing on a limestone bluff.

NEW ZEALAND VEGETATION
3000 YEARS AGO

SOUTH ISLAND VEGETATION
7000 YEARS AGO

By 7000 years ago the sea had risen to its present level, and conifer–broadleaf forest covered nearly all the island except Central Otago and high-altitude areas.

100 km

FOREST STRUCTURE
SOUTH CANTERBURY REGION

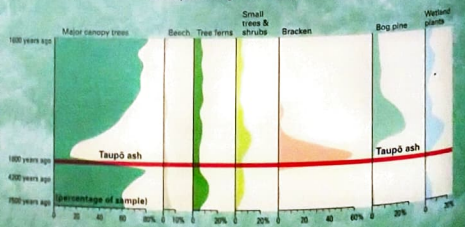
Forest structure, Pyramid Valley area: mānuka on poorly drained soils, a swamp dominated by carex and flax, and kānuka on

WESTLAND
MACKENZIE COUNTRY
CENTRAL OTAGO

FOREST TO BRACKEN
TO FOREST

The Taupō eruption 1800 years ago (see plate 6) devastated the central North Island. Pollen samples from sites such as these at Ōngarue show that forest was initially replaced by bracken, but that within 200 years a forest canopy had reappeared. The eruption had however led to soil changes, and the new forest was dominated by matai and tōtara rather than – as formerly – rimu, beech and hardwood species.

Pollen percentages from Ōngarue sites



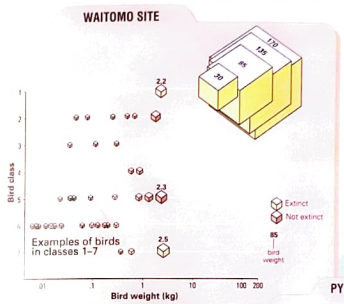
Because the New Zealand islands had been isolated for about 80 million years, their fauna was both unusual and limited in variety. Many species of beetles, moths and flies had evolved, but other important insect groups (such as butterflies) were poorly represented. As well as some 25 species of freshwater fish, there were primitive frogs, skinks, geckos and the tuatara. The only mammals were marine mammals and three bat species. Coastal and wetland bird species were abundant, and similar to birds in comparable habitats in Australia and elsewhere. Forest birds were more distinctive. Those that could fly predominantly sought insects, fruit and nectar. Only parakeets seem to have been seed-eaters. Birds successfully filled the large gaps in the ecosystem that would normally have been occupied by mammals.

There were many species of flightless birds, including rails, a goose, a parrot, and the two very different ratites, kiwi and moa. Kiwi fed mainly on earthworms and soil-dwelling larvae, while moa ate twigs, and the leaves and fruit of trees and shrubs. Moa were most common in the lowlands but did range into the mountains, with two species reaching at least 1800 m above sea level. The largest invertebrate herbivore species was the nocturnal flightless wētā. Earthworms reached 1.4 m long, and carnivorous snails had shells up to 11 cm across. There was also a primitive arthropod, *Peripatus*.

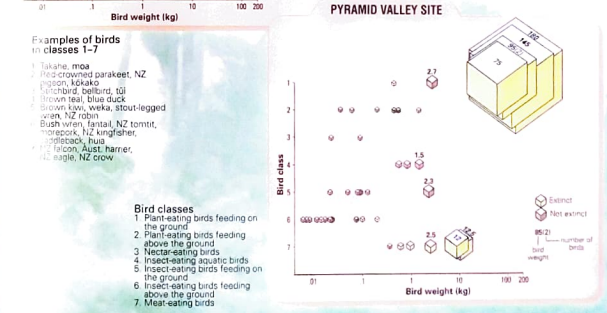
RELATIVE SIZES OF LARGE BIRDS

The world's largest and strongest eagle, *Harpagornis moorei* (Haast's eagle), lived in the forest of the South Island. It had a wingspan of up to 3 metres and was a strong flier, able to attain speeds of up to 80 km per hour. Its prey consisted of large birds, ranging from pigeons to adult moa. It is thought the eagle could not soar but, like other forest eagles, hunted by perching on a high branch and diving onto its prey.

PRE-POLYNESIAN BIRDS BY WEIGHT, TWO SITES



Representatives of the seven main guilds (classes) of pre-Polynesian birds have been found at these two sites. There are substantial differences between the sites in the composition of the fauna, particularly among the large herbivores (especially moa) and predators. These differences were related to the different habitats, wet forest versus dry forest/shrubland mosaic. If local extinctions were taken into account, the differences would be even more marked. Generally, birds that were 'big' – over 1 kg in weight – swiftly became extinct after humans arrived. But other factors, such as loss of prey, also resulted in extreme vulnerability.



Bird classes
1. Plant-eating birds feeding on the ground
2. Plant-eating birds feeding above the ground
3. Nectar-eating birds
4. Insect-eating aquatic birds
5. Insect-eating birds feeding on the ground
6. Insect-eating birds feeding above the ground
7. Meat-eating birds

The mosaic of shrubland and forest which existed in the eastern region allowed for a much greater diversity of fauna to flourish than in the uplands or the western region.

FAUNA

DIVARICATING SHRUBS

Certain features of some plants, such as the divaricating shrubs shown here, may have developed as protection against browsing moa, but they may equally have been adaptations to the physical environment. Research and debate continue.

Settlement

East Polynesians settle the New Zealand islands

The world of the early Polynesian voyagers was a vast tropical ocean scattered with tiny islands. The temperate New Zealand islands presented startlingly new and diverse environments within which to settle. In the process of adapting to this new land, the last major land mass to be settled by humans, an East Polynesian way of life was transformed into a distinctively Māori culture.

It is difficult to determine when the first people arrived on these shores. The brevity of the country's human history requires the use of dating techniques with a fine degree of accuracy, but radiocarbon dating is currently imprecise for small time-spans. The most recent work in New Zealand and in wider Polynesia has led scholars to conclude that these islands were settled more recently than was previously thought.

We also have little knowledge of the size of the settling population, its rate of growth, or of total numbers in succeeding centuries. What is understood is derived from estimates taken from European accounts of Māori population in the eighteenth and nineteenth centuries, the analysis of skeletal material for age at death and female fertility, the modelling of settlement pattern data, and statistical simulations of population growth.

Exploration and the discovery of important resources such as food, stones that could be used for tools, and fertile soils would have been relatively easy for the new settlers because so many areas could be approached from the coast or the larger rivers. Artefacts of East Polynesian type found in early sites, and made of local stone, confirm that the first people soon became familiar with their new surroundings.

The ways in which the early settlers responded to the diverse environment of these islands would have been based on the conditions they confronted when they arrived and on their traditions and expectations. Two patterns of subsistence can be discerned in the prehistoric settlement. One involved the hunting of [illegible] moa and seals, the other the [illegible] and [illegible]. This [illegible] with [illegible] and [illegible] [illegible] [illegible]

Colony and Colonised

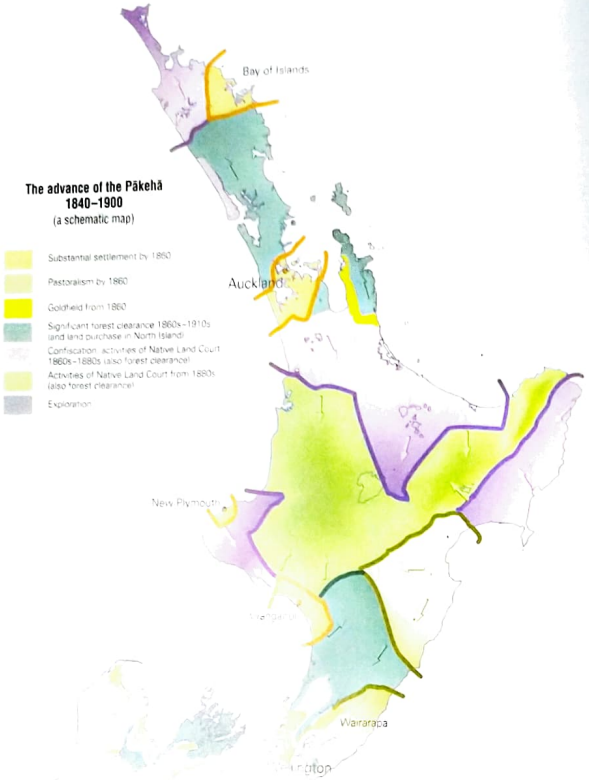
The Pākehā occupation and transformation of New Zealand

The colonial era that is the subject of 28 plates – just over a quarter of the *Atlas* – covers a relatively short time-span, some 50 to 60 years for the most part ('most part' because some plates do run forward into the 1900s, whilst some plates in 'Dominion' look back to the 1880s and 1890s). The period opens with the signing of the Treaty of Waitangi between Māori chiefs and Great Britain, the establishment of a colonial government and the beginning of substantial immigration from Britain.

The unifying theme of the period and of the topics covered is transformation. In the space of two generations the vegetation was transformed, as was the population, the economy and society. An observer in 1770 suddenly transported to 1840 would have seen much that was familiar. Observers in 1910 suddenly transported to 1980 would have been more startled but still able to get their bearings, particularly once they got used to the new forms of transportation (which were however all in existence in 1910). But observers of the New Zealand world in 1840 would have been immobilised by what they saw in 1910.

The transformation was most dramatic in the sphere of technology. The railway train, the steamship and the telegraph and cable accelerated and facilitated transport and communications in unprecedented ways. Never, before the train, had movement across land been faster than by horse; never, before the telegraph, had information moved faster (pigeons aside) than the horse. These changes, which were not of course confined to New Zealand, coincided in this country with the massive demographic, economic and political impact of the Pākehā colonists to make the middle decades of the last century the most revolutionary in its history.

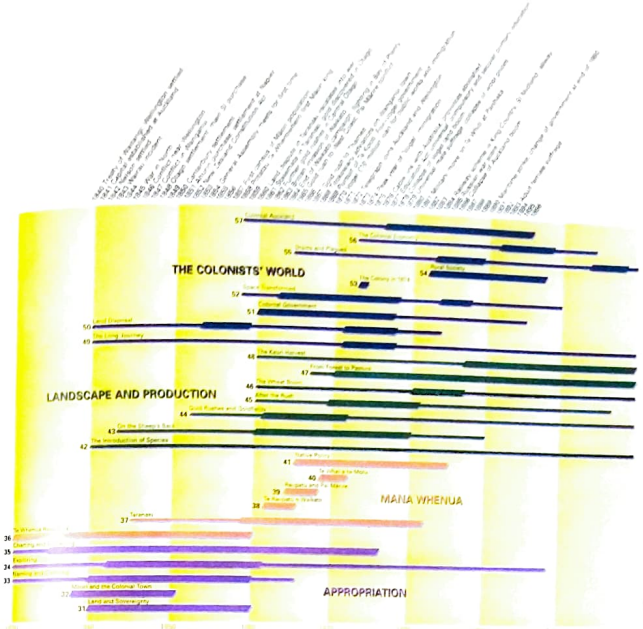
British officials, investors and settlers believed in the revolution, as their oft-restated assertions of progress, both actual and promised, attest. Such progress was seen as an untrammelled good: the present was better than the past, the future would be better still and [illegible] obstacles, [illegible]

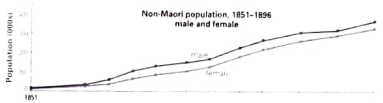


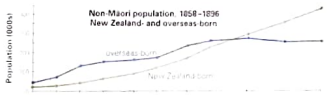
[illegible] experience of women and children was very different from that of adult males, the poor experienced the world very differently from the rich, the non-British and non-white very differently from the British and white. Historians in the second half of the twentieth century have paid a great deal of attention to these dimensions of the colonial story, and the period looks very different to present-day New Zealanders than it did to their forebears of three generations ago.

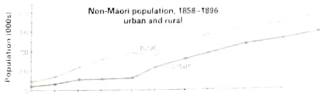
For Māori the period carried mixed messages. There was the message of a new 'world of light', the light of the Christian gospel (or gospels, given the number of denominations), and the more secular 'good news' of new foods, tools and learning. And there was the shock of betrayal as the Pākehā and their government (kāwanatanga), which were at first in Māori minds expected to enhance and support Māori mana and rangatiratanga, turned out to be the agents of dispossession.

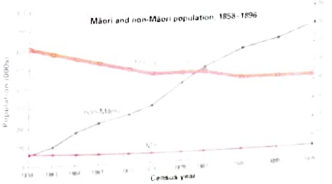
The map on this page depicts the geography of the colonial transformation. In the 20 years of settlement from 1840 to 1860, the Pākehā firmly established themselves in a number of zones dispersed from one end of the country to the other. The extent of the zones was usually determined fairly early in the history of the settlement, with change thereafter being steady rather than rapid. In 1858 this 'old Pākehā' world had a population of barely 60,000, of whom some 15,000 were in the Auckland zone, where the colony's seat of government was located. Pākehā had also scattered across the open country along the eastern littoral of both islands, from Hawke's Bay to Southland, a zone that was suitable for running sheep.











The 1860s and 1870s were the decades of most rapid change in the colonial era, the result of gold rushes, high levels of immigration, the commencement of large-scale forest clearance and the military and political defeat of Māori. The combined effects of these processes produced many new frontiers of settlement. Exploitation was most rapid and substantial in the east and south of the South Island, where there was gold, little forest and almost no Māori, followed by the lower North Island, where there was forest, few Māori and no gold, and then by Auckland province, where there was some gold, but also many Māori, much forest and many swamps.

The sequence of plates in this part of the *Atlas* works through the period thematically and, to a lesser extent, chronologically. The themes are appropriation, mana whenua, landscape and production, and the colonists' world. These themes can be likened to a series of circlings over the land. The circlings do not overlap exactly in time and place, and the sequence exploits that. The first theme, 'Appropriation', is focused on the 1840s and 1850s and examines the initial impact the Pākehā made on what was for them a new land. 'Mana Whenua' traces aspects of the Māori response to this impact, with the focus on the North Island wars of the 1860s. The treatment endeavours to make connections back to the pre-colonisation world of the Māori as well as to reflect its encounter with Pākehā, thinking, notably, in the first plate in the section, 'Te Whenua Rangatira'. The section entitled 'Landscape and Production' looks at the major transformations [illegible] in this context by both economic and ecological. It covers the advent of new animal and plant species, basic land and [illegible], the forest clearance that [illegible], [illegible] and [illegible] part of the 'landscape history' theme of these plates [illegible] this country as a whole, which [illegible] four [illegible] to some extent [illegible] South Island, Central [illegible] North Island, the [illegible] and the lower North Island [illegible] The [illegible] plates in the section [illegible] the 'colonists' world' theme. These plates are [illegible] of the 1870s th[illegible] dominate [illegible] energetic policies [illegible] the [illegible] development [illegible] at last, because the state was [illegible] in [illegible] [illegible] and [illegible] roads. The [illegible] plates take a [illegible] view of aspects of the [illegible] world [illegible] of the [illegible] a society [illegible] moving, but more [illegible] [illegible] from [illegible] to [illegible] on the country and focusing on [illegible] [illegible] on [illegible] life and on [illegible] [illegible] more than [illegible] death. To [illegible] is appropriate, because the [illegible] [illegible] the 1880s [illegible] would never again reach [illegible] rate of the 1860s and 1870s. The [illegible] [illegible] was particularly significant. A native-born Pākehā population was now established alongside, or over, the Māori population. These New Zealands will dominate the next period and part of the *Atlas* – 'Dominion: New Zealand'.

Land and Sovereignty

Crown, colonists and Māori, 1840–1860

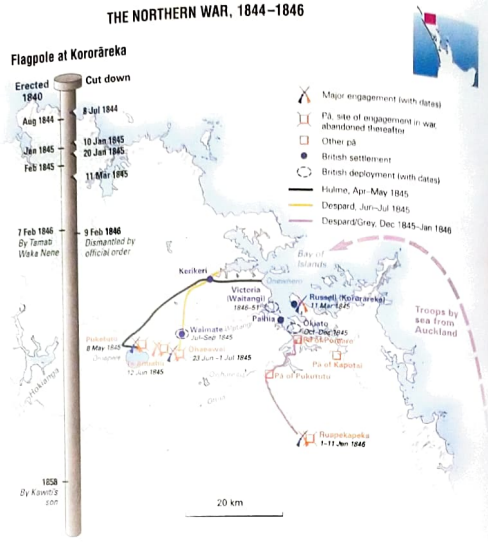
In 1840, following the signing of the Treaty of Waitangi (see plate 36), New Zealand acquired a British colonial administration which aimed to provide government to both Māori and settler (Pākehā) throughout both islands. The interests of these two groups were aligned in only some respects. Māori sought to benefit from Pākehā settlement while maintaining control over the process. Settlers were prepared to depend on Māori in the short term, but expected to become predominant in the future.

Initially the colonial government had little real power, and for this as well as more idealistic reasons it did not directly challenge Māori authority. It forbade the direct purchase of land by settlers and investigated, validating only where it thought fair, claims to ownership of land made before 1840. For their part Māori challenged settlers – and the Crown's authority – on occasion, most dramatically in the 'Wairau incident' in June 1843, when 22 Nelson colonists were killed. Governor Robert FitzRoy found that the settlers had been in the wrong. When Russell/Kororāreka in the Bay of Islands was occupied by Māori in March 1845, settler anger boiled over. FitzRoy was soon replaced.

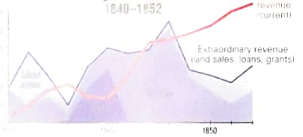
George Grey's governorship (1845–53) saw a transformation in both the theory and practice of the colonial government. Most importantly, Grey secured greater financial assistance from the British government. He used the additional resources to establish the military security of the North Island settlements, by actions in the Bay of Islands and at Port Nicholson and Wanganui, other places which had seen conflict with Māori. Funds were also used to buy land, the Crown resuming the monopoly on land purchase from Māori which it had waived in 1844. The British government had confirmed in 1840 that all land in the colony had originally belonged to Māori. Anxiety about the

The establishment of the Crown's authority over Māori and in the new colony generally was called into question by Hone Heke's attack on the flagpole at Kororāreka in 1844. Māori wanted to associate with Pākehā on their own terms; while some leaders such as Tāmati Waka Nene from Hokianga found the British presence acceptable, Heke, Kawiti and other Ngā Puhi leaders disagreed, perhaps because the shift of the capital to Auckland had drawn commerce away from the Bay of Islands. After Heke and Kawiti attacked the town in strength in March 1845 substantial forces were sent from Auckland and brought in from New South Wales. The war ended in stalemate: British power had been asserted but Heke and Kawiti were not punished, nor were their lands confiscated.

THE NORTHERN WAR, 1844–1846



Colonial government revenue 1840–1852



...olonial government ... advances improved ... from ... received ... British government.

THE CLAIMS OF THE NEW ZEALAND COMPANY

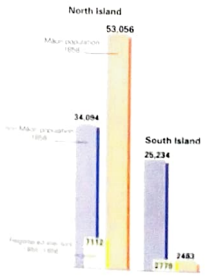
The New Zealand Company was active in the ... of New ... in the 1840s.

Outcome of claims to 1848

Case	Area awarded	Acres*	Additional payments
1 Port Nicholson	Wiroa	71,900	£1500
2 & 3 Lower Ni...	Whakatu and ...		
4 & 5 Upper Ni...	Taitapu (Nelson)	151,000	£800
6 Wanganui	Wanganui Block	40,000	£1000
7 & 8 North & South	Spain – New Plymouth Block	60,000	£200
9 & 10 Taranaki	FitzRoy–New Plymouth Block	3500	£200

*Land awarded to New Zealand Company settlers in the Wellington area and Māori reserves within the acreage were to be excluded

Population and voters



The colony was granted self-government in 1853, but voting rights were given only to those (male) adult inhabitants who owned freehold property valued at more than £50, or (in towns) paid more than £10 rent per annum. Virtually no Māori were eligible under these criteria.

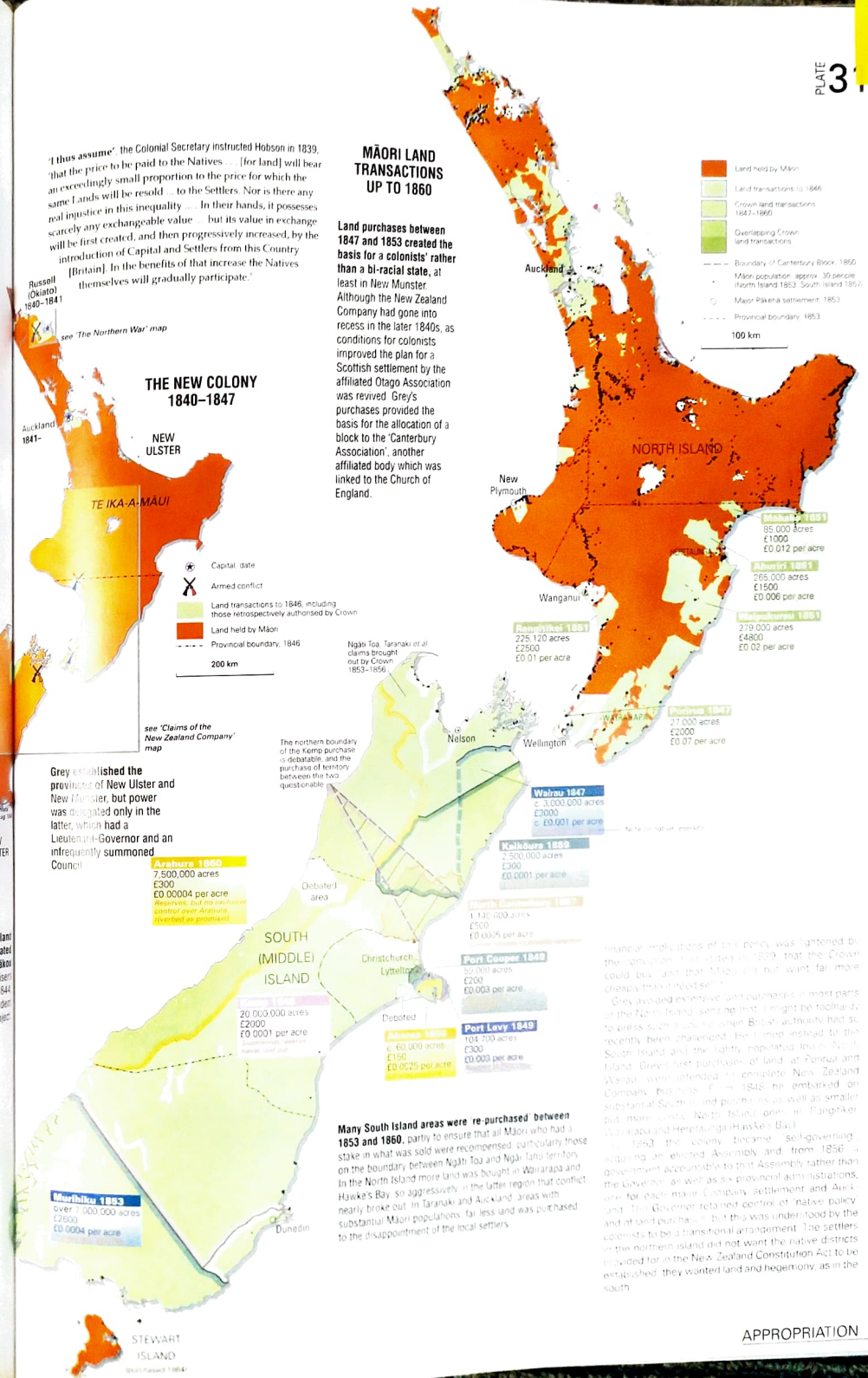
'I thus assume', the Colonial Secretary instructed Hobson in 1839, 'that the price to be paid to the Natives ... [for land] will bear an exceedingly small proportion to the price for which the same Lands will be resold ... to the Settlers. Nor is there any real injustice in this inequality ... In their hands, it possesses scarcely any exchangeable value ... but its value in exchange will be first created, and then progressively increased, by the introduction of Capital and Settlers from this Country [Britain]. In the benefits of that increase the Natives themselves will gradually participate.'

Grey established the provinces of New Ulster and New Munster, but power was delegated only in the latter, which had a Lieutenant-Governor and an infrequently summoned Council.

The New Zealand Company negotiated the purchase of the Ōtākou Block on behalf of Scottish colonisers when pre-emption was waived in 1844, but after learning of the Wairau incident the Scots deferred the project.

MĀORI LAND TRANSACTIONS UP TO 1860

Land purchases between 1847 and 1853 created the basis for a colonists' rather than a bi-racial state, at least in New Munster. Although the New Zealand Company had gone into recess in the later 1840s, as conditions for colonists improved the plan for a Scottish settlement by the affiliated Otago Association was revived. Grey's purchases provided the basis for the allocation of a block to the 'Canterbury Association', another affiliated body which was linked to the Church of England.



Many South Island areas were 're-purchased' between 1853 and 1860, partly to ensure that all Māori who had a stake in what was sold were recompensed, particularly those on the boundary between Ngāti Toa and Ngāi Tahu territory. In the North Island more land was bought in Wairarapa and Hawke's Bay, so aggressively, in the latter region that conflict nearly broke out. In Taranaki and Auckland, areas with substantial Māori populations, far less land was purchased, to the disappointment of the local settlers.

financial implications of this policy was lightened by the 'land fund' of £...,000 (1839) that the Crown could buy land that Māori did not want far more cheaply than it expected.

Grey adopted extensive land purchases in most parts of the North Island (seeing most might be too hard to press such a policy when British authority had so recently been challenged. He turned instead to the South Island and the lightly populated south. In this Island, Grey's first purchases of land at Port Cooper and Port Levy were intended to complete New Zealand Company purchases. From 1848 he embarked on substantial South Island purchases as well as smaller ones in the North Island, one in Hawke's Bay, but more in the Wairarapa and Heretaunga (Hawke's Bay).

In 1853 the colony became self-governing, receiving an elected Assembly and, from 1856, responsible government accountable to that Assembly, rather than the Governor, as well as six provincial administrations, one for each major European settlement and Auckland. The Governor retained control of native policy and of land purchases, but this was understood by the colonists to be a transitional arrangement. The settlers in the northern island did not want the native districts provided for in the New Zealand Constitution Act to be established; they wanted land and hegemony, as in the south.

Native Policy

The colonial government and Māori, 1865–1885

Between 1865 and 1885, large parts of the North Island were transformed from predominantly Māori to predominantly Pākehā regions. Pacification, associated particularly with the skilful Donald McLean, who was Native Minister from 1869 to 1876 (bar one month in 1872), entailed drawing Māori into accepting the authority of the colonial government and their eventual assimilation into colonial society. Different institutions and activities of government – the Native Land Court, Māori representation in Parliament, magistrates, the constabulary, schools, medical officers, rail, road and telegraph building – were all expected to further one or both of these goals. Māori autonomy was rejected both in theory and, save in Te Urewera, Te Rohe Pōtae, and, until 1881, part of Taranaki, in practice.

The Native Land Court, headed by Chief Judge Francis Fenton, a long-time rival of McLean's, was established in 1865 to provide for the establishment of alienable individual titles to Māori land, which could then be traded privately as envisaged in the Native Lands Act 1862. The operations of the Court were designed with Pākehā, not Māori, aspirations in mind: the process was destructive for Māori because collective land ownership was not recognised. From 1865 until 1873 the Court would only register 10 owners on a title deed, a course of action which excluded many with rights in particular pieces of land. From 1873 all those with rights in the land had to be listed, but this did not resolve many other problems. For instance, an intending buyer might encourage one or two owners of a block to get their interests individualised. Other claimants to the block had to attend the Court to present their case, even if they had played no part in the decision to take the land before the Court. They had to pay fees for attending, meet accommodation and other costs of being away from home, and pay again when, after they had secured title, the land had to be surveyed. The Rūātoki block, for example, was determined in 1873. This cost the owners £[illegible] to survey. Of this £[illegible] was paid by the Government, leaving £[illegible] to be paid by the owners. Some of the owners had to borrow money to pay their share of the survey costs, and were charged interest on the loan. Many had to sell land to pay off the debt.

determined to realise such expectations, were also schemes for colonising the North Island. The Crown purchased much land in the Seventy Mile Bush, in parts of the central North Island, in Hauraki and in Northland. Private purchasers were especially active in Northland, Hawke's Bay, Horowhenua and the upper Thames Valley, with railway promotion and construction an important element in the last two cases.

The colonising impulse waned in the face of hard times in the 1880s, but the population balance had already turned, thanks to a combination of high Māori mortality and rapid non-Māori population growth. While the Māori population of the North Island was probably just over 40,000 in 1874 and barely reached that figure in 1886, the Pākehā population soared from 80,000 in 1867 to 250,000 in 1886.

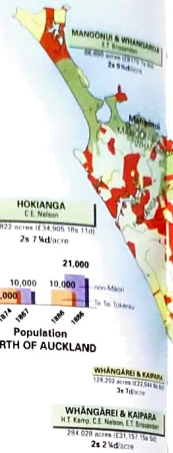
VISIT OF GOVERNOR BOWEN & HON. MR MCLEAN TO NGĀ PUHI, APRIL 1870

Bowen's tour to the North highlighted the government's pleasure that Ngā Puhi had chosen not to fight in the recent war against the Crown. After the trip he wrote that the colonial authorities felt a 'confident assurance that permanent tranquillity would be maintained in the North, and reported on the enthusiasm with which Ngā Puhi had asked for towns to encourage trade and prisons 'for the punishment of the evil doers of both races'.

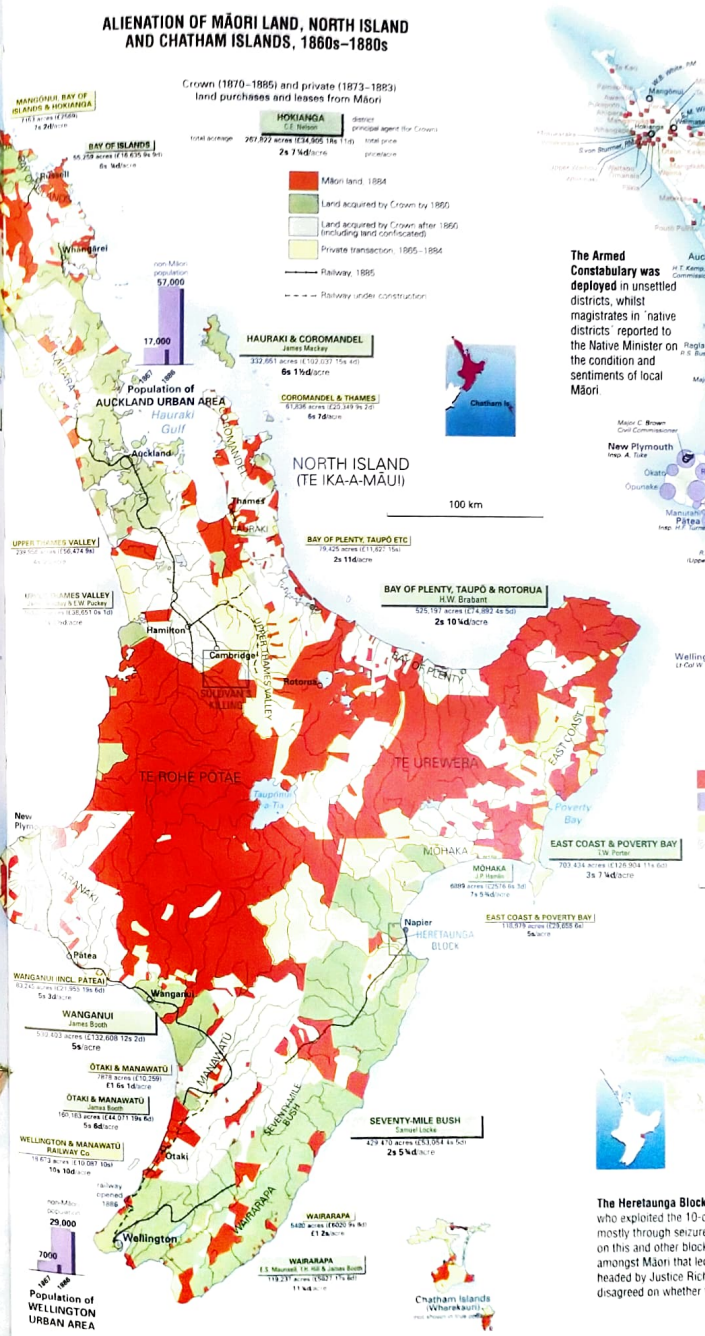
A KILLING ON THE AUKATI, 1873

That colonial power still had – or at least observed – geographical limits in the 1870s was shown by its failure to apprehend the killer of Timothy Sullivan. Mohi Hotuhotu Purukutu and a number of other Ngāti Tūwharetoa had disputed the survey and lease of a block lying just inside Te Rohe Pōtae on which Sullivan, among others, was employed collecting kauri gum on the day he was killed.

THE OPERATIONS OF THE NATIVE LAND COURT



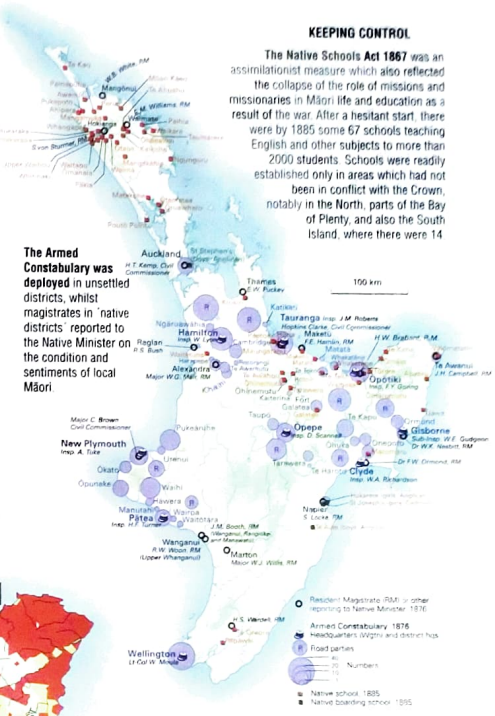
ALIENATION OF MĀORI LAND, NORTH ISLAND AND CHATHAM ISLANDS, 1860s–1880s



KEEPING CONTROL

The Native Schools Act 1867 was an assimilationist measure which also reflected the collapse of the role of missions and missionaries in Māori life and education as a result of the war. After a hesitant start, there were by 1885 some 67 schools teaching English and other subjects to more than 2000 students. Schools were readily established only in areas which had not been in conflict with the Crown, notably in the North, parts of the Bay of Plenty, and also the South Island, where there were 14.

The Armed Constabulary was deployed in unsettled districts, whilst magistrates in 'native districts' reported to the Native Minister on the condition and sentiments of local Māori.



THE HERETAUNGA BLOCK

The Heretaunga Block was bought by landowners acting through Thomas Tanner, who exploited the 10-owner rule by picking off the block's owners one by one, mostly through seizure of land in recovery of debts. The nature of the transactions on this and other blocks in Hawke's Bay fostered a 'repudiation movement' amongst Māori that led to the establishment of an investigative Commission, headed by Justice Richmond, in 1873. Māori and Pākehā Commission members disagreed on whether the deals should be repudiated; they were not.