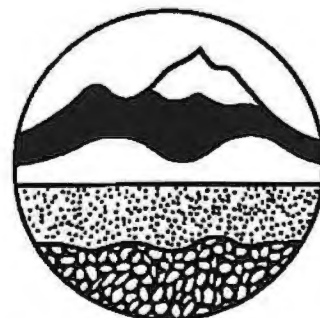


**Inventory of
New Zealand Soil Sites of international,
national and regional importance**

Part Two - North Island and northern offshore islands

(1st edition)

**Joseph Arand
Les Basher
Rob Wardle
Kate Wardle**



New Zealand Society of Soil Science Occasional Publication 2

*Tukua mai he kapanga oneone
ki a au hai tangi.*

Send me a handful of soil
that I may weep over it.

(Brougham and Reed 1987)

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FOREWORD

In 1987 the New Zealand Society of Soil Science began compiling an inventory of sites in New Zealand with special soil significance as part of the New Zealand Geopreservation Inventory (NZGI). The main purpose of the inventory of soil sites is to identify and describe the least-disturbed sites that represent the full range of soils in New Zealand.

This publication is the first listing of significant soil sites in northern New Zealand (North Island and northern offshore islands). The first listing of significant soil sites in southern New Zealand was published in November 1991 (*i.e.* Arand *et al.* 1991). Both inventories mainly comprise sites which have formal protection for scenic, biotic or scientific reasons (*e.g.* scenic reserves, scientific reserves, ecological areas, covenants) or have been proposed for protection, but also include a smaller number of sites that have no formal protection. The latter category will expand in later editions of the inventories as sites are drawn to the attention of the New Zealand Society of Soil Science.

Information for the northern New Zealand inventory has been gathered mainly from published sources, particularly Land Resource Inventory Worksheets, the "General survey of the soils of North Island, New Zealand" (New Zealand Soil Bureau 1954), protected natural area reports and survey reports of the Protected Natural Areas Programme, as well as interviewing experts about sites with which they are personally familiar. Only a few of the sites listed have been adequately characterised from a soils perspective. For the remainder, there has been no verification that the soils described match the soil group or mapping unit that they have been selected to represent. Furthermore, at most sites the range of soils will certainly be greater than indicated.

Readers are invited to correct our information and to send in additions to the inventory. In particular, sites representing soils that do not occur at any of the sites in this inventory are needed for inclusion in the next edition. A record form for describing a soil site is printed at the end of this report. Many of these new records will also be high priority sites for formal protection which will be advocated by the New Zealand Society of Soil Science.

The information contained in the Soil Sites Inventories will be particularly useful for regional councils in the assessment of soil status prior to land development, and for the Department of Conservation as a guide to priority areas for protection. Information in the inventory will also be of research use and educational use - for soil scientists looking for unmodified sites to use as control sites to compare with modified soils, for earth science graduates wanting thesis topics and for schoolteachers looking for field trip sites.

This project has been supported by grants to the New Zealand Geopreservation Inventory and the New Zealand Society of Soil Science from the New Zealand Lottery Board and the Department of Conservation, the provision of facilities by the Department of Scientific and Industrial Research and Landcare Research New Zealand Ltd (Christchurch and Dunedin), and by two generous grants from Dr Raisaku Kiyoura, Research Institute for Environmental Science, Tokyo.

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1. INTRODUCTION

1.1 The New Zealand Geopreservation Inventory

New Zealand has a unique and extremely varied soil, geology and geomorphological heritage, yet protection of it has been rather random, fortuitous and opportunistic. Almost all areas preserved in New Zealand have been for aesthetic and biotic values (Whitehouse *et al.* 1990). While this has resulted in the preservation of a large number of sites of soil significance it has also resulted in considerable bias in what has been preserved. The aim of the New Zealand Geopreservation Inventory (NZGI) is to identify and document all landforms, geological sites and soil sites of international, national and regional scientific and educational significance. The ultimate goal is to ensure the survival, through protection, of the best examples of the broad range of physical features and processes which best characterise each part of New Zealand, including the commonplace as well as the unique and spectacular.

The NZGI is co-ordinated by the Joint Earth Science Societies Working Group on Geopreservation which consists of representatives of the Geological Society of New Zealand, New Zealand Society of Soil Science, New Zealand Geographical Society, Australia and New Zealand Geomorphological Group, New Zealand Speleological Society and the New Zealand Institute of Landscape Architects. The group convenor is Dr Bruce Hayward, Auckland Institute and Museum, Private Bag, Auckland.

Fifteen geopreservation reports have been published: active earth deformation features (Stirling 1988), caves and karst (Worthy 1990), fossil localities (Hayward and Ward 1989), geologically-related historic sites (Black *et al.* 1991), geothermal fields and features (Houghton *et al.* 1989), igneous geological sites and features (Weaver *et al.* 1990), landforms (Priestley *et al.* 1990), metamorphic rock sites (Watters *et al.* 1992), mineral sites (Priestley *et al.* 1991), Quaternary volcanoes - Northland, Auckland, South Auckland and Taranaki (Kermode *et al.* 1992), Quaternary volcanoes - Taupo Volcanic Zone (Houghton *et al.* 1991), sedimentary geology sites (Kenny and Hayward 1992), soils - North Island and northern offshore islands (this report), soils - South Island and southern offshore islands (Arand *et al.* 1991), and structural geology sites (Nowell and Spörli 1992). There is a full bibliographic list of these reports near the end of this report.

Approximately 4500 sites are documented.

A computerised copy of the Geopreservation Inventory is held by the Department of Conservation, Science Information Section, Wellington. The Department will provide data to anyone requesting it (a charge will be made for search and printing expenses).

1.2 Soil sites - a case for preservation

The strong arguments that are often made for the preservation of plants and animals also apply for the protection of unmodified soils - that is, soils under the original, pre-human vegetation on undisturbed landforms. To begin with, there is practical value in protecting unmodified soils for they provide benchmarks against which the effect of natural processes and human management practices on the biology, chemistry, morphology and physics of similar soils outside the reserve can be measured. It can take thousands of years for a soil to form in place, yet this amazingly intricate work of nature can be destroyed by humans, with remarkable dispatch, in just a few decades (Hillel 1992). It is important therefore to have unmodified soil sites for research and education.

Table 1 Soil group representation in the inventory

SOIL GROUP ²	SOIL SETS ¹				
	Total	Number represented	% represented	Number not represented	% not represented
Brown granular clay/loam	49	25	51	24	49
Brown/red loam	11	6	55	5	45
Composite	12	7	58	5	42
Gley soil	26	11	42	15	58
Intergrade	15	7	47	8	53
Organic soil	18	11	61	7	39
Podzol	3	2	67	1	33
Podzolised brown granular clay/loam	1	0	0	1	100
Podzolised yellow-brown earth	2	2	100	0	0
Podzolised yellow-brown loam	5	4	80	1	20
Podzolised yellow-brown pumice soil	5	4	80	1	20
Recent soil	18	11	61	7	39
Rendzina	9	7	78	2	22
Saline soil	4	3	75	1	25
Yellow-brown earth	96	71	74	25	26
Yellow-brown loam	75	55	73	20	27
Yellow-brown pumice soil	22	19	86	3	14
Yellow-brown sand	7	5	71	2	29
Yellow-grey earth	16	8	50	8	50

¹ Soil sets are described in New Zealand Soil Bureau (1954).

² Soil groups follow the New Zealand National Soils Database.

The Zonien Forest in Belgium is an excellent example of the scientific and educational importance of soil reserves. The forest covers a 43 km² area near Brussels. For many centuries it was maintained as a favourite hunting area for the nobility. Agriculture has been practised in the surrounding area for over 2000 years, which has resulted in many changes to the soil: the present "A" horizon is in the previous "Bt" horizon; structure is vastly improved; gley mottles have disappeared; and the fragipan has been broken up by increased biological activity. The relatively unmodified Zonien Forest is now an internationally important natural laboratory where research on the effects of agriculture on soils, on catenary processes, loess sources, genetic processes, micromorphology, soil chemistry, clay mineralogy, soil classification and other studies have been carried out, with the knowledge that the soils have been modified only slightly by humans (McIntosh 1985). There is potential for similar studies at many sites in New Zealand.

Unmodified soil sites are also a genetic resource that ensure the survival of certain soil-specific plants and soil macro- and micro-organisms, many of which are poorly known or understood. Changes in the number and activity of micro-organisms can provide an "early warning" of changes in gross soil properties (Tate, Ross, Speir and Hart 1985).

The final reason for protecting unmodified soils is so that we, and future generations of New Zealanders, will be able to look back with pride and interest at representative remnants of the prehuman landscape of Aotearoa (Molloy 1988)³.

1.3 Summary of unmodified soil sites in New Zealand

In the half-century from 1860-1910, New Zealand underwent possibly the most rapid landscape transformation of any nation; over 6.5 million hectares of lowland indigenous forest were cleared (nearly 25% of the total land area) - as much as destroyed in the previous 1000 years of the Polynesian era (Molloy 1988). Natural shrublands, tussocklands, wetlands and dunelands were also developed for agricultural, horticultural, forestry and settlement purposes.

The soils and landscapes represented in New Zealand's system of protected natural areas are biased towards forested, steep mountains in high rainfall areas, and other less-productive land. Most of the soils of the dunelands, lowlands, foothills and "high country" are not represented in reserves.

In the 1950-60s the New Zealand Soil Bureau established a network of reference soil sites throughout New Zealand (New Zealand Soil Bureau 1968). Today, many of these reference sites no longer exist or have been considerably modified (Tonkin 1986). Many soil types no longer occur under their original (*i.e.* pre-human) vegetation, or occur only as small remnants under vegetation that has been quite modified. A lesson to be learned from the reference soil sites project is that small un gazetted sites are unlikely to survive destruction or significant modification (*ibid.*). Large reserves are generally more viable and more diverse, and therefore more valuable as soil reference sites.

³ The subject of soil and soil-vegetation reserves has also been aired in Atkinson (1961 and 1985), Meurk *et al.* (1985), McSweeney (1986), McIntosh (1987) and Webb and Espie (1988), in the *International Society of Soil Science Bulletin* 69(1), at the 13th International Congress of Soil Science in Hamburg, and in the *Annual Report of the International Soil Reference and Information Centre (ISRIC)* in Wageningen, The Netherlands.

Table 2 Soil sets not represented in the inventory

Brown granular clay/loam	Brown/red loam	Composite soil	Gley soil	Intergrade soil	Organic soil	Podzolised brown granular clay	Podzol/ podzolised yellow-brown earth	Podzolised yellow-brown loam
Ararimu (s) Awarua (s) Bombay (s) Haunga (s) Hunua (s) Kauaeranga (s) Kauri (s) Kohumaru (m) Matakawau (s) Morrinsville (m) Ohautira (s) Onewhero (m) Opita (m) Opuatia (s) Orere (m) Parau (m) Pollock (s) Pukekapai (m) Puriri (s) Raglan (s) Tairua (s) Te Hoe (s) Te Kauwhata (s) Weymouth (m)	Maungakohatu (s) Onepoto (s) Taraire (s) Waimate North (s) Whakapai (s)	Mahia (m) Paengaroa (l) Rissington (m) Tutira (m) Whakarewarewa (s)	Akeake (s) Arlington (s) Awakeri (s) Clevedon (s) Hauraki (l) Kaipo (s) Mardon (l) Matuku (s) Netherton (s) Otangiwai (s) Shaftesbury (s) Topehahae (m) Waipapa (s) Wairua (s) Waitoa (m)	Bald Hill (s) Bideford (s) Hururua (s) Kapu (s) Kourarau (l) Raumai (m) Tahuna (m) Whareama (m)	Ardmore (s) Awaroa (s) Maketu (s) Ngatea (m) Otakairangi (s) Poukawa (m) Utuhina (vs)	Tinopai (s)	Parahaki (s)	Mangorewa (s)

(i) the letters in brackets represent the areas of the soil sets: (vs) = < 260 ha, (s) = 260-4160 ha, (m) = 4160-16640 ha and (l) = > 16640 ha (New Zealand Soil Bureau 1954).

(ii) the following soil sets are represented by correlated mapping units (correlations follow the New Zealand Soils Database): Ohaeawai (brown/red loam); Kaitai, Rahotu and Raumati (gley soils); and Piako and Rukuhia (organic soils).

Table 2 Soil sets not represented in the inventory cont.

Podzolised yellow-brown pumice soil	Recent soil	Rendzina	Saline soil	Yellow-brown earth	Yellow-brown loam	Yellow-brown pumice soil	Yellow-brown sand	Yellow-grey earth
Tinopai (s)	Kopuriki (s) Mercer (m) Opiki (s) Puniu (m) Rangitoto (s) Reporoa (vs) Topehaehae (m)	Arapohue (m) Miranda (s)	Meeanee-Farndon (m)	Arowhana (s) Churchill (m) Hangawera (m) Hikutaia (s) Maharahara (s) Mangatawhiri (m) Manurewa (m) Marokopa (m) Maungahaumia (m) Maungarei (s) Ngaio (m) Ngaumu (m) Omanaia (m) Ongahi (s) Opaheke (m) Owhena (s) Pokapu(m) Purimu (m) Putataka (s) Ruatoria (m) Te Wharau (s) Vernon (s) Whangai (s) Whareora (s) Whatawhata (m)	Amokawa (s) Dannevirke (m) Gwavas (m) Heretaunga (m) Koheroa (s) Levin (m) Maihiihi (m) Mairoa (m) Maungatapu (m) Ohara (s) Otao (s) Papatoetoe (m) Pukekawa (m) Rototahi (s) Smedley (s) Te Auku (s) Torehape (m) Waihi (m) Waikokowai (m) Waimana (s)	Mohaka (m) Ohinepanea (m) Tarukenga (s)	Houhora (m) Marsden (s)	Halcombe (l) Milson (m) Ohakea (l) Okawa (m) Otane (s) Poporangi (m) Waipawa (s) Waipukurau (m)

(i) the letters in brackets represent the areas of the soil sets: (vs) = < 260 ha, (s) = 260-4160 ha, (m) = 4160-16640 ha and (l) = > 16640 ha (New Zealand Soil Bureau 1954).

(ii) the following soil sets are represented by correlated mapping units (correlations follow the New Zealand Soils Database): Waipunga (recent soil); Ashcott, Mangawheau, Mata, Orlig and Taita (yellow-brown earths); and Kereone and Warea (yellow-brown loams).

There is only one protected natural area in New Zealand that has been set aside specifically for the purpose of scientific study of soils - the Waioira Yellow-Grey Earth Reserve, 6 km north of Mosgiel, at Invermay Research Centre. There is an urgent need for the protection of many more sites in order to represent the full range of soils in New Zealand - especially soils of agricultural importance.

1.4 Summary of unmodified soil sites in the North Island and northern offshore islands

The representation of soils at relatively unmodified sites in the North Island and northern offshore islands can be estimated by calculating the representation of the soil sets (New Zealand Soil Bureau 1954) in this inventory. The results are summarised on Table 1. Soil groups that are well represented include yellow-brown earths, yellow-brown loams, and yellow-brown pumice soils. These are widespread and areally extensive, and well represented in protected natural areas. Podzolised yellow-brown soils and podzols are also well represented, but this is not surprising because these groups contain few soil sets, are not very extensive, and often occur in forested, mountainland areas that are protected.

Priority soil groups for protection that contain a diverse number of soil sets include yellow-grey earths, gley soils, and intergrade soils. Soil sets that are not represented on this inventory are listed on Table 2. The 136 soil sets are 35% of the total number of soil sets.

No protected natural areas have been established specifically for the purposes of scientific study of soils in the North Island or the northern offshore islands. One reserve however was established partly as the result of action by soil scientists - Himatangi Scientific Reserve, in the Manawatu sand country (Molloy and Atkinson 1986). Note also that the covenant on the Pollock Open Space Covenant site gives express permission for the soil on it to be examined!

Of the 351 sites in the North Island and northern offshore islands described in this inventory, 31 (8.8% of the total) are internationally important. Most of these are already protected. White Island and the Okoropunga site are private land. Nationally important sites comprise 110 records (31%). Most of these are protected natural areas. Several are recommended areas for protection (described in Protected Natural Areas Programme survey reports). The remaining 210 sites (60%) are regionally important benchmarks for soil studies and conservation.

2 EXPLANATION OF INFORMATION FIELDS USED IN THIS INVENTORY

Name

Many significant soil sites are well-known areas and have names in common use, *e.g.* Tongariro National Park. Most of the sites covered by a QEII National Trust open space covenant are given the surname of the landowner. Other sites have usually been named after the local area.

Regional council

Local authorities are described to the regional council level.

Ecological district

The ecological district codes and names used in this field follow McEwen (1987), except where altered boundaries have been described in protected natural areas programme survey reports. Ecological districts are a useful framework for ensuring that soil reserves represent the full range of New Zealand ecosystems.

Locality

This field gives a brief description of the location of the site and/or a description of the direct distance and direction from the nearest settlement or other landmark.

Topography

The landform or range of landforms of the site are briefly described in this field.

Vegetation

Vegetation names are listed in descending order of cover. Unless otherwise noted the names describe native communities.

Soil group and mapping unit names

The soil mapping unit names were mostly determined from Land Resource Inventory Worksheets (where mapping unit names were derived from published and unpublished soil maps). The soil group name for each mapping unit follows the names in the New Zealand National Soils Database, held by Landcare Research, based on the New Zealand Genetic Classification (Taylor and Pohlen 1968). Composite soil groups and intergrade soil groups were combined to single "Composite" and "Intergrade" groups so that the total number of groups was kept to a minimum. It is emphasised that at most sites the range of soils preserved will be greater than indicated. Soil groups and mapping units are listed in descending order of extent within the site.

In time the inventory will be amended to include the revised New Zealand Soil Classification (Hewitt 1992).

Importance

Importance of the site is ranked in three categories:

1 = International

- * contains the best example of a soil (generally a soil group) or soil-vegetation or soil-landform association that is unique to New Zealand (or these latitudes)

- * contains a soil that is naturally uncommon or greatly reduced in extent in other parts of the world

- * contains a wide range of extensive soils with a relatively unmodified vegetation cover

- * has been studied in detail and is known internationally

2 = National

- * contains the best or a "classic" example of a soil (either a soil group or a mapping unit) or a soil-vegetation or soil-landform association in New Zealand

- * contains a soil or soil-vegetation or soil-landform association that is nationally uncommon or reduced in extent

- * contains a moderate range of extensive soils with a relatively unmodified vegetation cover

- * has been studied in detail and is known nationally.

3 = Regional

- * contains the best regional examples of a soil (generally a mapping unit) or a soil-vegetation or soil-landform association

- * contains a limited range of soils under vegetation that is relatively unmodified.

Significance

This is an explanation of the features of the site that make it worthy of inclusion in the inventory.

Where possible, each mapping unit is represented by three sites to try to cover the variability of the mapping unit.

Vulnerability

1 = site has no formal protection of soil, vegetation or other scientific or scenic values; soil and/or vegetation threatened by modification

2 = formal protection of the site has been proposed or is being negotiated; soil and/or vegetation threatened by modification; most parts formally protected

3 = site is formally protected; no foreseeable threat to soil and/or vegetation

In general, sites with legal protection (e.g. national park, scenic reserve, covenanted) and Department of Conservation stewardship land are rated "3"; areas that have been formally recommended for protection are rated "2"; and most other sites are rated "1".

Modifications/Threats

This field briefly describes human processes and features that have modified the site, as well as threats such as buildings, mining, logging, roads/tracks, weeds and pests.

Tenure

The legal status of the site is described in this field. Sometimes the site is covered by more than one type of tenure. The term "recommended area for protection" (from Protected Natural Area Programme survey reports) is also used in this field.

Owner/Manager

The owner and/or the land manager of the site is catalogued in this field.

Contacts

For each site, one person who has personal knowledge about the soils of the site or of soils in the region is listed in this field.

Date of information

This is the date when the site was catalogued.

Notes

This field contains comments about the soils at the site, or brief details about the site's other special features. Mapping units that have been categorised under a combined soil group name are given their correct name in this field.

References

References are given to works which include site information that is more extensive than the information contained in the inventory. A list of references is included at the end of this report.

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4. INVENTORY OF SIGNIFICANT SOIL SITES

The inventory of sites in New Zealand with special soil significance is sorted on the basis of ascending ecological district number (*i.e.* from the Kermadec Islands to Wellington) and alphabetical order of site names in each ecological district.

Data on all soil sites catalogued is recorded on a VISOR database held on the Canterbury Agricultural and Science Centre, Lincoln, VAX computer system.

(1) North Cape Scientific Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 03-01 Te Pahi
LOCALITY and GRID REFERENCE: northern point of New Zealand, between Kerr Point and North Cape N02 133 548
AREA(ha): 683 **ALTITUDE(m):** 0-243 **RAINFALL(mm):** 800-1000
TOPOGRAPHY: promontory: cliffs; dissected plateau **PARENT MATERIAL:** serpentine, gabbro, basalt and diorite, and derived colluvium **VEGETATION:** cliff vegetation; pohutukawa-broadleaved forest; serpentine scrub; sedgeland
SOILS: brown granular clay (Rangioru Mangonui Huia Bream)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) a large area containing a moderate range of Northland brown granular clays under native vegetation. (ii) good examples of Rangioru soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** extensive Maori fortifications; has been burned; serpentine quarrying; pig present
TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(2) Lake Ohia Wetlands

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 04-01 Aupouri
LOCALITY and GRID REFERENCE: Rangaunu Harbour, Tokerau Beach O04 454926
AREA(ha): 1000 **ALTITUDE(m):** 64 **RAINFALL(mm):** 1200-1400
TOPOGRAPHY: beach and dunes; lake **PARENT MATERIAL:** beach deposits; peat; alluvium **VEGETATION:** gumland scrub; manuka scrub; sedgeland; sedge rushfield
SOILS: organic soil (Ruakaka Otonga), gley soil (Waipu Te-Kopuru), yellow-brown sand (Ohia), brown granular clay (Bream Te-Kie), yellow-brown earth (Tangitiki)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a wide range of soils and soil-vegetation associations. (ii) only example of Waipu and Ohia soils in this inventory. (iii) good examples of Otonga soils are uncommon. (iv) most Waipu soils have been developed for dairying.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** history of gumdigging and farming
TENURE: conservation land **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** September 1991
NOTES: Part of proposed Northland Kauri National Park.
REFERENCES: Department of Conservation (1990)

(3) Lake Taero Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 04-01 Aupouri
LOCALITY and GRID REFERENCE: 7km NNW of Ngatahi M03 777292
AREA(ha): 18 **ALTITUDE(m):** 25 **RAINFALL(mm):** 1300
TOPOGRAPHY: low-lying area surrounding lake **PARENT MATERIAL:** alluvium and peat **VEGETATION:** wetland vegetation and manuka
SOILS: gley soil (Waipu), organic soil (Ruakaka)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland organic and gley soils under native vegetation are nationally uncommon. (ii) good examples of Waipu and Ruakaka soils are uncommon. (iii) most Waipu soils have been developed for dairying.
VULNERABILITY: 3
TENURE: government purpose reserve (wildlife management) **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(4) Herekino Forest

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-01 Maungataniwha
LOCALITY and GRID REFERENCE: 10km S of Kaitia N05 227649
AREA(ha): 4415 **RAINFALL(mm):** 1300-1500 **PARENT MATERIAL:** limestone, mudstone and sandstone, and derived colluvium
SOILS: brown granular clay (Te-Kie Awapuku Mangonui), rendzina (Dairy-Flat)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) rendzinas under native vegetation are nationally uncommon. (ii) contains a moderate range of brown granular clays under native vegetation. (iii) only example of Dairy Flat soils in this inventory.
VULNERABILITY: 3
TENURE: conservation land **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991
NOTES: Part of proposed Northland Kauri National Park.
REFERENCES: Department of Conservation (1990)

(5) Omahuta Forest

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–01 Maungataniwha

LOCALITY and GRID REFERENCE: 25km NNW of Kaikohe O05 675646

AREA(ha): 7101 **RAINFALL(mm):** 1800-2000

TOPOGRAPHY: low dissected tableland; waterfalls **PARENT MATERIAL:** greywacke, argillite and limestone, and derived colluvium **VEGETATION:** kauri forest; podocarp–broadleaved forest; kauri–podocarp–broadleaved forest; manuka shrubland; shrubland

SOILS: yellow–brown earth (Marua Rangiora Te–Ranga Waiotira Taumata Aponga), recent soil (Mangakahia), rendzina (Motatau), podzolised yellow–brown earth (Hukerenui), podzol (Wharekohe)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) a large area containing a wide range of little–disturbed soil–vegetation associations on a wide range of parent materials. (ii) unmodified rendzina soil–vegetation associations are nationally uncommon. (iii) only record for Wharekohe soils in this inventory. Omahuta Forest contains the reference site for the Wharekohe silt. (iv) good examples of Motatau, Taumata and Hukerenui soils are uncommon. (v) most Motatau soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged

TENURE: conservation land **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: John Bruce **DATE OF INFORMATION:** September 1991

NOTES: Part of proposed Northland Kauri National Park.

REFERENCES: Department of Conservation (1990) New Zealand Soil Bureau (1968)

(6) Paranui Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–01 Maungataniwha

LOCALITY and GRID REFERENCE: 18km NE of Kaitaia O04 528801

AREA(ha): 362 **ALTITUDE(m):** 90-215 **RAINFALL(mm):** 1600

TOPOGRAPHY: rolling to moderately steep hillslopes **PARENT MATERIAL:** sandstone and derived colluvium **VEGETATION:** kauri forest; kanuka treeland

SOILS: yellow–brown earth (Waiotira Taumata Riponui)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) a good example of a moderate range of Northland yellow–brown earths under native vegetation. (ii) many Riponui soils have been developed for dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(7) Puketi Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–01 Maungataniwha

LOCALITY and GRID REFERENCE: 27km N of Kaikohe P05 011583

AREA(ha): 169 **ALTITUDE(m):** 155-275 **RAINFALL(mm):** 1800-2000

TOPOGRAPHY: steep hillslopes; irregular and broken spurs; ridges with bluffs **PARENT MATERIAL:** basalt and sandstone, and derived colluvium **VEGETATION:** podocarp/broadleaved forest; kauri forest

SOILS: brown loam (Waiotu Okaihau Ruatangata), yellow–brown earth (Taumata Te–Ranga Rangiora Marua), brown granular clay (Hihi)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of little–disturbed soil–native vegetation associations. (ii) an excellent example of a leaching sequence of brown loams. (iii) only example of Ruatangata soils in this inventory. (iv) good examples of Hihi, Waiotu, Taumata and Okaihau soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** large trees have been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981a)

(8) Warawara Forest

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–01 Maungataniwha

LOCALITY and GRID REFERENCE: 30km S of Kaitaia O05 386462

AREA(ha): 6937 **ALTITUDE(m):** 60-709 **RAINFALL(mm):** 1600

TOPOGRAPHY: plateau; moderately steep to very steep hillslopes **PARENT MATERIAL:** mostly basalt and diorite, with minor breccia, sandstone, mudstone and limestone, and derived colluvium and alluvium **VEGETATION:** kauri–podocarp–broadleaved forest; kauri forest; podocarp–broadleaved forest

SOILS: brown granular clay (Te–Kie Tutamoe Awapuku)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) a very large area containing a moderate range of brown granular clays under native vegetation.

VULNERABILITY: 3

TENURE: conservation land **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991

NOTES: Part of proposed Northland Kauri National Park. Contains the largest stand of high altitude kauri forest in New Zealand.

REFERENCES: Department of Conservation (1990)

(9) West View Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-01 Maungataniwha

LOCALITY and GRID REFERENCE: 2km NE of Kaitaia O04 370768

AREA(ha): 2.2 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1400-1600

TOPOGRAPHY: steep hillslopes; gully **PARENT MATERIAL:** sandstone **VEGETATION:** totara-kahikatea/puriri-nikau forest

SOILS: yellow-brown earth (Riponui), podzolised yellow-brown earth (Hukerenui)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) small reserve with uncommon soils. (ii) good examples of Hukerenui soils are uncommon. (iii) many Riponui soils have been developed for dairy farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Far North District Council

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

NOTES: Called "Westview Scenic Reserve" in McCaskill (1981i).

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(10) Arai-te-Uru and Signal Station Road Recreat

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-02 Hokianga

LOCALITY and GRID REFERENCE: southern ridge head of Hokianga Harbour

AREA(ha): 14 **RAINFALL(mm):** 1300-1500

TOPOGRAPHY: bluffs; exposed reefs **PARENT MATERIAL:** sandstones and mudstones with interbedded andesitic tuff and conglomerate **VEGETATION:** scrub; coastal broadleaved forest

SOILS: brown granular clay (Hunoke Waimatenui), yellow-brown earth (Tangitiki)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Hunoke soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned

TENURE: recreation reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** September 1991

NOTES: Part of proposed Northland Kauri National Park.

REFERENCES: Department of Conservation (1990)

(11) Mangataipa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-02 Hokianga

LOCALITY and GRID REFERENCE: 5km S of Mangamuka O05 593623

AREA(ha): 79 **ALTITUDE(m):** 0-60 **RAINFALL(mm):** 1600-1800

TOPOGRAPHY: river valley; moderately steep hillslopes; rock outcrops **PARENT MATERIAL:** limestone and sandstone, and derived alluvium **VEGETATION:** towai forest; kauri forest; podocarp-broadleaved forest; manuka treeland

SOILS: rendzina (Motatau Konoti)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) outstanding example of soils occurring under a rare forest type (towai/puriri/kohehohe with no puhutukawa). (ii)rendzinas under native forest are uncommon in New Zealand. (iii) good examples of Konoti and Motatau soils are uncommon. (iv) most Konoti and Motatau soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(12) Motukaraka Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-02 Hokianga

LOCALITY and GRID REFERENCE: 6km from Kohukohu

AREA(ha): 121 **ALTITUDE(m):** 60 **RAINFALL(mm):** 1400

TOPOGRAPHY: moderately steep hillslopes **VEGETATION:** kauri-broadleaved forest; podocarp forest

SOILS: yellow-brown earth (Waiotira White-Cone)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of White Cone soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(13) Pukewharariki Forest

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-02 Hokianga

LOCALITY and GRID REFERENCE: 10km WNW of Kaikohe O05 593623

AREA(ha): 550 **ALTITUDE(m):** 200-359 **RAINFALL(mm):** 1700

TOPOGRAPHY: steep hillslopes and scarp face; broad ridges **PARENT MATERIAL:** sandstone and mudstone, and derived colluvium **VEGETATION:** broadleaved-podocarp-kauri forest; manuka shrubland

SOILS: yellow-brown earth (Whirinaki Waioitira), podzolised yellow-brown earth (Waikare)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waikare and Whirinaki soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned

TENURE: conservation land **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991

NOTES: Part of proposed Northland Kauri National Park.

REFERENCES: Department of Conservation (1990)

(14) Tahu Moana Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-02 Tutamoe

LOCALITY and GRID REFERENCE: 43km NW of Dargaville O06 571105

AREA(ha): 125 **ALTITUDE(m):** 0-60 **RAINFALL(mm):** 1600

TOPOGRAPHY: beach; bluffs; erosion-prone gullies **PARENT MATERIAL:** beach sands; sandstone **VEGETATION:** marram grass-sandfield; lupin scrub; manuka scrub; broadleaved flax-shrubland

SOILS: yellow-brown earth (Tangitiki), podzol (Te-Kopuru)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good example of a sequence of podzolised soils on beach sand. (ii) good examples of Te-Kopuru soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** many exotic weeds

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** September 1991

NOTES: Called "Taha Moana Scenic Reserve" in Department of Lands and Survey (1984).

REFERENCES: Department of Conservation (1990) Department of Lands and Survey (1984)

(15) Hikurangi Scenic Reserve (i)

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe

LOCALITY and GRID REFERENCE: 13km SE of Kaikohe P06 939282

AREA(ha): 1065 **ALTITUDE(m):** 100-632 **RAINFALL(mm):** 1800-2000

TOPOGRAPHY: steep hillslopes and ridges; gullies **PARENT MATERIAL:** basalt, dolerite and tuff, and minor sandstone, mudstone, limestone and micaceous sandstone, and derived colluvium **VEGETATION:** broadleaved-podocarp forest

SOILS: yellow-brown earth (Tautoro), brown granular clay (Tokawhero)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Tautoro and Tokawhero soils in this inventory. (ii) Tokawhero soils have mostly been developed for extensive sheep farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991

NOTES: Part of proposed Northland Kauri National Park.

REFERENCES: Department of Conservation (1990)

(16) Katui Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe

LOCALITY and GRID REFERENCE: 42km N of Dargaville O07 614099

AREA(ha): 298 **ALTITUDE(m):** 60-180 **RAINFALL(mm):** 1500

TOPOGRAPHY: high level plateau; deeply incised valleys **PARENT MATERIAL:** basalt and derived colluvium **VEGETATION:** kanuka/manuka treeland with kauri; podocarp/broadleaved forest; fernland; shrubland

SOILS: brown granular clay (Katui)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Katui soils are uncommon. (ii) most Katui soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(17) Mamaranui Farm Settlement Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe
LOCALITY and GRID REFERENCE: 25km N of Dargaville P07 834955
AREA(ha): 44 **ALTITUDE(m):** 90-275 **RAINFALL(mm):** 1400
TOPOGRAPHY: rolling to steep hillslopes **PARENT MATERIAL:** calcareous shales and argillaceous limestone, and derived colluvium **VEGETATION:** broadleaved forest; podocarp-(kauri)/broadleaved forest
SOILS: brown granular clay (Takitu Waimatenui)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Takitu soils in this inventory. (ii) most Takitu soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** large kauri have been logged
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981a)

(18) Mataraua Forest

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe
LOCALITY and GRID REFERENCE: 23km SW of Kaikohe P06 728260
AREA(ha): 5411 **ALTITUDE(m):** 380-696 **RAINFALL(mm):** 2000-2500
TOPOGRAPHY: broad tableland; steep-sided valleys **PARENT MATERIAL:** basalt, tuff, scoria, breccia, mudstone and sandstone, and derived colluvium and alluvium **VEGETATION:** broadleaved/podocarp forest; shrubland
SOILS: brown granular clay (Tutamoe Te-Kie Waimatenui Waipoua)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) a good example of a very large area containing a moderate range of brown granular clays under native vegetation. (ii) good examples of Waipoua soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** abandoned farm settlement
TENURE: conservation land **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991
NOTES: Part of proposed Northland Kauri National Park.
REFERENCES: Department of Conservation (1990)

(19) Opouteke Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe
LOCALITY and GRID REFERENCE: 9km W of Pokotai P06 843119
AREA(ha): 5 **ALTITUDE(m):** 90 **RAINFALL(mm):** 1700
TOPOGRAPHY: peninsula with gently sloping hillslopes **PARENT MATERIAL:** alluvium **VEGETATION:** podocarp/broadleaved forest
SOILS: brown granular clay (Kaimaro)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Kaimaro soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been lightly logged
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981a)

(20) Trounson Kauri Park Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe
LOCALITY and GRID REFERENCE: 37km N of Dargaville O07 686080
AREA(ha): 586 **ALTITUDE(m):** 150-275 **RAINFALL(mm):** 1000-2500
TOPOGRAPHY: undulating to moderately steep hillslopes **PARENT MATERIAL:** basalt, limestone, sandstone and siltstone, and derived colluvium **VEGETATION:** virgin kauri forest; podocarp forest; podocarp/broadleaved forest; karaka/nikau treeland; scrub; introduced grassland; exotic pine forest
SOILS: brown granular clay (Whatoro Waimatenui)
IMPORTANCE: 1 **SIGNIFICANCE:** (i) outstanding example of undisturbed soil-kauri forest associations. Trees are very large, presumed very old. (ii) only example of Whatoro soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** surrounded by pine shelter belts, regenerating scrubland and farmland
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984) Department of Conservation (1990)

(21) Waima Forest

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe
LOCALITY and GRID REFERENCE: 30km SW of Kaikohe O06 593328
AREA(ha): 4218 **ALTITUDE(m):** 160-776 **RAINFALL(mm):** 1800-2200
TOPOGRAPHY: steep to very steep hillslopes **PARENT MATERIAL:** basalt and andesite breccia, and derived colluvium **VEGETATION:** broadleaved/podocarp forest; kauri forest
SOILS: brown granular clay (Te-Kie Tutamoe Waimatenui Bream)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) a large area containing a wide range of brown granular clays under native vegetation.
VULNERABILITY: 3
TENURE: conservation land **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991
NOTES: Part of proposed Northland Kauri National Park.
REFERENCES: Department of Conservation (1990)

(22) Waipoua Forest Sanctuary

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-03 Tutamoe
LOCALITY and GRID REFERENCE: 35km SW of Kaikohe O06 635199
AREA(ha): 12803 **ALTITUDE(m):** 180-610 **RAINFALL(mm):** 1000-2500
TOPOGRAPHY: plateau: gentle to steep hillslopes and broad ridges; gullies and valleys; waterfalls **PARENT MATERIAL:** basalt with interbedded tuff, scoria and breccia, and derived colluvium and alluvium **VEGETATION:** kauri forest; broadleaved-podocarp forest; manuka shrubland; beech forest; wetland vegetation
SOILS: brown granular clay (Waimatenui Waipoua Te-Kie Hihi Katui Tutamoe Parataiko) Waimamaku
IMPORTANCE: 1 **SIGNIFICANCE:** (i) an extensive area containing a very wide range of brown granular clays under a moderate range of native vegetation. (ii) only example of Parataiko and Waimamaku soils in this inventory. (iii) good examples of Hihi, Waipoua and Katui soils are uncommon. (iv) most Katui soils have been developed for sheep and dairy farming. (v) most Waimamaku soils have been developed for sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** very small parts have been burned and logged
TENURE: forest sanctuary **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991
REFERENCES: Department of Conservation (1990) Department of Lands and Survey (1984) Gibson and Healy (1982) Yeates et al. (1981)

(23) Manganui River Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-04 Tangihua
LOCALITY and GRID REFERENCE: 22km E of Dargaville P07 800845
AREA(ha): 102 **ALTITUDE(m):** 20-30 **RAINFALL(mm):** 1400
TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** sandstone and derived colluvium and alluvium
VEGETATION: podocarp/broadleaved forest; wetland vegetation
SOILS: yellow-brown loam (Whakapara), yellow-brown earth (Waiotira)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whakapara soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed by cattle
TENURE: government purpose reserve (wildlife management) **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** October 1992
NOTES: Called "Clear Ridge Government Purpose Reserve" in Department of Lands and Survey (1984).
REFERENCES: Department of Lands and Survey (1984)

(24) Maungatapere Hill Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-04 Tangihua
LOCALITY and GRID REFERENCE: 14km S of Whangarei Q07 192033
AREA(ha): 21 **ALTITUDE(m):** 180-365 **RAINFALL(mm):** 1800
TOPOGRAPHY: volcanic cones; steep rocky slopes **PARENT MATERIAL:** basalt and derived colluvium
VEGETATION: podocarp-broadleaved forest; shrubland; fernland
SOILS: red loam (Papakaui)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Papakaui soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
NOTES: Papakaui soils are red loams.
REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(25) Parahi Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–04 Tangihua

LOCALITY and GRID REFERENCE: 25km SE of Dargaville Q08 112738

AREA(ha): 39 **ALTITUDE(m):** 90 **RAINFALL(mm):** 1800

TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** sandstone **VEGETATION:** podocarp–kauri–broadleaved forest

SOILS: yellow–brown earth (Omu Aponga)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Omu soils are uncommon. (ii) most Omu soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by cattle

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

NOTES: Much damage to forest understory from cattle grazing.

REFERENCES: Department of Lands and Survey (1990) Department of Lands and Survey (1984)

(26) Pukekohe Hill Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–04 Tangihua

LOCALITY and GRID REFERENCE: 11km N of Paparoa Q08 203737

AREA(ha): 103 **ALTITUDE(m):** 155 **RAINFALL(mm):** 1800

TOPOGRAPHY: steep hillslopes and ridges; gullies **PARENT MATERIAL:** argillaceous limestone and derived colluvium **VEGETATION:** kahikatea forest; kauri forest; kauri–podocarp–broadleaved forest

SOILS: yellow–brown earth (Aponga White–Cone)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains little–disturbed soil–forest associations. (ii) good examples of White–Cone soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(27) Taraire Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–04 Tangihua

LOCALITY and GRID REFERENCE: above Awakino River, 27km N of Dargaville P07 880986

AREA(ha): 3.4 **ALTITUDE(m):** 60 **RAINFALL(mm):** 1500–1700

TOPOGRAPHY: flat terrace **PARENT MATERIAL:** alluvium **VEGETATION:** nikau–podocarp–broadleaved treeland

SOILS: recent soil (Mangakahia), yellow–brown earth (Waipuna)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland recent soils under original forest are now nationally uncommon. (ii) only example of Waipuna soils in this inventory. (iii) most Waipuna soils have been developed for dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been heavily grazed; subject to flooding

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(28) Waimata Settlement Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–04 Tangihua

LOCALITY and GRID REFERENCE: 18km NE of Dargaville P07 893008

AREA(ha): 154 **ALTITUDE(m):** 90 **RAINFALL(mm):** 1300–1500

TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** concretionary sandstone **VEGETATION:** totara/broadleaved forest; broadleaved–fernland

SOILS: yellow–brown earth (Waiotira Omu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Omu soils are uncommon. (ii) most Omu soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged; parts have been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(29) Whatitiri Mountain Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05–04 Tangihua

LOCALITY and GRID REFERENCE: Whatitiri Mountain, 19km SW of Whangarei Q07 146033

AREA(ha): 9.6 **ALTITUDE(m):** 320-350 **RAINFALL(mm):** 1600

TOPOGRAPHY: domelike, moderately steep lava cone **PARENT MATERIAL:** basalt **VEGETATION:** (podocarp)/broadleaved forest

SOILS: red loam (Whatatiri), brown loam

IMPORTANCE: 2 **SIGNIFICANCE:** (i) the only reserve in New Zealand with both red and brown loams. (ii) only example of Whatatiri soils in this inventory. (iii) most Whatatiri soils have been developed for sheep and dairy farming, and market gardening.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** August 1991

NOTES: The reference to brown loams comes from Department of Lands and Survey (1984) but brown loams are not shown on the NZLRI map for this site.

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(30) Wilson Open Space Covenant

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 05-04 Tangihua

LOCALITY and GRID REFERENCE: Maungatapere Hill, 13km SW of Whangarei Q07 186020

AREA(ha): 8.6 **ALTITUDE(m):** 200-380 **RAINFALL(mm):** 1700

TOPOGRAPHY: volcanic cone – steep hillslopes **PARENT MATERIAL:** basalt and derived colluvium **VEGETATION:** podocarp-(kauri)/broadleaved forest

SOILS: red loam (Papakauri)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) red loams are uncommon in New Zealand. (ii) good examples of Papakauri soils are uncommon.

VULNERABILITY: 3

TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** Bruce Wilson, QEII National Trust

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** October 1992

REFERENCES: Department of Lands and Survey (1984)

(31) AH Reed Memorial Kauri Park

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: Parahaki Mountain, north-west outskirts of Whangarei Q06 320109

AREA(ha): 8 **ALTITUDE(m):** 107 **RAINFALL(mm):** 1500

TOPOGRAPHY: rolling to moderately steep hillslopes **PARENT MATERIAL:** banded sandstones; basalt **VEGETATION:** kauri/broadleaved forest

SOILS: yellow-brown earth (Whangaripo), yellow-brown loam (Whakapapa), brown loam (Tikipunga)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) a good example of the sharp boundary between very podzolised yellow-brown earths and strongly structured red loams developed on geologically young basalt. (ii) only example of Tikipunga soils in this inventory. (iii) good examples of Whangaripo soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** kauri have been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Colin Vucetich **DATE OF INFORMATION:** August 1991

NOTES: Whakapapa soils are strongly leached. Whangaripo soils are almost podzolised.

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(32) Bream Islands Nature Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: 1.6km N of Bream Head R07 552953

AREA(ha): 7.5 **ALTITUDE(m):** 0-20 **RAINFALL(mm):** 1500

TOPOGRAPHY: steep cliffs **PARENT MATERIAL:** andesite and basalt **VEGETATION:** taupata shrubland; flaxland

SOILS: brown granular clay (Huia Bream)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good example of Huia and Bream soils.

VULNERABILITY: 3

TENURE: nature reserve (part of Bay of Island Maritime and Historic Park) **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

NOTES: Called "Bream Islands Scenic Reserve" in McCaskill (1981ii).

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(33) Kerikeri Inlet and Waipara Stream Scenic Re

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: Waipapa River and Kerikeri Inlet P05 996657

AREA(ha): 0.85 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1500

TOPOGRAPHY: two small islands **PARENT MATERIAL:** basalt and alluvium **VEGETATION:** kowhai-manuka shrubland; mangrove forest; manuka shrubland; fernland; kowhai treeland

SOILS: brown loam (Kerikeri)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) only example of Kerikeri soils in this inventory. (ii) most Kerikeri soils have been developed for horticulture and dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** subject to flooding

TENURE: scenic reserve (part of Bay of Island Maritime and Historic Park) **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: Department of Lands and Survey (1984)

(34) Kororareka Point Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: 1km NW of Russell Q05 121597

AREA(ha): 5 **ALTITUDE(m):** 0-60 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslopes and ridges **PARENT MATERIAL:** greywacke and argillite **VEGETATION:** manuka treeland; broadleaved shrubland

SOILS: yellow-brown earth (Rangiora Marua), podzolised yellow-brown earth (Omaiko)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Omaiko soils in this inventory.

VULNERABILITY: 3

TENURE: scenic reserve (part of Bay of Islands Maritime and Historic Park) **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: Department of Lands and Survey (1984)

(35) Lake Waiparaheka Scientific Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: Lake Waiparaheka, Ngawha Springs, 5 km E of Kaikohe P05 895425

AREA(ha): 18 **RAINFALL(mm):** 1600

TOPOGRAPHY: sulphur lake and margins **PARENT MATERIAL:** alluvium **VEGETATION:** manuka/bracken fern - umbrella fern shrubland; sedgeland

SOILS: hydrothermally altered soil

IMPORTANCE: 1 **SIGNIFICANCE:** (i) one of the very few examples of hydrothermally altered kauri peats.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** original forest cover has been burned; weed problem; geothermal investigation for electricity generation

TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Peter deLange **DATE OF INFORMATION:** September 1992

NOTES: Soil is unnamed.

REFERENCES: Department of Lands and Survey (1984)

(36) Manginangina Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: 19km W of Kaihau P05 838665

AREA(ha): 101 **ALTITUDE(m):** 275 **RAINFALL(mm):** 1800-2200

TOPOGRAPHY: moderate to steep hillslopes **PARENT MATERIAL:** greywacke and argillite, and derived colluvium **VEGETATION:** kauri-podocarp-broadleaved forest

SOILS: brown granular clay (Otaha), podzolised yellow-brown earth (Otangaroa), brown loam (Okaihau Waiotu Pungaere), yellow-brown earth (Mount-Rex)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a wide range of little-disturbed soils. (ii) only example of Otaha,

Otagaroa, Mount Rex and Pungaere soils in this inventory. (iii) good examples of Okaihau and Waiotu soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** pig and possum present; signs and tracks

TENURE: scenic reserve (part of Bay of Islands Maritime and Historic Park) **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: Department of Lands and Survey (1984) McCaskill (1981a)

(37) Pukekaroro Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06–01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: Mt Pukekaroro, 5km N of Kaiwaka Q08 410622

AREA(ha): 145 **ALTITUDE(m):** 30–275 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** dacite and derived colluvium **VEGETATION:** podocarp–broadleaved forest; kanuka treeland

SOILS: yellow–brown earth (Pukekaroro)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Pukekaroro soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** large kauri have been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Lands and Survey

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(38) Pukenui Forest

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06–01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: 12km WNW of Whangarei Q04 365791

AREA(ha): 592 **ALTITUDE(m):** 140–385 **RAINFALL(mm):** 1700

TOPOGRAPHY: rolling to moderately steep hillslopes; river flats **PARENT MATERIAL:** greywacke, argillite and basalt, and derived colluvium and alluvium **VEGETATION:** kauri forest; broadleaved–podocarp forest;

SOILS: podzol (Kara), yellow–brown earth (Marua Rangiora)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of little–modified soil–vegetation associations. (ii) good examples of Kara soils are uncommon. (iii) most Kara soils have been developed for dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged

TENURE: Crown land **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** September 1991

NOTES: Part of proposed Northland Kauri National Park.

REFERENCES: Department of Conservation (1990)

(39) Waipu Caves Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06–01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: 11km W of Waipu Q07 325846

AREA(ha): 5.3 **ALTITUDE(m):** 180–210 **RAINFALL(mm):** 1600

TOPOGRAPHY: karst landscape: hillslopes, subterranean streams, hillocks, dolines and shafts **PARENT MATERIAL:** limestone **VEGETATION:** totara–taraire forest; nikau forest; manuka–kanuka scrub

SOILS: rendzina (Konoti)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) rendzinas under native forest are uncommon in New Zealand. (ii) good examples of Konoti soils are uncommon. (iii) most Konoti soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** large ancient pa site

TENURE: scenic reserve **OWNER/MANAGER:** Whangarei District Council

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(40) Whangaruru (North Head) Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06–01 Eastern Northland and Islands

LOCALITY and GRID REFERENCE: northern entrance of Whangaroa Harbour, 30km SE of Russell Q05 342476

AREA(ha): 341 **ALTITUDE(m):** 0–122 **RAINFALL(mm):** 1400

TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** greywacke **VEGETATION:** broadleaved forest; introduced grassland

SOILS: yellow-brown earth (Te-Ranga Marua), yellow-brown sand (Whananaki)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whananaki soils are uncommon. (ii) most Whananaki soils have been developed for sheep and dairy farming, and market gardening.

VULNERABILITY: 3

TENURE: scenic reserve (part of Bay of Islands Maritime and Historic Park) **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: Department of Lands and Survey (1984)

(41) Coppermine Island

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-02 Taranga

LOCALITY and GRID REFERENCE: most easterly of the four largest islands of the Chicken Group, Hauraki Gulf, 16km E of Bream Head R07 705886

AREA(ha): 72 **ALTITUDE(m):** 0-185 **RAINFALL(mm):** 1300

TOPOGRAPHY: cliffs rising to rounded summits and narrow connecting saddles **PARENT MATERIAL:** diorite, hornfelses, adomellite and altered greywacke and derived colluvium **VEGETATION:** broadleaved scrub; pohutukawa forest; kanuka forest; broadleaved forest

SOILS: yellow-brown earth, brown granular clay, brown granular loam

IMPORTANCE: 1 **SIGNIFICANCE:** (i) soils that are formed partly as the result of the burrowing activities of birds are internationally uncommon. The flesh-footed shearwater colony associated with the mahoe-puriri and kanuka forests is a forest-soil-seabird association unique to this island. (ii) vegetation and soils have developed in absence of European rats. The soils and vegetation of the island are therefore important reference sites to compare with soils on many other islands and on the mainland where European rats occur.

VULNERABILITY: 3

TENURE: nature reserve (part of Hen and Chicken Islands Nature Reserve) **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Ian Atkinson **DATE OF INFORMATION:** September 1992

REFERENCES: Atkinson (1968) Department of Lands and Survey (1984) McCaskill (1981b)

(42) Sail Rock

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 06-02 Taranga

LOCALITY and GRID REFERENCE: Hen and Chicken Islands Group, Hauraki Gulf, 11 km ENE of Bream Tail R08 637762

AREA(ha): 2.1 **ALTITUDE(m):** 0-139 **RAINFALL(mm):** 1300

TOPOGRAPHY: island stack: vertical or overhanging cliffs; steep talus slopes **PARENT MATERIAL:** andesite breccia and derived colluvium **VEGETATION:** cliff vegetation; taupata scrub; kanuka forest; milk tree-wharangi forest

SOILS: lithosol

IMPORTANCE: 1 **SIGNIFICANCE:** (i) soils that are formed partly as a result of burrowing activities of birds are internationally uncommon. (ii) soils, vegetation and certain features of the fauna have developed in absence of kiore and other introduced mammals. Therefore the island is a valuable benchmark to compare with most of the other islands in the Hauraki Gulf (and with the North Island). (iii) salt weathering is an important erosion process, which is nationally uncommon.

VULNERABILITY: 3

TENURE: nature reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Ian Atkinson **DATE OF INFORMATION:** September 1992

NOTES: The absence of introduced mammals make the island an extremely important site for the program of endangered bird species transfers.

REFERENCES: Atkinson (1972) McCaskill (1981b) Department of Lands and Survey (1984)

(43) Awakino Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 08-01 Kaipara

LOCALITY and GRID REFERENCE: 65km N of Dargaville P07 880910

AREA(ha): 29 **ALTITUDE(m):** 21-40 **RAINFALL(mm):** 1500

TOPOGRAPHY: valley floor; moderately steep hillslopes **PARENT MATERIAL:** alluvium **VEGETATION:** raupo-flax-rush wetland; manuka shrubland

SOILS: recent soil (Mangakahia)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland recent soils under native vegetation are nationally uncommon. (ii) good examples of Mangakahia soils are uncommon.

VULNERABILITY: 3

TENURE: government purpose reserve (wildlife management) **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(44) Kidd Open Space Covenant

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 08–01 Kaipara
LOCALITY and GRID REFERENCE: 16km S of Dargaville P08 954712
AREA(ha): 2.1 **ALTITUDE(m):** 10 **RAINFALL(mm):** 1200
TOPOGRAPHY: river flat **PARENT MATERIAL:** alluvium **VEGETATION:** kahikatea–(rimu) forest
SOILS: gley soil (Kaipara)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland gley soils which have not been drained and are still under native vegetation are nationally uncommon. (ii) only example of Kaipara soils in this inventory.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** Graham Kidd, QEII National Trust
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(45) Maungaturoto Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 08–01 Kaipara
LOCALITY and GRID REFERENCE: 3km S of Maungaturoto Q08 351642
AREA(ha): 83 **ALTITUDE(m):** 90-275 **RAINFALL(mm):** 1400
TOPOGRAPHY: undulating to very steep hillslopes; gullies **PARENT MATERIAL:** limestone and dacite, and derived colluvium **VEGETATION:** manuka–kanuka treeland; kauri forest; kauri–podocarp–broadleaved forest; treefern fernland
SOILS: yellow–brown earth (Parakiore), rendzina
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Parakiore soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(46) Montgomerys Memorial Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 08–01 Kaipara
LOCALITY and GRID REFERENCE: 16km SE of Dargaville P08 977758
AREA(ha): 11 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1200
TOPOGRAPHY: steep hillslope **PARENT MATERIAL:** limestone **VEGETATION:** broadleaved forest; kauri–tanekaha forest
SOILS: yellow–brown earth (Rockvale), podzolised yellow–brown earth (Waikare)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Rockvale soils in this inventory. (ii) most Rockvale soils have been developed for dairying. (ii) good example of Waikare soils.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(47) Poutu Point Wildlife Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 08–01 Kaipara
LOCALITY and GRID REFERENCE: north head Kaipara Harbour P09 078387
AREA(ha): 6789 **ALTITUDE(m):** 0-91 **RAINFALL(mm):** 1000-1200
TOPOGRAPHY: sand dunes, lakes and swamps **PARENT MATERIAL:** aeolian sand, alluvium and peat
VEGETATION: sandfield; rushland
IMPORTANCE: 2 **SIGNIFICANCE:** (i) a very large area of relatively undisturbed lowland coastal soils.
VULNERABILITY: 3
TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Peter deLange **DATE OF INFORMATION:** September 1992
REFERENCES: Department of Lands and Survey (1984)

(48) Tangowahine Scenic Reserve

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 08–01 Kaipara
LOCALITY and GRID REFERENCE: 9km NE of Dargaville P07 983893

AREA(ha): 23.6 **ALTITUDE(m):** 60 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** concretionary sandstone **VEGETATION:** podocarp–broadleaved–kauri forest

SOILS: yellow–brown earth (Waiotira Riponui)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) a good example of Northland yellow–brown earths. (ii) many Riponui soils have been developed for dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged; still grazed by cattle and sheep; goat and possum present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981a) Department of Lands and Survey (1984)

(49) Albert Dennis Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: 16km S of Warkworth R09 598212

AREA(ha): 1.3 **ALTITUDE(m):** 90 **RAINFALL(mm):** 1600

TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** sandstone and mudstone **VEGETATION:** manuka treeland; podocarp–broadleaved–kauri treeland

SOILS: yellow–brown earth (Atuanui Wairiki Puhoi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Atuanui and Wairiki soils in this inventory. (ii) most Wairiki soils have been developed for sheep farming. (iii) good examples of Puhoi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** original forest cover removed

TENURE: scenic reserve **OWNER/MANAGER:** Rodney District Council

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(50) Alice Eaves Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: 40km N of Auckland R10 611137

AREA(ha): 16 **ALTITUDE(m):** 45 **RAINFALL(mm):** 1500

TOPOGRAPHY: steep hillslope **VEGETATION:** kauri treeland; kanuka forest

SOILS: yellow–brown earth (Whangaripo)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whangaripo soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged

TENURE: scenic reserve **OWNER/MANAGER:** Rodney District Council

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(51) Flexman Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: 1.6km SW of Wellsford Q09 441417

AREA(ha): 4.9 **ALTITUDE(m):** 20–60 **RAINFALL(mm):** 1400

TOPOGRAPHY: gentle hillslopes; alluvial terraces **PARENT MATERIAL:** alluvium; sandstone and mudstone **VEGETATION:** podocarp–broadleaved–treefern forest

SOILS: yellow–brown earth (Aponga Omu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Omu soils are uncommon. (ii) most Omu soils have been developed for sheep and dairy farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(52) Leigh Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: 19km N of Warkworth R09 723450

AREA(ha): 1.8 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1500

TOPOGRAPHY: rocky promontory **PARENT MATERIAL:** sandstone and mudstone **VEGETATION:** pohutukawa forest

SOILS: yellow–brown earth (Marua Puhoi), podzol (Kara), brown granular clay (Pakotai)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Pakotai soils in this inventory. (ii) good examples of Kara

and Puhoi soils are uncommon. (iii) most Kara soils have been developed or dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** some exotic pine trees

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(53) Logues Bush

REGIONAL/CITY COUNCIL(S): Northland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: 17km NW of Warkworth R09 533480

AREA(ha): 41 **ALTITUDE(m):** 50–110 **RAINFALL(mm):** 1250

TOPOGRAPHY: gentle to moderately steep hillslopes **PARENT MATERIAL:** colluvium and alluvium derived from sandstone **VEGETATION:** podocarp–kauri forest

SOILS: yellow–brown earth (Whangaripo), recent soil (Whakapara)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) one of the best remaining lowland podocarp–kauri forest remnants in New Zealand. (ii) the best example of a northern yellow–brown loam under kauri forest north of Auckland. (iii) good examples of Whakapara and Whangaripo soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged; parts have been burned

TENURE: open space covenant **OWNER/MANAGER:** QEII National Trust, Department of Conservation

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** November 1992

REFERENCES: QEII National Trust pamphlet "Logues Bush"

(54) Puhinui Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: northern bank of Mahurangi River, opposite Warkworth R09 600323

AREA(ha): 14 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1600

TOPOGRAPHY: steep hillslopes and ridges **PARENT MATERIAL:** sandstone and limestone **VEGETATION:** podocarp forest; kauri forest; podocarp–broadleaved forest; treefern treeland

SOILS: rendzina (Maungaturoto)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) rendzinas under native forest are nationally uncommon. (ii) Maungaturoto soils do not occur elsewhere in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(55) Sunnybrook Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: 6km NW of Warkworth R09 526380

AREA(ha): 121 **ALTITUDE(m):** 60–120 **RAINFALL(mm):** 1700

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** sandstone and mudstone, and derived colluvium **VEGETATION:** broadleaved treeland; kauri–beech treeland; manuka treeland; podocarp–broadleaved forest

SOILS: brown granular clay (Dome–Valley)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Dome Valley soils in this inventory. (ii) most Dome Valley soils are now under pasture.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Rodney District Council

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(56) Thomson Kauri Grove Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–01 Rodney

LOCALITY and GRID REFERENCE: 1.6km S Kaipara Flats Q09 495306

AREA(ha): 2 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1400

TOPOGRAPHY: flatland **PARENT MATERIAL:** siltstone to sandstone **VEGETATION:** kauri forest

SOILS: yellow–brown earth (Okaka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Okaka soils in this inventory.

VULNERABILITY: 3

TENURE: scenic reserve

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981b) Department of Lands and Survey (1984)

(57) Wainamu Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09-02 Waitakere

LOCALITY and GRID REFERENCE: 2km E of Bethells Beach

AREA(ha): 155 **ALTITUDE(m):** 0-220 **RAINFALL(mm):** 1400

TOPOGRAPHY: moderately steep to steep hillslopes; gullies; lake; sand dunes **PARENT MATERIAL:** andesite and derived colluvium; aeolian sands **VEGETATION:** manuka and kanuka scrub; kauri-broadleaved scrub and forest; grassland; introduced grassland; rushland

SOILS: brown granular clay (Huia Waitakere)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Huia soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged, grazed and fertilised; gorse

TENURE: scenic reserve **OWNER/MANAGER:** QEII National Trust

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** October 1992

NOTES: Called "Wainamu Reserve Open Space Covenant" in Department of Lands and Survey (1984).

REFERENCES: Department of Lands and Survey (1984)

(58) Coatesville Scenic Reserve (South)

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09-03 Tamaki

LOCALITY and GRID REFERENCE: 20km N of Auckland R10 583969

AREA(ha): 46 **ALTITUDE(m):** 50-120 **RAINFALL(mm):** 1260-1400

TOPOGRAPHY: gentle to moderately steep hillsides; broad ridges; gullies; floodplain **PARENT MATERIAL:** calcareous siltstone and sandstone, and derived colluvium; volcanic ash; loess **VEGETATION:** manuka-hakea scrub; broadleaved-podocarp forest; kauri forest; puriri forest; podocarp-kowhai treeland; rushland

SOILS: yellow-brown loam (Waitemata), podzolised yellow-brown earth (Warkworth), organic soil

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils under native vegetation. (ii) only example of Waitemata and Warkworth soils in this inventory. (iii) most Waitemata soils have been developed for intensive sheep farming, dairying and horticulture.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged; possum present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** July 1991

NOTES: Warkworth soils are podzols. Site illustrates the complexity where loess in the landscape is locally dominated by volcanic ash. This is a clue to what formed the Waitemata ash complex which was thought to be water sorted.

REFERENCES: Gardner et al. (1982) McCaskill (1981b) Department of Lands and Survey (1984)

(59) Rangitoto Island Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09-04 Rangitoto

LOCALITY and GRID REFERENCE: Hauraki Gulf, 5km NE of centre of Auckland City R11 756895

AREA(ha): 2333 **ALTITUDE(m):** 0-259 **RAINFALL(mm):** 1200

TOPOGRAPHY: volcanic cone with gentle to steep hillslopes; lava flows (pahoe-hoe and aa) **PARENT MATERIAL:** basalt and derived tephra **VEGETATION:** rocklands and gravelfields; broadleaved-fern scrub; pohutukawa treeland

SOILS: lithosol

IMPORTANCE: 1 **SIGNIFICANCE:** (i) best example in New Zealand of the soil formation sequence on recent basalt lava flows. (ii) valuable site for international comparative studies of the soils of recently active shield volcanoes (which are uncommon internationally).

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** tracks; most possums have recently been killed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Peter deLange **DATE OF INFORMATION:** September 1992

REFERENCES: Department of Lands and Survey (1984)

(60) Coulthards Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09-07 Manukau

LOCALITY and GRID REFERENCE: 5km N of Pukekohe R12 807469

AREA(ha): 10 **ALTITUDE(m):** 35-70 **RAINFALL(mm):** 1260

TOPOGRAPHY: moderately steep hillslopes; broad ridge crests; floodplain; bluffs; terrace **PARENT MATERIAL:** sandstone; alluvial and coastal sediments **VEGETATION:** kahikatea forest; podocarp-broadleaved forest; broadleaved forest; scrub; cliff vegetation; fernland;

SOILS: brown granular clay (Hamilton)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a rare soil-forest association on a Pliocene terrace. (ii) only example of Hamilton soils in this inventory. (iii) most Hamilton soils have been developed for intensive sheep farming and dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed

TENURE: scenic reserve **OWNER/MANAGER:** Franklin District Council

CONTACT PERSON: Garth Harmsworth **DATE OF INFORMATION:** July 1991

NOTES: Due to the wide range of landforms, there is likely to be a wider range of soils than listed. The forest on Pliocene terrace association is nationally uncommon.

REFERENCES: Gardner et al. (1982) Department of Lands and Survey (1984)

(61) Kirks Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–07 Manukau

LOCALITY and GRID REFERENCE: suburbs of Papakura R12 828568

AREA(ha): 5.5 **ALTITUDE(m):** 15 **RAINFALL(mm):** 1120–1260

TOPOGRAPHY: broad shallow depression; coastal terraces **PARENT MATERIAL:** alluvial and coastal sediments

VEGETATION: broadleaved forest; kanuka scrub; introduced grassland

SOILS: yellow–brown loam (Karaka)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) soils under native forest on Pleistocene terraces are rare in the Auckland region. (ii) only example of Karaka soils in this inventory. (ii) most Karaka soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** exotic weed problem; native weeds too from suburban garden seed rain; trampling

TENURE: scenic reserve **OWNER/MANAGER:** Franklin District Council

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** July 1991

NOTES: One of the few remnants of forest (pre–European or otherwise) on these Pliocene terraces in Auckland region. Diverse canopy species and absence of old podocarps.

REFERENCES: Gardner et al. (1982) McCaskill (1981b) Department of Lands and Survey (1984)

(62) Patumahoe Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–07 Manukau

LOCALITY and GRID REFERENCE: 5km W of Papakura R12 737443

AREA(ha): 3.4 **ALTITUDE(m):** 40–75 **RAINFALL(mm):** 1260

TOPOGRAPHY: moderate to steep hillslopes; flatland; boulders **PARENT MATERIAL:** basalt plateau; volcanic ash

VEGETATION: broadleaved forest; pukatea forest; bracken fernland; introduced grassland

SOILS: brown granular clay (Patumahoe)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) probably the best example of soils under native forest on this basalt plateau. (ii) only example of Patumahoe soils in this inventory. (iii) most Patumahoe soils have been developed for intensive sheep and dairy farming

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged; grazed; Wandering Jew a weed problem

TENURE: scenic reserve **OWNER/MANAGER:** Franklin District Council

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** July 1991

REFERENCES: Gardner et al. (1982) McCaskill (1981b) Department of Lands and Survey (1984)

(63) Red Hill Scenic Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 09–07 Manukau

LOCALITY and GRID REFERENCE: 4km E of Papakura R12 863571

AREA(ha): 3.4 **ALTITUDE(m):** 50–100 **RAINFALL(mm):** 1260

TOPOGRAPHY: old volcanic cone with steep slopes; spurs; bluffs; flatland **PARENT MATERIAL:** sandstone and siltstone in south; basalt in north **VEGETATION:** puriri forest; broadleaved forest; podocarp–(kauri) forest; gorse–bracken fernland; introduced grassland

SOILS: yellow–brown earth (Brookby), brown loam, red loam

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Brookby soils in this inventory. (ii) most Brookby soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** wandering jew weed problem

TENURE: scenic reserve **OWNER/MANAGER:** Franklin District Council

CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** July 1991

REFERENCES: Gardner et al. (1982) McCaskill (1981b) Department of Lands and Survey (1984)

(64) Raoul Island and Kermadec Group Nature Reserve

REGIONAL/CITY COUNCIL(S): outside regional council boundary **ECOLOGICAL DISTRICTS(S):** 1–01 Kermadec

LOCALITY and GRID REFERENCE: 1000km NE of North Cape X** 288887

AREA(ha): 3089 **ALTITUDE(m):** 0–516 **RAINFALL(mm):** 1500

TOPOGRAPHY: two large islands and 15 islets: Raoul Island, by far the largest, is a volcanic dome: benches to

steep hillslopes; cliffs; craters and crater lakes; vents; rugged or bouldery beaches, minor sandy beaches **PARENT MATERIAL:** andesite and basalt tephra and bedrock, and derived alluvium and colluvium **VEGETATION:** Raoul Island pohutukawa forest; broadleaved scrub; nikau forest; fernland; herbfield

SOILS: lithosol (Kopikopiko), yellow-brown loam (Oneraki Mahoe), recent soil (Pukekohu Tui Bollans Denham), hydrothermally altered soil

IMPORTANCE: 1 **SIGNIFICANCE:** (i) a large area with a wide range of soils. (ii) soils that are formed partly as a result of the activities of burrowing birds and mammals (in this case, kiore) are internationally rare. (iii) the soils on Raoul Island do not occur elsewhere in New Zealand.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** early whaling history and colonisation attempts; manned meteorological station; many parts have been burned; goat, cat and Norwegian rat present; noxious plants

TENURE: nature reserve **OWNER/MANAGER:** Department of Conservation **DATE OF INFORMATION:** September 1992

NOTES: Soils are mainly young and unstable, and they reflect a unique combination of mostly finely-textured parent materials, high temperatures, ample moisture and good aeration. The Island contains 23 endemic plant species or subspecies – 12 are threatened – and is an internationally important bird habitat. Eruptions have been recorded on Raoul Island in 1814, 1872, 1876 and 1964.

REFERENCES: Wright and Metson (1959) Department of Lands and Survey (1984) McCaskill (1981b)

(65) Little Barrier Island Nature Reserve

REGIONAL/CITY COUNCIL(S): Auckland **ECOLOGICAL DISTRICTS(S):** 10-01 Little Barrier

LOCALITY and GRID REFERENCE: Hauraki Gulf, 45 km NW of Warkworth, 18 km W of Great Barrier Island S08 009536

AREA(ha): 2820 **ALTITUDE(m):** 0-722 **RAINFALL(mm):** 1400-1700

TOPOGRAPHY: dissected volcanic cone with deep precipitous ravines, knife-edged ridges and some gently-sloping, broader ridges; cliffs; boulder beach; rockwall; waterfalls **PARENT MATERIAL:** andesite and andesite tuff, and derived colluvium and alluvium; peat; beach deposits **VEGETATION:** rata/tawa forest; manuka forest; kauri forest; broadleaved forest and scrub; pohutukawa forest; cliff communities

SOILS: brown granular clay (Manganui Awapuku Te-Kie), organic soil, recent soil

IMPORTANCE: 1 **SIGNIFICANCE:** (i) contains some of the least-modified lowland soil-forest associations in the North Island. Similar associations are internationally rare. (iii) soils that are formed partly as a result of the activities of burrowing birds are internationally rare. (iv) only example of Manganui soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** one-third of the forest has been logged but regeneration has been excellent; formerly inhabited by Ngati Wai – there are traces of five pa and many kumara and water pits

TENURE: nature reserve **OWNER/MANAGER:** Department of Conservation **DATE OF INFORMATION:** September 1992

NOTES: Little Barrier is an internationally significant wildlife sanctuary.

REFERENCES: Wright (1961) Department of Lands and Survey (1984) McCaskill (1981b)

(66) Castle Rock

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-03 Colville

LOCALITY and GRID REFERENCE: 7.5km SE of Coromandel T11 390855

AREA(ha): 1571 **ALTITUDE(m):** 100-521 **RAINFALL(mm):** 1800-2200

TOPOGRAPHY: moderate to steep hillslopes and ridges; gullies; volcanic plugs; rock outcrops **PARENT MATERIAL:** andesite, dacite and basalt, and derived colluvium and alluvium; volcanic ash **VEGETATION:** (podocarp)/tawa forest; kauri-tanekaha forest; rockland; manuka-rewarewa scrub and forest

SOILS: brown granular clay (Aroha Te-Kie Rangiuru), yellow-brown earth (Tangatara Te-Ranga)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) a large area containing a moderate range of brown granular loams and clays under native vegetation. (ii) only example of Rangiuru soils in this inventory.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** parts have been logged and mined; goat and possum present

TENURE: recommended area for protection, stewardship land, Maori land **OWNER/MANAGER:** Department of Conservation,

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: Humphreys and Tyler (1990)

(67) Chiltern Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-03 Colville

LOCALITY and GRID REFERENCE: 15km W of Whitianga T11 364824

AREA(ha): 28 **ALTITUDE(m):** 210 **RAINFALL(mm):** 1800

TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** andesite; volcanic ash **VEGETATION:** manuka shrubland; podocarp/tawa forest

SOILS: brown granular clay (Waitakere), yellow-brown loam (Whitianga)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whitianga soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(68) Coromandel Conservation Park

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-03 Colville
LOCALITY and GRID REFERENCE: Coromandel Range T12 445565
AREA(ha): 73 000 **ALTITUDE(m):** 0-841 **RAINFALL(mm):** 1400-3000
TOPOGRAPHY: steep hill and mountain slopes; dissected by valleys and gullies **PARENT MATERIAL:** andesite and rhyolitic ignimbrite, and derived colluvium; volcanic ash **VEGETATION:** podocarp-broadleaved forest; kauri forest; subalpine herbfield
SOILS: yellow-brown earth (Moehau Parakiore Tangatara Te-Ranga Moeatoa Rangiora), brown granular clay (Te-Kie Awapuku), recent soil (Manawatu Kairanga Waitare)
IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a wide range of little-disturbed soil-vegetation associations. (ii) only example of Waitatere soils in this inventory. (iii) good examples of Parakiore, Manawatu and Moehau soils are uncommon. (iv) most Manawatu soils have been developed for intensive sheep farming, dairying, market gardening and horticulture.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged, burned, mined and farmed; goat and possum present
TENURE: conservation park **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** July 1991
NOTES: Called "Coromandel Forest Park" in Department of Lands and Survey (1984).
REFERENCES: Department of Lands and Survey (1984)

(69) Manaia Harbour

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-03 Colville
LOCALITY and GRID REFERENCE: Manaia Harbour, 10km SSW of Coromandel S11 290810
AREA(ha): 409 **ALTITUDE(m):** 0-150 **RAINFALL(mm):** 1600
TOPOGRAPHY: moderate to steep hillslopes; tidal flat; alluvial flat **PARENT MATERIAL:** estuarine sands and silts; andesite and greywacke, and derived colluvium **VEGETATION:** mangrove swamp; pohutukawa rock-treeland; broadleaved scrub; manuka rush-shrubland
SOILS: brown granular clay (Awapuku), saline soil (Takahiwai)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) saline soils under native vegetation are nationally uncommon due to drainage and cultivation. (ii) good examples of Takahiwai soils are uncommon. (iii) most Takahiwai soils have been developed for dairying.
VULNERABILITY: 2
TENURE: recommended area for protection, private land, Maori land, Crown land
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991
NOTES: Takahiwai soils are saline recent soils
REFERENCES: Humphreys and Tyler (1990)

(70) Ongohi

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-03 Colville
LOCALITY and GRID REFERENCE: 12.5km NW of Colville S10 255140
AREA(ha): 13 **ALTITUDE(m):** 25-150 **RAINFALL(mm):** 1700
TOPOGRAPHY: hillslope; alluvial terrace **PARENT MATERIAL:** diorite; alluvium derived from diorite and greywacke **VEGETATION:** pohutukawa-broadleaved forest; (podocarp)/tawa forest
SOILS: yellow-brown earth (Moehau)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Moehau soils are uncommon.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** still grazed by stock
TENURE: recommended area for protection, private land
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991
REFERENCES: Humphreys and Tyler (1990)

(71) Pollock Open Space Covenant

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-03 Colville
LOCALITY and GRID REFERENCE: adjacent to high point on Woods Road, 2km SE of Colville T10 310025

AREA(ha): 56 **ALTITUDE(m):** 200 **RAINFALL(mm):** 1800
TOPOGRAPHY: moderately steep hillslopes, ridges and valleys **PARENT MATERIAL:** strongly weathered andesite and other volcanic rocks **VEGETATION:** kanuka and manuka scrub; kauri treeland; podocarp–broadleaved–fern forest
SOILS: brown granular clay (Mangonui)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) excellent example of a northern brown granular clay under a moderate range of native vegetation.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** logged (1900–1910)
TENURE: QEII open space covenant, private land **OWNER/MANAGER:** JA and KF Pollock
CONTACT PERSON: Jim Pollock **DATE OF INFORMATION:** February 1993

(72) Waiau Falls Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10–03 Colville
LOCALITY and GRID REFERENCE: 14km S of Coromandel T11 378804
AREA(ha): 45 **ALTITUDE(m):** 130 **RAINFALL(mm):** 2000
TOPOGRAPHY: steep hillslopes; waterfall **PARENT MATERIAL:** andesite, mudstone and sandstone **VEGETATION:** kauri forest; podocarp–broadleaved forest; mamaku–nikau forest; manuka–kanuka forest
SOILS: brown granular clay (Aroha Te–Tio)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Te Tio soils in this inventory. (ii) most Te–Tio soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(73) Waikawau Bay

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10–03 Colville
LOCALITY and GRID REFERENCE: 6km NE of Colville T10 355090
AREA(ha): 228 **ALTITUDE(m):** 0–237 **RAINFALL(mm):** 1600
TOPOGRAPHY: shallow sandy estuary; moderately steep hillslopes and cliffs; sand dunes **PARENT MATERIAL:** sandstone; aeolian sands **VEGETATION:** manuka scrub; manuka–broadleaved scrub; pohutukawa rock–treeland; sandfield; rush–vineland
SOILS: yellow–brown sand (Pinaki), yellow–brown earth (Tangitiki), brown granular clay (Te–Kie)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a good sequence of soils on sand dunes. (ii) good examples of Pinaki soils are uncommon. (iii) most Pinaki soils have been developed for extensive sheep farming, and some dairying and forestry.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** goat and sheep present; vehicle damage
TENURE: recommended area for protection, stewardship land
CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** September 1991
REFERENCES: Humphreys and Tyler (1990)

(74) Middle and Green Islands

REGIONAL/CITY COUNCIL(S): outside regional council boundary **ECOLOGICAL DISTRICTS(S):** 10–04 Mercury Islands
LOCALITY and GRID REFERENCE: the two smallest Mercury Islands, between Great Mercury and Kawitihi Islands, 35km NE of Coromandel T10 655026
AREA(ha): 9.7 and 2.8 **ALTITUDE(m):** 0–81 and –52 **RAINFALL(mm):** 1000–1300
TOPOGRAPHY: plateaux; very steep slopes; cliffs **PARENT MATERIAL:** andesite **VEGETATION:** karo/taupata scrub; wharangi–mahoe forest; milk tree forest; cliff vegetation
SOILS: lithosol
IMPORTANCE: 1 **SIGNIFICANCE:** (i) soils that are formed partly as a result of burrowing activities of birds are internationally uncommon. (ii) virtual absence of pohutukawa forest and harakeke flaxland suggests that these islands have been undisturbed by fire for a considerable time. (iii) vegetation and soils have developed in absence of kiore. The soils and vegetation of the islands are therefore valuable benchmarks to compare with other nearby islands where kiore occur.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** probably history of visits by Maori
TENURE: scenic reserve (part of Mercury Islands Scenic Reserve) **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Ian Atkinson **DATE OF INFORMATION:** September 1992
NOTES: Internationally important bird habitat.
REFERENCES: Atkinson (1964) Department of Lands and Survey (1984) McCaskill (1981b)

(75) Hot Water Beach

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-06 Tairua

LOCALITY and GRID REFERENCE: 12km SE of Whitianga T11 615760

AREA(ha): 30 **ALTITUDE(m):** 0-20 **RAINFALL(mm):** 1600

TOPOGRAPHY: sand dunes; beach; knoll; **PARENT MATERIAL:** aeolian sands; dacite and rhyolite **VEGETATION:** sandfield; sedge-rush-vineland; pohutukawa rock-treeland; pohutukawa-broadleaved forest

SOILS: yellow-brown sand (Pinaki), podzolised yellow-brown earth (Pukenuamu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Pukenuamu soils in this inventory. (ii) good examples of Pinaki soils are uncommon. (iii) most Pinaki soils have been developed for extensive sheep farming, and some dairying and forestry.

VULNERABILITY: 2

TENURE: recommended area for protection, crown land

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

NOTES: Regionally important geothermal feature on the beach; Otua hot springs.

REFERENCES: Humphreys and Tyler (1990)

(76) Kaitoke Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-06 Tairua

LOCALITY and GRID REFERENCE: Whitianga Harbour, 3km S of Whitianga T11 512798

AREA(ha): 91 **ALTITUDE(m):** 75 **RAINFALL(mm):** 1800

TOPOGRAPHY: promontory; steep hillslopes **PARENT MATERIAL:** rhyolite and dacite; volcanic ash **VEGETATION:** kanuka treeland; broadleaved shrubland

SOILS: yellow-brown earth (Tangatara Puketui), yellow-brown loam (Whitianga)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) a good example of both yellow-brown earths and yellow-brown loams under native vegetation. (ii) good examples of Whitianga soils are uncommon.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** has been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(77) Puriri Scenic Reserve and Reserve Extension

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-06 Tairua

LOCALITY and GRID REFERENCE: 12km SE of Thames T12 475425

AREA(ha): 141 **ALTITUDE(m):** 175-640 **RAINFALL(mm):** 1500

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** volcanic ash; rhyolite and dacite **VEGETATION:** (podocarp)/tawa forest; kanuka-broadleaved forest; broadleaved scrub

SOILS: yellow-brown loam (Whangamata), yellow-brown earth (Puketui Tangatara)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) a good example of both yellow-brown earths and yellow-brown loams under native vegetation.

VULNERABILITY: 2

TENURE: scenic reserve, recommended area for protection, private land **OWNER/MANAGER:** Department of Conservation,

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984) Humphreys and Tyler (1990)

(78) Tairua River

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-06 Tairua

LOCALITY and GRID REFERENCE: 12km W of Whangamata T12 525420

AREA(ha): 4390 **ALTITUDE(m):** 20-700 **RAINFALL(mm):** 1400-3000

TOPOGRAPHY: gentle to steep hillslopes; peaks and bluffs; plateau; gorge; alluvial flats **PARENT MATERIAL:** rhyolite, basalt, andesite and dacitic andesite, and derived colluvium and alluvium; volcanic ash **VEGETATION:** podocarp forest; raupo-flax reedland; (podocarp)/tawa forest; kanuka-broadleaved forest; kanuka forest; kauri-kanuka forest

SOILS: brown granular clay (Te-Kie Mangonui Aroha Waitakere Komata), yellow-brown earth (Tangatara Puketui), yellow-brown loam (Whangamata)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) a large area containing a moderate range of soils under native vegetation on a wide range of landforms.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** parts grazed by stock

TENURE: recommended area for protection, Maori land, private land, stewardship land

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: Humphreys and Tyler (1990)

(79) Whenuakite-Tapuaetahi

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-06 Tairua

LOCALITY and GRID REFERENCE: 7.5km N of Tairua T11 625700

AREA(ha): 2180 **ALTITUDE(m):** 0-311 **RAINFALL(mm):** 1700-2000

TOPOGRAPHY: moderately steep hillslopes and ridges; gullies; cliffs; bays and beaches **PARENT MATERIAL:** andesite basalt and basalt, and derived colluvium and alluvium; volcanic ash **VEGETATION:** pohutukawa rock-treeland; pohutukawa-broadleaved treeland; kauri-tanekaha forest; raupo-harakeke reedland; broadleaved scrub

SOILS: brown granular clay (Mangonui Te-Kie), yellow-brown loam (Whitianga Whangamata), recent soil (Ohinemuri)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) a large area containing a moderate range of soils under native vegetation.

(ii) only example of Ohinemuri soils in this inventory.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** still grazed by stock; wilding pines

TENURE: recommended area for protection, stewardship land, private land **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: Humphreys and Tyler (1990)

(80) Whitiroa Beach

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-07 Waihi

LOCALITY and GRID REFERENCE: 7km SSE of Whangamata T12 675315

AREA(ha): 405 **ALTITUDE(m):** 0-100 **RAINFALL(mm):** 1700

TOPOGRAPHY: fossil dunes; estuary; hillslopes; cliffs **PARENT MATERIAL:** aeolian sands; volcanic ash

VEGETATION: sand-vineland; broadleaved scrub; rushland; rush-shrubland; puhutukawa tree-rockland

SOILS: yellow-brown sand (Whananaki), yellow-brown loam (Whangamata)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whananaki soils are uncommon. (ii) most Whananaki soils have been developed for sheep and dairy farming and market gardening.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** marram had been planted

TENURE: recommended area for protection, stewardship land, private land **OWNER/MANAGER:** Hauraki District Council, Department of Conservation

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: Humphreys and Tyler (1990)

(81) East Ngatukituki Ecological Area Extension

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 10-08 Te Aroha

LOCALITY and GRID REFERENCE: 4.5km W of Katikati T13 635015

AREA(ha): 58 **ALTITUDE(m):** 100-350 **RAINFALL(mm):** 1800-2000

TOPOGRAPHY: gentle toeslopes **PARENT MATERIAL:** volcanic ash; andesite and dacitic andesite alluvium

VEGETATION: (podocarp)/tawa forest

SOILS: yellow-brown loam (Katikati), brown granular clay (Aroha)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Katikati soils are uncommon. (ii) most Katikati soils have been developed for sheep and dairy farming and horticulture.

VULNERABILITY: 2

TENURE: recommended area for protection, private land **OWNER/MANAGER:** W O'Neil, G Archer and M and L Carrad (all Katikati)

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: Humphreys and Tyler (1990)

(82) Kaimai-Mamaku Conservation Park

REGIONAL/CITY COUNCIL(S): Waikato and Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 10-08 Te Aroha

LOCALITY and GRID REFERENCE: Kaimai and Mamaku Ranges T14 645865

AREA(ha): 37 141 **ALTITUDE(m):** 80-952 **RAINFALL(mm):** 1500-3000

TOPOGRAPHY: broad dissected plateau in the south; steep hillslopes in the north; gullies; valleys **PARENT MATERIAL:** andesite, rhyolite and ignimbrite, and derived colluvium; volcanic ash **VEGETATION:** podocarp-broadleaved forest; kauri forest; red beech forest; silver beech forest

SOILS: brown granular clay (Aroha Otanewainuku), yellow-brown earth (Tangatarā), yellow-brown pumice soil (Haupeehi), yellow-brown loam (Waitekauri Rataroa), podzolised yellow-brown pumice soil (Mamaku)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a wide range of soil-native vegetation associations. (ii) contains a very diverse range of yellow-brown soils developed on a series of ash showers. (iii) only example of Mamaku soils in this inventory. (iv) good examples of Haupeehi and Rataroa soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat, deer and possum present; parts have been logged, burned and mined

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** July 1991
NOTES: Called "Kaimai-Mamaku Forest Park" in Department of Lands and Survey (1984). northernmost occurrence of red and silver beech forest in New Zealand
REFERENCES: Department of Lands and Survey (1984)

(83) Mangaiti Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-08 Te Aroha
LOCALITY and GRID REFERENCE: 13km SE of Paeroa T13 505097
AREA(ha): 20 **ALTITUDE(m):** 330 **RAINFALL(mm):** 1600
TOPOGRAPHY: steep hillslopes; river valley **PARENT MATERIAL:** andesite **VEGETATION:** kohekohe forest; bracken fernland
SOILS: yellow-brown loam (Kaihere)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Kaihere soils in this inventory.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991
REFERENCES: Humphreys and Tyler (1990) Department of Lands and Survey (1984)

(84) Maurihiro Scenic Reserve Extension

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-08 Te Aroha
LOCALITY and GRID REFERENCE: 18km SSE of Te Aroha T14 605870
AREA(ha): 505 **ALTITUDE(m):** 50-350 **RAINFALL(mm):** 1200-1600
TOPOGRAPHY: steep hillslopes; toeslopes; alluvial fans **PARENT MATERIAL:** rhyolite and dacite, and derived colluvium and alluvium **VEGETATION:** (podocarp)/tawa forest; kanuka forest; broadleaved scrub
SOILS: yellow-brown loam (Mangaiti), yellow-brown earth (Tangatarā), brown granular clay (Aroha)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils and soil-vegetation associations. (ii) only example of Mangaiti soils in this inventory.
VULNERABILITY: 2
TENURE: recommended area for protection, private land, Maori land, crown land **OWNER/MANAGER:** Bay Farms, Montague, Bonenkemp, C McMillan, M and L Dobby, RD Reid and PW McLoughlin (all Te Aroha) and others
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991
REFERENCES: Humphreys and Tyler (1990)

(85) Maurihiro Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-08 Te Aroha
LOCALITY and GRID REFERENCE: Kaimai Range, 16km NE of Waharoa T14 630853
AREA(ha): 1797 **ALTITUDE(m):** 150-450 **RAINFALL(mm):** 1300-1600
TOPOGRAPHY: steep mountain slopes; plateau scarp; river valleys **PARENT MATERIAL:** dacitic ignimbrite
VEGETATION: podocarp-broadleaved forest; podocarp forest; kauri-hard beech forest; pink pine treeland; pink pine-yellow silverpine treeland; kauri-hard beech-silver beech forest; bracken fernland; scrub
SOILS: brown granular clay (Aroha Komata), recent soil (Tarawera), hydrothermally altered soil (Tikitere), yellow-brown loam (Rataroa Waitekauri)
IMPORTANCE: 1 **SIGNIFICANCE:** (i) area contains a wide range of soils including internationally rare hydrothermally altered soils. (ii) only record of Tikitere soils in this inventory. (iii) good examples of Rataroa soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: John McCraw **DATE OF INFORMATION:** July 1991
NOTES: Nationally unique vegetation.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(86) Te Aroha Mountain Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 10-08 Te Aroha
LOCALITY and GRID REFERENCE: lower slopes of Mt Te Aroha, near Te Aroha township T13 517023
AREA(ha): 54 **ALTITUDE(m):** 0-350 **RAINFALL(mm):** 1400-1600
TOPOGRAPHY: moderately steep mountain slopes **PARENT MATERIAL:** andesite and dacitic andesite; volcanic ash **VEGETATION:** podocarp-broadleaved forest; kanuka-manuka forest
SOILS: brown granular clay (Aroha Komata), yellow-brown loam (Te-Tuhi)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Te Tuhi soils in this inventory. (ii) most Te Tuhi soils have

been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** possum present

TENURE: scenic reserve **OWNER/MANAGER:** Matamata – Piako District Council

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(87) Te Hunga Ecological Area Extension

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 10–08 Te Aroha

LOCALITY and GRID REFERENCE: 5km S of Katikati T14 665910

AREA(ha): 218 **ALTITUDE(m):** 50-300 **RAINFALL(mm):** 1800

TOPOGRAPHY: gentle footslopes **PARENT MATERIAL:** volcanic ash over rhyolite **VEGETATION:** (podocarp)/tawa forest; kamahi scrub and forest

SOILS: yellow–brown loam (Waitekauri Te–Manaia)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Te–Manaia soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, private land, stewardship land **OWNER/MANAGER:** O Schabrun, B and K Parsons, R Fisher, W Nettlingham and D Hume (all Katikati)

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: Humphreys and Tyler (1990)

(88) Te Rereatukahia

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 10–08 Te Aroha

LOCALITY and GRID REFERENCE: 6.5km SW of Katikati T14 630960

AREA(ha): 153 **ALTITUDE(m):** 50-325 **RAINFALL(mm):** 1800

TOPOGRAPHY: gentle to moderately steep hillslopes **PARENT MATERIAL:** andesite and dacitic andesite; volcanic ash **VEGETATION:** (podocarp)/tawa forest; kauri–tanekaha forest; kamahi scrub and forest

SOILS: brown granular clay (Aroha), yellow–brown loam (Te–Manaia)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Te–Manaia soils are uncommon.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** has been logged; walking tracks

TENURE: recommended area for protection, private land **OWNER/MANAGER:** DK Pritchard and G Gloyn (both Katikati)

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

REFERENCES: Humphreys and Tyler (1990)

(89) Waitekohe Stream

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 10–08 Te Aroha

LOCALITY and GRID REFERENCE: 8km SSW of Katikati T14 640940

AREA(ha): 240 **ALTITUDE(m):** 50-330 **RAINFALL(mm):** 1800

TOPOGRAPHY: gentle to moderately steep hillslopes **PARENT MATERIAL:** volcanic ash over rhyolite **VEGETATION:** (podocarp) forest

SOILS: yellow–brown loam (Te–Manaia Waitekauri), brown granular clay (Aroha)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Te–Manaia soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, private land, local authority land **OWNER/MANAGER:** S Lowry and CH Christiansen (both Katikati), B Taylor syndicate and Western Bay of Plenty District Council

CONTACT PERSON: John McCraw **DATE OF INFORMATION:** September 1991

NOTES: Aroha soils are brown granular clays.

REFERENCES: Humphreys and Tyler (1990)

(90) Black Lake Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–01 Meremere

LOCALITY and GRID REFERENCE: 9km NNE of Huntly S13 040110

AREA(ha): 303 **ALTITUDE(m):** 5-10 **RAINFALL(mm):** 1400

TOPOGRAPHY: lake and low–lying margins **PARENT MATERIAL:** peat **VEGETATION:** rushland, and manuka and willow trees

SOILS: organic soil (Whangamarino)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland organic soils under native vegetation are uncommon in New Zealand. (ii) good example of Whangamarino soils are uncommon.

VULNERABILITY: 3

TENURE: stewardship land **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** November 1992

NOTES: Adjoins Waikare Lake Government Purpose Reserve.

REFERENCES: Department of Lands and Survey (1984)

(91) Lake Okawhao Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 11–01 Meremere

LOCALITY and GRID REFERENCE: 4km N of Huntly S13 995062

AREA(ha): 23 **ALTITUDE(m):** 5-15 **RAINFALL(mm):** 1400

TOPOGRAPHY: lake and flat margin **PARENT MATERIAL:** peat; rhyolitic alluvium **VEGETATION:** aquatic emergent and submergent vegetation; sedgeland; rushland; willow treeland; cabbage treeland

SOILS: organic soil (Rotongaro), yellow–brown earth (Ruawaro), gley soil (Okowhao)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland organic soils under native vegetation are uncommon in New Zealand. (ii) contains a moderate range of soils. (iii) only example of Okowhero soils in this inventory. (iv) good examples of Ruawaro and Rotongaro soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** willow present

TENURE: wildlife management reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: John Bruce **DATE OF INFORMATION:** November 1992

REFERENCES: Department of Lands and Survey (1984)

(92) Lake Rotongaro Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–01 Meremere

LOCALITY and GRID REFERENCE: 9km NNW of Huntly S13 975105

AREA(ha): 482 **ALTITUDE(m):** 10-20 **RAINFALL(mm):** 1400

TOPOGRAPHY: two lakes and low–lying margins **PARENT MATERIAL:** rhyolitic alluvium; peat **VEGETATION:** aquatic emergents and submergents; sedge– and rushland; willow treeland; manuka shrubland; introduced grassland

SOILS: yellow–brown earth (Ruawaro), organic soil (Rotongaro)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good examples of Ruawaro and Rotongaro soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** willow present

TENURE: wildlife management reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: John Bruce **DATE OF INFORMATION:** November 1992

REFERENCES: Department of Lands and Survey (1984)

(93) Lake Whangape Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–01 Meremere

LOCALITY and GRID REFERENCE: 12km NW of Huntly S13 915130

AREA(ha): 1596 **ALTITUDE(m):** 5-20 **RAINFALL(mm):** 1400

TOPOGRAPHY: shallow lake and low–lying margins **PARENT MATERIAL:** peat and alluvium **VEGETATION:** aquatic submergent vegetation; podocarp–broadleaved swamp forest; willow treeland

SOILS: organic soil (Rotongaro Whangamarino), recent soil (Mangapiko)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland organic and recent soils under native vegetation are uncommon in New Zealand. (ii) only example of Mangapiko soils in this inventory. (iii) good examples of Rotongaro and Whangamarino soils are uncommon.

VULNERABILITY: 3

TENURE: wildlife management reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** November 1992

NOTES: Includes Awaroa Arm Government Purpose Reserve (record 11–1–11 in Department of Lands and Survey (1984)).

REFERENCES: Department of Lands and Survey (1984)

(94) Waikare Lake Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–01 Meremere

LOCALITY and GRID REFERENCE: 10km N of Huntly, southwestern margin of Lake Waikare S13 025155

AREA(ha): 63 **ALTITUDE(m):** 5-10 **RAINFALL(mm):** 1400

TOPOGRAPHY: lowlying lake margin **PARENT MATERIAL:** peat and alluvium **VEGETATION:** wetland vegetation with manuka and willow trees

SOILS: organic soil (Whangamarino)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland organic soils under native vegetation are uncommon in New Zealand. (ii) good examples of Whangamarino soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** willow present

TENURE: wildlife management reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(95) Mangapiko Valley Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-02 Hapuakohe
LOCALITY and GRID REFERENCE: 20km E of Ohinewai S13 196125
AREA(ha): 329 **ALTITUDE(m):** 180-390 **RAINFALL(mm):** 1200
TOPOGRAPHY: moderate to steep hillslopes; valleys **PARENT MATERIAL:** greywacke and derived colluvium
VEGETATION: broadleaved-podocarp forest
SOILS: yellow-brown earth (Tauhei), anthropic soil (Tamahere)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Tauhei soils in this inventory.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(96) Waitakaruru Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-02 Hapuakohe
LOCALITY and GRID REFERENCE: 6km SW of Waitakaruru S12 172329
AREA(ha): 13 **ALTITUDE(m):** 40-120 **RAINFALL(mm):** 1300
TOPOGRAPHY: hillslopes; river valley **PARENT MATERIAL:** finely bedded siltstone and sandstone **VEGETATION:** manuka scrub; broadleaved shrubland; hard beech treeland
SOILS: yellow-brown earth (Maramarua)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Maramarua soils in this inventory.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(97) Garret Open Space Covenant

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-04 Hamilton
LOCALITY and GRID REFERENCE: near Rotoorangi, 10km E of Te Awamutu S15 238537
AREA(ha): 6.8 **ALTITUDE(m):** 60 **RAINFALL(mm):** 1200
TOPOGRAPHY: alluvial plain **PARENT MATERIAL:** volcanic ash **VEGETATION:** kahikatea-broadleaved forest
SOILS: yellow-brown loam (Ohaupo)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) yellow-brown loams on alluvial plains under native vegetation are nationally uncommon. (ii) only example of Ohaupo soils in this inventory.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** Pam Garrett, QEII National Trust
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(98) Jubilee Park

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-04 Hamilton
LOCALITY and GRID REFERENCE: adjacent Hamilton City Showgrounds S14 120784
AREA(ha): 0.5 **ALTITUDE(m):** 35 **RAINFALL(mm):** 1200
TOPOGRAPHY: flat alluvial surface (microtopographic ridges and swales) **PARENT MATERIAL:** alluvium derived from rhyolite **VEGETATION:** kahikatea forest
SOILS: gley soil (Te-Kowhai)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) soils under lowland forest on flat surfaces are nationally uncommon. (ii) one of the few sites relatively undisturbed (has not been ploughed or fertilised) areas on the extensive Hinuera Formation. (iii) only example of Te Kowhai soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** past stock grazing; drainage of surrounding area has lowered water table; weed problem (especially on margins) **OWNER/MANAGER:** Hamilton City Council
CONTACT PERSON: Megan Balks **DATE OF INFORMATION:** December 1992
NOTES: Also known as "Claudelands Bush". Locally classified as a "reserve of natural importance". Cabbage trees dying and being removed.
REFERENCES: Bruce (1979)

(99) Moanatuatua Peat Scientific Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–04 Hamilton

LOCALITY and GRID REFERENCE: 9km SW of Cambridge S15 190603

AREA(ha): 75 **ALTITUDE(m):** 60 **RAINFALL(mm):** 1300

TOPOGRAPHY: peat dome **PARENT MATERIAL:** peat **VEGETATION:** rushland; fernland; manuka and bracken scrub

SOILS: organic soil (Rukuhia)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) the last remaining good example of *Sporadanthus* peat dome soils in New Zealand. (ii) only example of Rukuhia soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** much drainage of surrounding area; recent fires

TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** November 1992

REFERENCES: Department of Lands and Survey (1984)

(100) Riddell Open Space Covenant

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–04 Hamilton

LOCALITY and GRID REFERENCE: 12km N of Hamilton S14 123931

AREA(ha): 1.9 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1300

TOPOGRAPHY: alluvial plain and gully **PARENT MATERIAL:** volcanic ash **VEGETATION:** kahikatea forest; totara forest

SOILS: yellow–brown loam (Horotiu), gley soil (Te–Rapa)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland soils under native forest are nationally uncommon. (ii) only example of Te Rapa soils in this inventory. (iii) good examples of Horotiu soils are uncommon. (iv) most Te Rapa and Horotiu soils have been developed for dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** barberry and ragwort present

TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** Arthur and Peggy Riddell, QEII National Trust

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** October 1992

(101) Whewells Bush Scientific Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–04 Hamilton

LOCALITY and GRID REFERENCE: 10km SE of Hamilton S14 201728

AREA(ha): 12 **ALTITUDE(m):** 50 **RAINFALL(mm):** 1400

TOPOGRAPHY: flat and undulating alluvial plain **PARENT MATERIAL:** rhyolitic alluvium mixed with andesitic ash **VEGETATION:** kahikatea–(pukatea) swamp forest; broadleaved forest

SOILS: yellow–brown loam (Horotiu)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) Horotiu soils cover a large part of the Waikato Basin. Most have been developed for dairying and intensive sheep farming. (ii) good examples of Horotiu soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged; water table lowered from drainage of surrounding lands

TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** November 1992

REFERENCES: Department of Lands and Survey (1984)

(102) Gordon Gow Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–05 Hinuera

LOCALITY and GRID REFERENCE: 11km N of Matamata T14 497839

AREA(ha): 7.4 **ALTITUDE(m):** 15 **RAINFALL(mm):** 1200

TOPOGRAPHY: floodplain **PARENT MATERIAL:** alluvium **VEGETATION:** kahikatea swamp forest; introduced grassland; blue gum plantation; podocarp–broadleaved forest; kanuka–kowhai forest

SOILS: recent soil (Ngarua), yellow–brown loam (Waihou)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) little–disturbed recent soils and yellow–brown loams on floodplains are nationally uncommon. (ii) only example of Ngarua soils in this inventory. (iii) good examples of Waihou soils are uncommon. (iv) most Waihou soils have been developed for intensive sheep farming and dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** scout hall and house on reserve; some native conifers have been planted

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(103) Wairere Falls Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-05 Hinuera
LOCALITY and GRID REFERENCE: 14km SW of Matamata T14 628816
AREA(ha): 90 **ALTITUDE(m):** 150-450 **RAINFALL(mm):** 1400
TOPOGRAPHY: steep valley slopes; scarp plateau; waterfall **PARENT MATERIAL:** andesite and derived alluvium
VEGETATION: podocarp-broadleaved forest; podocarp-rata forest
SOILS: yellow-brown loam (Waitekauri Waihou)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waihou soils are uncommon. (ii) most Waihou soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(104) Junction Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-06 Maungatautari
LOCALITY and GRID REFERENCE: 14km NE of Cambridge T14 317733
AREA(ha): 12 **ALTITUDE(m):** 120 **RAINFALL(mm):** 1300
TOPOGRAPHY: steep hillslopes; riverflats **PARENT MATERIAL:** greywacke **VEGETATION:** tawa forest; scrub; fernland
SOILS: recent soil (Tauwhare)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Tauwhare soils are uncommon. (ii) most Tauwhare soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** July 1991
NOTES: Soils of the hillslopes have not been defined.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(105) Maungakawa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-06 Maungatautari
LOCALITY and GRID REFERENCE: Sanatorium Hill, 8km NE of Cambridge T15 330677
AREA(ha): 56 **ALTITUDE(m):** 180-230 **RAINFALL(mm):** 1300
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** greywacke **VEGETATION:** broadleaved forest
SOILS: recent soil (Tauwhare)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Tauwhare soils are uncommon. (ii) most Tauwhare soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged; bisected by road; planted park of native and exotic species
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(106) Maungatautari Mountain Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11-06 Maungatautari
LOCALITY and GRID REFERENCE: 15km SE of Cambridge T15 385527
AREA(ha): 2389 **ALTITUDE(m):** 300-780 **RAINFALL(mm):** 1300-3000
TOPOGRAPHY: moderately steep mountain slopes and ridges; gullies **PARENT MATERIAL:** andesite and derived colluvium **VEGETATION:** podocarp-broadleaved montane forest; tawa forest; mamuku fernland
SOILS: brown granular clay (Karioi Kakepuku), yellow-brown loam (Tirau Otorohanga)
IMPORTANCE: 1 **SIGNIFICANCE:** (i) an extensive area containing a moderate range of little-disturbed soil-vegetation associations. (ii) soils should be a good leaching sequence of brown granular clays and yellow-brown loams. (iii) only example of Tirau and Otorohanga soils in this inventory. (iv) good examples of Kakepuku soils are uncommon. (v) most Tirau and Otorohanga soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** rimu has been logged
TENURE: scenic reserve **OWNER/MANAGER:** Waipa District Council
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(107) Te Miro Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–06 Maungatautari
LOCALITY and GRID REFERENCE: 16km NE of Cambridge T14 333751
AREA(ha): 401 **ALTITUDE(m):** 213–426 **RAINFALL(mm):** 1300
TOPOGRAPHY: hillslopes; stream valleys **PARENT MATERIAL:** greywacke and derived colluvium **VEGETATION:** podocarp–broadleaved forest
SOILS: yellow–brown earth (Pukerata)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Pukerata soils are uncommon. (ii) most Pukerata soils have been developed for extensive sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(108) Te Tapui Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–06 Maungatautari
LOCALITY and GRID REFERENCE: 13km E of Matamata T14 410715
AREA(ha): 2382 **ALTITUDE(m):** 150–495 **RAINFALL(mm):** 1300–1400
TOPOGRAPHY: gentle to steep hillslopes and ridges **PARENT MATERIAL:** andesite and derived colluvium
VEGETATION: shrubland; radiata pine/podocarp–broadleaved forest; podocarp–broadleaved forest
SOILS: brown granular clay (Kakepuku), yellow–brown loam (Peria)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a range of little–disturbed soil–vegetation associations. (ii) good examples of Kakepuku and Peria soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** exotic pine forest; deer, pig and possum present
TENURE: scenic reserve **OWNER/MANAGER:** Matamata – Piako District Council
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** July 1991
NOTES: Largest lowland forest scenic reserve in South Auckland area.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(109) Williams Open Space Covenant

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 11–06 Maungatautari
LOCALITY and GRID REFERENCE: 12km NNE of Cambridge T14 350769
AREA(ha): 26 **ALTITUDE(m):** 300 **RAINFALL(mm):** 1400
TOPOGRAPHY: steep hillslopes and gullies **PARENT MATERIAL:** andesite and derived colluvium; volcanic ash
VEGETATION: broadleaved forest
SOILS: brown granular clay (Kakepuku), yellow–brown loam (Peria)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Kakepuku and Peria soils are uncommon.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** Eric Williams, Lewis Hoyle, QEII National Trust
CONTACT PERSON: Alastair Wilson **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(110) Eric Baker Memorial Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–01 Raglan
LOCALITY and GRID REFERENCE: 25km SW of Tuakau R13 694100
AREA(ha): 0.5 **ALTITUDE(m):** 45 **RAINFALL(mm):** 1500
TOPOGRAPHY: easy to steep hillslopes **PARENT MATERIAL:** mudstone **VEGETATION:** kauri forest; kanuka treeland
SOILS: yellow–brown earth (Ruakiwi)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Ruakiwi soils in this inventory.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(111) Hakarimata Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–01 Raglan
LOCALITY and GRID REFERENCE: Hakarimata Range, just north of Ngaruawahia S14 984927
AREA(ha): 1779 **ALTITUDE(m):** 373 **RAINFALL(mm):** 1400–1600

TOPOGRAPHY: undulating to steep hillslopes **PARENT MATERIAL:** indurated sandstone and siltstone **VEGETATION:** mixed podocarp forest; kauri forest
SOILS: yellow-brown earth (Kaawa Waingaro), yellow-brown loam (Dunmore)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waingaro soils are uncommon. (ii) most Dunmore soils have been developed for sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** some areas have been logged
TENURE: scenic reserve
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(112) Kaniwhaniwha Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-01 Raglan
LOCALITY and GRID REFERENCE: 18km W of Hamilton S15 949687
AREA(ha): 11 **ALTITUDE(m):** 190 **RAINFALL(mm):** 1700-1900
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** indurated sandstone and siltstone **VEGETATION:** mixed podocarp-tawa forest
SOILS: yellow-brown earth (Kaawa), yellow-brown loam (Dunmore)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Dunmore soils are uncommon. (ii) most Dunmore soils have been developed for sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned; goat present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(113) Motukokako Point Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-01 Raglan
LOCALITY and GRID REFERENCE: 2km NE of Raglan R14 775784
AREA(ha): 42 **ALTITUDE(m):** 50 **RAINFALL(mm):** 1500
TOPOGRAPHY: steep rocky headland; gentle to steep hillslopes **PARENT MATERIAL:** calcareous siltstone and limestone **VEGETATION:** broadleaved forest; tree fern fernland
SOILS: yellow-brown earth (Wairama), rendzina
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Wairama soils in this inventory. (ii) most Wairama soils have been developed for extensive sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned; pa and urupa sites; native plantings
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(114) Te Karaka Memorial Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-01 Raglan
LOCALITY and GRID REFERENCE: 32km W of Huntly R13 694100
AREA(ha): 2.6 **ALTITUDE(m):** 250 **RAINFALL(mm):** 1500
TOPOGRAPHY: easy to steep hillslopes **PARENT MATERIAL:** blue mudstone, sandstone and limestone, and derived colluvium **VEGETATION:** kauri forest
SOILS: yellow-brown earth (Ruakiwi)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Ruakiwi soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(115) Te Puroa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-01 Raglan
LOCALITY and GRID REFERENCE: 8km SW of Ngaruawahia S14 908799
AREA(ha): 222 **ALTITUDE(m):** 150-304 **RAINFALL(mm):** 1600
TOPOGRAPHY: moderately steep to rugged hillslopes; river valleys **PARENT MATERIAL:** greywacke and derived colluvium **VEGETATION:** podocarp/broadleaved forest; kanuka-kamahahi treeland
SOILS: yellow-brown earth (Waingaro Kaawa), yellow-brown loam (Dunmore)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waingaro soils are uncommon. (ii) most Dunmore soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged; abandoned open cast coal mine
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(116) Brabant Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: 10km N of Kawhia R15 756562
AREA(ha): 20 **ALTITUDE(m):** 0–216 **RAINFALL(mm):** 1400
TOPOGRAPHY: rugged, steep hillslopes; rock outcrops and bluffs **PARENT MATERIAL:** siltstone and sandstone, and derived colluvium **VEGETATION:** coastal broadleaved forest
SOILS: yellow–brown sand (Red–Hill), yellow–brown loam (Hauturu Te–Waitere)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Red Hill soils in this inventory. (ii) most Red Hill soils have been developed for sheep and dairy farming. (iii) good examples of Te Waitere soils are uncommon. (iv) most Te Waitere soils have been developed for extensive sheep farming.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(117) Bridal Veil Falls Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: 4km S of Te Whata R15 773654
AREA(ha): 218 **ALTITUDE(m):** 165 **RAINFALL(mm):** 1400
TOPOGRAPHY: steep hillslopes and ridges; waterfall; cliffs **PARENT MATERIAL:** sandstone, siltstone and basalt, and derived colluvium **VEGETATION:** podocarp–broadleaved forest; rockland
SOILS: yellow–brown loam (Kauroa), brown granular clay (Karioi), yellow–brown earth (Papatapu)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) moderate range of soils under native vegetation. (ii) only example of Kauroa soils in this inventory. (iii) good examples of Papatapu soils are uncommon. (iv) most Kauroa, Red Hill and Papatapu soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** road bisects reserve
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
NOTES: Karioi soils are brown granular clays.
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(118) Bryant Memorial Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: 15km N of Kawhia R13 709100
AREA(ha): 17 **ALTITUDE(m):** 90 **RAINFALL(mm):** 1400
TOPOGRAPHY: steep gully; sandy beach **PARENT MATERIAL:** andesite agglomerate and breccia; aeolian sands
VEGETATION: kanuka/broadleaved forest
SOILS: brown loam (Okupata), yellow–brown sand (Horea)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Okupata and Horea soils are uncommon. (ii) most Horea soils have been developed for extensive sheep farming.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
NOTES: Native trees have been planted in the reserve.
REFERENCES: McCaskill (1979ii) Department of Lands and Survey (1984)

(119) Kawhia Harbour Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: Kawhia Harbour R15 696489
AREA(ha): 191 **RAINFALL(mm):** 1500
TOPOGRAPHY: headlands; bluffs; hillslopes **PARENT MATERIAL:** siltstone, sandstone, limestone and minor igneous rocks, and derived colluvium **VEGETATION:** coastal kamahi treeland
SOILS: yellow–brown loam (Kinohaku Te–Waitere Hauturu Mangapohue), yellow–brown earth (Pakau Mangaotaki Pakarae Muterangi), rendzina, brown loam
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a wide range of little–disturbed soil–vegetation associations. (ii)

good examples of Kinohaku, Te Wairere, Mangapohue, Mangaotaki and Muturangi soils are uncommon. (iii) most Kinohaku, Te Wairere, Mangaotaki and Pakarae soils have been developed for sheep and dairy farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(120) Pakoka Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-02 Kawhia

LOCALITY and GRID REFERENCE: Aotea Harbour, 25km SW of Raglan R15 713618

AREA(ha): 47 **ALTITUDE(m):** 75 **RAINFALL(mm):** 1400

TOPOGRAPHY: hillslopes and gullies; knolls **PARENT MATERIAL:** basalt **VEGETATION:** podocarp-broadleaved forest; shrubland; kowhai treeland

SOILS: yellow-brown sand (Horea), yellow-brown earth (Papatapu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Horea and Papakauri soils are uncommon. (ii) most Horea soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(121) Pirongia Conservation Park

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-02 Kawhia

LOCALITY and GRID REFERENCE: 20km W of Te Awamutu S15 944546

AREA(ha): 16 738 **ALTITUDE(m):** 200-700 **RAINFALL(mm):** 1500-3200

TOPOGRAPHY: two extinct volcanoes with moderate to steep hillslopes and ridges; narrow and steep-sided valleys; bluffs **PARENT MATERIAL:** basaltic andesite and basalts, and derived colluvium; volcanic ash **VEGETATION:** podocarp-broadleaved forest; moss-forest

SOILS: brown loam (Ahuroa Okupata), brown granular clay (Karioi), yellow-brown loam (Kauroa Mahaukura), organic soil

IMPORTANCE: 1 **SIGNIFICANCE:** (i) a very extensive area containing a wide range of little-disturbed soil-vegetation associations. (ii) most Kauroa soils have been developed for sheep and dairy farming. (iii) good examples of Ahuroa and Mahaukara soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** pig, goat and possum present

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** July 1991

NOTES: Soil pattern is particularly varied due to local volcanic history and the younger ash mantle formed by positive accretion from Tongariro, Okataina and Egmont volcanic centres. Ahuroa hill soils, Karioi steepland soils and Okupata hill soils occur on solid deposits. Kauroa silt loams, Kauroa hill soils and Mahaukara hill soils occur on drift deposits.

REFERENCES: Department of Lands and Survey (1984) Bruce (1978)

(122) Ruapuke Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-02 Kawhia

LOCALITY and GRID REFERENCE: 13km SW of Raglan R15 670656

AREA(ha): 12 **ALTITUDE(m):** 75 **RAINFALL(mm):** 1500

TOPOGRAPHY: hillslopes **PARENT MATERIAL:** andesite and basalt, and derived colluvium; volcanic ash **VEGETATION:** coastal forest; podocarp forest; kanuka treeland

SOILS: brown loam (Okupata), yellow-brown sand (Tuahu Horea)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Okupata and Okupata soils are uncommon. (ii) most Horea soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(123) Taumatotara East Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-02 Kawhia

LOCALITY and GRID REFERENCE: 40km NW of Te Kuiti R16 722304

AREA(ha): 143 **ALTITUDE(m):** 100-110 **RAINFALL(mm):** 2000

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** sandstone, greensand and basalt, and derived colluvium; volcanic ash **VEGETATION:** podocarp–broadleaved forest
SOILS: yellow–brown earth (Pakau), yellow–brown loam (Ounu Mangapohue), rendzina
IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils under native vegetation. (ii) only example of Ounu soils in this inventory. (iii) good examples of Mangapohue soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(124) Te Kauri Park

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: 43km W of Te Awamutu R15 886467
AREA(ha): 987 **ALTITUDE(m):** 500–1000 **RAINFALL(mm):** 1800–2000
TOPOGRAPHY: steep to moderately steep hillslopes; gullies, rocky bluffs; flat swampy alluvial flats **PARENT MATERIAL:** andesite and derived colluvium **VEGETATION:** podocarp–broadleaved forest; broadleaved forest; kahikatea forest; kawaka forest
SOILS: yellow–brown earth (Maturangi), yellow–brown loam (Hauturu Kinohaku), brown loam (Okupata)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) moderate range of soils under diverse vegetation. (ii) good examples of Kinohaku, Maturangi and Okupata soils are uncommon. (iii) most Kinohaku soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** residential lodge
TENURE: scenic reserve, conservation land **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Gary Orbell **DATE OF INFORMATION:** August 1991
NOTES: Southern limit of kauri. Total area is more than 987ha but additions have not yet been surveyed. Reserve is used extensively by school and nature groups, and could be an excellent site for teaching soils to young people.
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(125) Te Rauamo Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: 32km W Te Awamutu S15 914429
AREA(ha): 67 **ALTITUDE(m):** 240 **RAINFALL(mm):** 1800–2000
TOPOGRAPHY: steep colluvial hillslopes **PARENT MATERIAL:** andesite **VEGETATION:** podocarp–broadleaved forest
SOILS: yellow–brown earth (Maturangi), yellow–brown loam (Hauturu)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Maturangi soils are uncommon.
TENURE: scenic reserve
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(126) Walter Scott Private Protected Land

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: 29km W of Te Awamutu S15 929466
AREA(ha): 43 **ALTITUDE(m):** 240 **RAINFALL(mm):** 1800–2000
TOPOGRAPHY: hill footslopes **PARENT MATERIAL:** basaltic andesite; volcanic ash **VEGETATION:** podocarp–broadleaved forest
SOILS: brown granular clay (Pirongia)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only record of Pirongia soils in this inventory. (ii) most Pirongia soils have been developed for extensive sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned; goat present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(127) Ward Open Space Covenant

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12–02 Kawhia
LOCALITY and GRID REFERENCE: five areas between Mt Karioi and the sea, 8–10km E of Te Mata R15 683656
AREA(ha): 237 **ALTITUDE(m):** 0–200 **RAINFALL(mm):** 1400
TOPOGRAPHY: steep hillslopes and gullies; creeks; coastal cliff **PARENT MATERIAL:** volcanic ash; beach deposits **VEGETATION:** puriri forest

SOILS: brown loam (Okupata), yellow-brown loam (Kauroa), yellow-brown sand (Tuahu Horea)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils under native vegetation. (ii) good examples of Tuahu and Kauroa soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat, cattle and possum present
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** Miss Ward, QEII National Trust
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(128) Arorangi Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-03 Herangi
LOCALITY and GRID REFERENCE: 8km E of Awakino R17 595825
AREA(ha): 312 **ALTITUDE(m):** 30-300 **RAINFALL(mm):** 1800
TOPOGRAPHY: steep hillslopes; river valley and gorge **PARENT MATERIAL:** calcareous sandstone and siltstone
VEGETATION: tawa-rewarewa forest; podocarp-broadleaved forest
SOILS: yellow-brown earth (Te-Pari Moeatoa)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Te Pari soils are uncommon. (ii) most Te Pari soils have been developed for extensive sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b)

(129) Manganui Gorge Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-03 Herangi
LOCALITY and GRID REFERENCE: 20km NNE of Awakino R17 599010
AREA(ha): 321 **ALTITUDE(m):** 180 **RAINFALL(mm):** 2000-2400
TOPOGRAPHY: steep hillslopes; gorge **PARENT MATERIAL:** greywacke **VEGETATION:** podocarp-broadleaved-treefern forest
SOILS: yellow-brown loam (Aria), yellow-brown earth (Mohakatino Wanstead)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Wanstead soils are uncommon. (ii) most Wanstead soils have been developed for extensive sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat and possum present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
NOTES: Ahuriri soils are saline recent soils.
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(130) Mangatōa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 12-03 Herangi
LOCALITY and GRID REFERENCE: 40km SW of Te Kuiti K17 965074
AREA(ha): 287 **ALTITUDE(m):** 60-360 **RAINFALL(mm):** 1600-2000
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** greywacke and derived colluvium **VEGETATION:** podocarp-broadleaved forest; manuka scrub
SOILS: yellow-brown earth (Mohakatino Wanstead Moeatoa)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Wanstead soils are uncommon. (ii) most Wanstead soils have been developed for sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Murray Jessen **DATE OF INFORMATION:** August 1991
NOTES: There is a 2000 year old puriri tree in this reserve.
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(131) Minden Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-02 Tauranga
LOCALITY and GRID REFERENCE: 9km W of Tauranga U14 791848
AREA(ha): 47 **ALTITUDE(m):** 60 **RAINFALL(mm):** 1600
TOPOGRAPHY: gully **PARENT MATERIAL:** rhyolite **VEGETATION:** broadleaved shrubland
SOILS: yellow-brown loam (Katikati)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Katikati soils are uncommon. (ii) most Katikati soils have

been developed for sheep and dairy farming and horticulture.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(132) Waihi Estuary Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-02 Tauranga

LOCALITY and GRID REFERENCE: southern end of Waihi Estuary, 2.5km from Little Waihi V14 177746

AREA(ha): 17 **ALTITUDE(m):** 0-3 **RAINFALL(mm):** 1600

TOPOGRAPHY: estuary margin **PARENT MATERIAL:** estuarine silts and sands **VEGETATION:** silt- and sandfield

SOILS: saline soil (Takahiwai)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) saline soils under native vegetation are uncommon in New Zealand owing to extensive drainage and cultivation. (ii) good examples of Takahiwai soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** adjoining land has been drained

TENURE: government purpose reserve **OWNER/MANAGER:** Eastern Fish and Game Council

CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** October 1992

REFERENCES: Department of Lands and Survey (1984)

(133) Waikareao Estuary Wildlife Refuge

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-02 Tauranga

LOCALITY and GRID REFERENCE: between Tauranga city centre and Otumoetai suburb U14 860885

AREA(ha): 260 **ALTITUDE(m):** 0-30 **RAINFALL(mm):** 1500

TOPOGRAPHY: estuary; small island **PARENT MATERIAL:** post-glacial lake silt **VEGETATION:** seagrass mudflat; sandfield

SOILS: saline soil (Waitakaruru)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) most saline recent soils in New Zealand have been drained. (ii) only example of Waitakaruru soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** surrounded by high density housing

TENURE: wildlife refuge **OWNER/MANAGER:** Eastern Fish and Game Council

CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** October 1992

REFERENCES: Department of Lands and Survey (1984)

(134) Wainui River Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-02 Tauranga

LOCALITY and GRID REFERENCE: 25km W of Tauranga V14 189870

AREA(ha): 47 **ALTITUDE(m):** 60 **RAINFALL(mm):** 1800-2000

TOPOGRAPHY: steep hillslopes; river valley **PARENT MATERIAL:** siltstone, sandstone and conglomerate; volcanic ash **VEGETATION:** manuka-kanuka treeland

SOILS: podzolised yellow-brown loam (Whakamarama)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whakamarama soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(135) Carrie Gibbons Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-03 Otago

LOCALITY and GRID REFERENCE: 30km NE of Rotorua V15 176537

AREA(ha): 20 **RAINFALL(mm):** 1800

TOPOGRAPHY: gently undulating hillslopes **PARENT MATERIAL:** pumice breccia **VEGETATION:** broadleaved-podocarp forest

SOILS: yellow-brown earth (Mangawhea)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Mangawhea soils in this inventory.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(136) Mangaone Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–03 Otanewainuku
LOCALITY and GRID REFERENCE: 45km from Rotorua V15 305477
AREA(ha): 580 **ALTITUDE(m):** 130 **RAINFALL(mm):** 1900-2100
TOPOGRAPHY: steep hillslopes; gullies **PARENT MATERIAL:** rhyolite and ignimbrite, and derived colluvium
VEGETATION: manuka–fern treeland; podocarp–broadleaved forest
SOILS: yellow–brown pumice soil (Pukemaku Manawahe), recent soil (Tarawera)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good example of recent and older soils formed from volcanic ash under native vegetation. (ii) good examples of Pukemaku and Manawahe soils are uncommon. (iii) most Manawahe soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a)

(137) Mangapouri Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–03 Otanewainuku
LOCALITY and GRID REFERENCE: 19km N of Rotorua U15 911510
AREA(ha): 40 **ALTITUDE(m):** 465 **RAINFALL(mm):** 2000-2400
TOPOGRAPHY: steep undulating hillslopes; stream gorge **VEGETATION:** podocarp–broadleaved forest
SOILS: podzolised yellow–brown pumice soil (Kaharoa), composite (Oropi)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Kaharoa and Oropiti soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Oropi soils are podzolised composite yellow–brown pumice soils on yellow–brown loams.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(138) Ottawa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–03 Otanewainuku
LOCALITY and GRID REFERENCE: 5km W of Te Puke U14 965767
AREA(ha): 482 **ALTITUDE(m):** 180-555 **RAINFALL(mm):** 2000
TOPOGRAPHY: steep hillslopes and ridges **PARENT MATERIAL:** pumice breccias, rhyolite and andesite, and derived colluvium **VEGETATION:** podocarp–broadleaved forest; rimu–beech forest
SOILS: yellow–brown loam (Otanewainuku), podzolised yellow–brown loam (Whakamarama)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whakamarama soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(139) Penny Road Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–03 Otanewainuku
LOCALITY and GRID REFERENCE: 26km N of Rotorua W15 599483
AREA(ha): 18 **ALTITUDE(m):** 330 **RAINFALL(mm):** 2000-2400
TOPOGRAPHY: flat to easy rolling hillslopes **PARENT MATERIAL:** ignimbrite **VEGETATION:** tawa forest; wheki–tawa forest
SOILS: podzolised yellow–brown pumice soil (Kaharoa)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Kaharoa soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** vandalism of treeferns
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(140) Puketoki Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–03 Otanewainuku
LOCALITY and GRID REFERENCE: 18km W of Tauranga U14 731813
AREA(ha): 35 **ALTITUDE(m):** 250 **RAINFALL(mm):** 1800-2200
TOPOGRAPHY: gentle hillslopes **PARENT MATERIAL:** dacitic ignimbrite, and derived colluvium **VEGETATION:** broadleaved forest

SOILS: podzolised yellow–brown loam (Whakamarama)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Whakamarama soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned
TENURE: scenic reserve **OWNER/MANAGER:** Western Bay of Plenty District Council
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Soil Bureau Lab. No 10121 A–G taken nearby.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(141) Dansey Road Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua
LOCALITY and GRID REFERENCE: 38km W of Ngongotaha U15 835420
AREA(ha): 470 **ALTITUDE(m):** 510 **RAINFALL(mm):** 1900–2100
TOPOGRAPHY: broken plateau; rocky escarpment **PARENT MATERIAL:** ignimbrite; volcanic ash **VEGETATION:** podocarp–broadleaved forest
SOILS: podzolised yellow–brown pumice soil (Mamaku), yellow–brown loam (Ngakuru), composite (Arahiwi), podzolised yellow–brown loam (Ngongotaha)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of little–disturbed soil–vegetation associations under virgin forest. (ii) only example of Arahiwi and Okareka soils in this inventory. (iii) good examples of Ngakuru and Mamaku soils are uncommon. (iii) most Ngongotaha soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and burned; bisected by railway
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Arahiwi soils are composite yellow–brown pumice soils on yellow–brown loams. Ngongotaha soils are podzolised yellow–brown loams. Outstanding virgin forest.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(142) Lake Okataina Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua
LOCALITY and GRID REFERENCE: 16km NE of Rotorua U16 097392
AREA(ha): 4388 **ALTITUDE(m):** 300–780 **RAINFALL(mm):** 1800–2000
TOPOGRAPHY: undulating plateau; bluffs **PARENT MATERIAL:** rhyolite and ignimbrite, and derived colluvium; volcanic ash **VEGETATION:** broadleaved forest; rimu–rata/broadleaved forest
SOILS: composite (Okareka Rotoiti), recent soil (Haroharo Tarawera Rotomahana)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of soils. (ii) good examples of Rotoiti soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Okareka, Rotomahana, and Rotoiti soils are composite recent soils on yellow–brown pumice soils.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(143) Lake Rotoiti Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua
LOCALITY and GRID REFERENCE: Lake Rotoiti V15 115484
AREA(ha): 445 **ALTITUDE(m):** 300–540 **RAINFALL(mm):** 1800–2000
TOPOGRAPHY: steep cliffs; hillslopes **PARENT MATERIAL:** rhyolite, pumice breccias and siltstone, and derived colluvium **VEGETATION:** pohutukawa treeland; podocarp forest; broadleaved forest
SOILS: yellow–brown pumice soil (Oturoa), composite (Rotoiti)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Oturoa and Rotoiti soils are uncommon. (ii) most Oturoa soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Rotoiti soils are composite recent soils on yellow–brown pumice soils.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(144) Lake Rotoma Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua
LOCALITY and GRID REFERENCE: northern shore of Lake Rotorua V15 246442
AREA(ha): 875 **ALTITUDE(m):** 240–480 **RAINFALL(mm):** 2400

TOPOGRAPHY: hillslopes; gullies **PARENT MATERIAL:** pumice breccias; rhyolite **VEGETATION:** podocarp–broadleaved forest; kahikatea forest
SOILS: recent soil (Tarawera), yellow–brown pumice soil (Manawahe Pukemaku)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Pukemaku and Manawahe soils are uncommon. (ii) many Manawahe soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Called "Rotoma Scenic Reserve" in Department of Lands and Survey (1984).
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(145) Lake Tarawera Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua
LOCALITY and GRID REFERENCE: Lake Tarawera and part Tarawera River, 13km E of Rotorua U16 021303
AREA(ha): 5819 **ALTITUDE(m):** 300–750 **RAINFALL(mm):** 2000–2400
TOPOGRAPHY: hillslopes; terraces **PARENT MATERIAL:** rhyolite and siltstone, and derived colluvium; pumice alluvium; fan and lahar deposits; volcanic ash **VEGETATION:** broadleaved forest
SOILS: recent soil (Tarawera Rangitaiki), yellow–brown pumice soil (Kawerau), recent soil (Haroharo)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a moderate range of little–disturbed soil–vegetation associations on a wide range of parent materials. (ii) recent soils on low terraces with forest cover are nationally uncommon. (iii) only example of Kawerau soils in this inventory. (iv) good examples of Rangitaiki soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Site of buried village.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(146) Mount Ngongotaha Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua
LOCALITY and GRID REFERENCE: Mount Ngongotaha, 3km NW of Rotorua U15 878400
AREA(ha): 542 **ALTITUDE(m):** 420–757 **RAINFALL(mm):** 1700–1900
TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** rhyolite and derived colluvium; volcanic ash
VEGETATION: podocarp–broadleaved forest; kamahi treeland
SOILS: yellow–brown loam (Ngakuru), podzolised yellow–brown loam (Ngongotaha)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Ngakuru soils are uncommon. (ii) most Ngongotaha soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** podocarps have been logged; cattle damage
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(147) Mount Tarawera Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua
LOCALITY and GRID REFERENCE: lower slopes of Mt Tarawera V16 164223
AREA(ha): 505 **ALTITUDE(m):** 510–660 **RAINFALL(mm):** 1500–1900
TOPOGRAPHY: moderate to steep mountain slopes **PARENT MATERIAL:** rhyolite and basalt, and derived colluvium; volcanic ash **VEGETATION:** broadleaved–podocarp forest; manuka scrub; kanuka–pohutukawa forest; broadleaved forest
SOILS: recent soil (Tarawera Haroharo Rotomahana)
IMPORTANCE: 1 **SIGNIFICANCE:** (i) one of the very few examples in New Zealand of the soil formation sequence of a wide range of recent tephras on a volcano. Mt Tarawera is a valuable site for international pedological studies of recently active volcanos. (iii) good examples of Haroharo soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** Tarawera eruption in 1886 destroyed most of the original vegetation
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Rotomahana soils are composite recent soils on yellow–brown pumice soils.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(148) Tarukenga Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13–04 Rotorua

LOCALITY and GRID REFERENCE: 12km NW of Rotorua U15 836439
AREA(ha): 32 **ALTITUDE(m):** 550 **RAINFALL(mm):** 1900-2100
TOPOGRAPHY: flat valley floor **PARENT MATERIAL:** ignimbrite **VEGETATION:** broadleaved forest
SOILS: podzolised yellow-brown pumice soil (Ngongotaha)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Ngongotaha soils are uncommon. (ii) most Ngongotaha soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** podocarps have been logged
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(149) Te Waerenga Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-04 Rotorua
LOCALITY and GRID REFERENCE: north end of Lake Rotorua, 1km from Hamurana U15 955490
AREA(ha): 30 **ALTITUDE(m):** 420 **RAINFALL(mm):** 1900-2100
TOPOGRAPHY: steep hillslopes; terrace; fan **PARENT MATERIAL:** ignimbrite; alluvium and colluvium
VEGETATION: kamahi-rewarewa forest
SOILS: yellow-brown pumice soil (Pohaturua), composite (Oropi Oturoa)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Pohaturua soils in this inventory. (ii) good examples of Oturoa and Oropi soils are uncommon. (iii) most Oturoa soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** July 1991
NOTES: Oropi and Oturoa soils are composite yellow-brown pumice soils on yellow-brown loams. Urupa (burial site) within reserve.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(150) Waimangu Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-04 Rotorua
LOCALITY and GRID REFERENCE: 19km S of Rotorua U16 076208
AREA(ha): 254 **ALTITUDE(m):** 400-630 **RAINFALL(mm):** 1500-1700
TOPOGRAPHY: thermal valley: hot lakes, streams, craters **PARENT MATERIAL:** volcanic mud; pumice breccia
VEGETATION: kamahi forest; kanuka treeland; broadleaved treeland; thermal vegetation; Dracophyllum-Gaultheria wetland; sedgeland; fernland
SOILS: recent soil (Paretotara Rotomahana), hydrothermally altered soil
IMPORTANCE: 1 **SIGNIFICANCE:** (i) area contains internationally rare hydrothermally altered soils and associated vegetation. Only large hydrothermal area in New Zealand relatively unaffected by human activities. (ii) only example of Paretotara soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** possum and goat present; tracks and facilities
TENURE: scenic reserve **OWNER/MANAGER:** New Zealand Tourism Department
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** August 1991
NOTES: Rotomahana soils are composite recent soils on yellow-brown pumice soils. Tracks and facilities are leased to a private concessionaire.
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984) Vucetich and Wells (1978)

(151) Waikite Government Purpose Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 13-04 Rotorua Lakes
LOCALITY and GRID REFERENCE: 20km S of Rotorua U16 012171
AREA(ha): 22 **ALTITUDE(m):** 450-600 **RAINFALL(mm):** 1500
TOPOGRAPHY: valley floor; steep hillslopes; hot springs **PARENT MATERIAL:** peat; rhyolitic tephra **VEGETATION:** (manuka)-sedgeland; aquatic vegetation
SOILS: organic soil (Tokiaminga), yellow-brown pumice soil (Taupo Tauhara)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland organic soils under native vegetation are uncommon in New Zealand. (ii) only example of Tokiaminga soils in this inventory. (iii) good examples of Tauhara soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** surrounding hillslopes planted in pines which have spread into the reserve; introduced grasses also present
TENURE: government purpose reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Neil Kennedy **DATE OF INFORMATION:** October 1992
NOTES: Called "Wakite Government Purpose Reserve" in Department of Lands and Survey (1984).
REFERENCES: Department of Lands and Survey (1984)

(152) White Island

REGIONAL/CITY COUNCIL(S): outside regional council boundary **ECOLOGICAL DISTRICTS(S):** 13-05 White Island

LOCALITY and GRID REFERENCE: Bay of Plenty, 50km N of Opotiki W13 814010

AREA(ha): 238 **ALTITUDE(m):** 0-300 **RAINFALL(mm):** 1200-1500

TOPOGRAPHY: active volcano: gentle to very steep slopes with deeply entrenched gullies; wave-cut cliffs; crater; lahar mounds; hot springs **PARENT MATERIAL:** andesite and derived tephra and colluvium **VEGETATION:** bare ground and rock; pohutukawa forest and scrub; grass- and herbfields

SOILS: lithosol, recent soil

IMPORTANCE: 1 **SIGNIFICANCE:** (i) a valuable site for studies of soil formation from raw parent materials on an active volcano. (ii) soils that are formed partly as a result of the activities of burrowing birds are internationally rare. Normal soil processes are influenced by additions of gannet guano to the organic cycle. Extensive burrowing activities of petrels rejuvenates the whole soil profile, as well as introduces additional organic matter. (iii) provides nationally unique examples of soil profiles severely influenced by leaching, intensified by the acid fumes.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** sulphur was mined on the island from the early 1800s to 1929

TENURE: private protected land **OWNER/MANAGER:** JR Buttle (Warkworth)

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1992

REFERENCES: Hamilton and Baumgart (1959) Department of Lands and Survey (1984)

(153) Kohi Point Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-01 Te Teko

LOCALITY and GRID REFERENCE: between Whakatane Harbour and Ohope Beach W15 630538

AREA(ha): 154 **ALTITUDE(m):** 0-180 **RAINFALL(mm):** 1400

TOPOGRAPHY: peninsula – steep bedrock cliffs and sandy beach **PARENT MATERIAL:** greywacke, marine sandstone, conglomerates and interbedded pumiceous tuffs, and derived colluvium; alluvial silts, sands and gravels **VEGETATION:** coastal broadleaved forest; fernland; pohutukawa forest

SOILS: yellow-brown earth (Tawhia), yellow-brown pumice soil (Ngatiawa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Ngatiawa soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned; wilding pines; contains at least six pa sites

TENURE: scenic reserve **OWNER/MANAGER:** Whakatane District Council

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Beadel and Shaw (1988) McCaskill (1979a) Department of Lands and Survey (1984)

(154) Motuotu Island Nature Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-02 Taneatua

LOCALITY and GRID REFERENCE: 13km W of Opotiki W15 736464

AREA(ha): 70 **ALTITUDE(m):** 0-2 **RAINFALL(mm):** 1400

TOPOGRAPHY: 10 lowlying islands surrounded by and extensive mudflat foreshore **PARENT MATERIAL:** aeolian sand **VEGETATION:** mangrove shrubland; pohutukawa/manuka mixed scrub

SOILS: saline soil (Muriwai), recent soil (Ohope)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) a little-disturbed remnant of soils under mangrove vegetation. (ii) only example of Muriwai soils in this inventory. (iii) good examples of Ohope soils are uncommon.

VULNERABILITY: 3

TENURE: nature reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: Largest area of mangroves in Gisborne reserves. Muriwai soils are gleyed recent saline soils.

REFERENCES: Clarkson and Regnier (1989) Department of Lands and Survey (1984)

(155) Ohope Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-02 Taneatua

LOCALITY and GRID REFERENCE: near Ohope Beach, 4.5km SE of Whakatane W15 639504

AREA(ha): 495 **ALTITUDE(m):** 30-210 **RAINFALL(mm):** 1350

TOPOGRAPHY: hillslopes with steep valley walls; many streams **PARENT MATERIAL:** marine sandstones, conglomerates and interbedded pumiceous tuffs, and derived colluvium; alluvial silts, sands and gravels **VEGETATION:** rewarewa/kanuka-pohutukawa forest; pohutukawa forest; tawa-mangeao forest; Carex sedgeland

SOILS: yellow-brown pumice soil (Ngatiawa)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) one of the few remaining examples of soils under a reasonably large area of pohutukawa forest. (ii) good examples of Ngatiawa soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned; contains pa sites

TENURE: scenic reserve **OWNER/MANAGER:** Whakatane District Council
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: Beadel and Shaw (1988) McCaskill (1979a) Department of Lands and Survey (1984)

(156) Waimana Gorge Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-02 Taneatua
LOCALITY and GRID REFERENCE: 4km from Taneatua W16 635369
AREA(ha): 156 **ALTITUDE(m):** 30-245 **RAINFALL(mm):** 1600
TOPOGRAPHY: steep hillslopes and ridges; gullies; rocky outcrops **PARENT MATERIAL:** rhyolite on greywacke, and derived colluvium **VEGETATION:** tawa forest; kanuka-broadleaved forest; totara forest; introduced grassland; raupo reedland; mamaku fernland; kanuka forest; rewarewa forest forest
SOILS: yellow-brown earth (Tawhia)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Tawhia soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** deer, pig and possum present; parts still grazed by stock
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: Beadel and Shaw (1988) McCaskill (1979a) Department of Lands and Survey (1984)

(157) Waiotahi Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-02 Taneatua
LOCALITY and GRID REFERENCE: 10km SE of Opotiki W16 761380
AREA(ha): 261 **ALTITUDE(m):** 30-270 **RAINFALL(mm):** 1600
TOPOGRAPHY: hillslopes; river terraces and valley floor **PARENT MATERIAL:** greywacke, argillite and conglomerates, and derived colluvium and alluvium **VEGETATION:** black beech forest; hard beech forest; tawa forest; kahikatea forest; tanekaha forest
SOILS: yellow-brown sand (Ohope), yellow-brown loam (Opotiki)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) soils under black beech forest are uncommon in the Bay of Plenty region. (ii) only example of Opotiki soils in this inventory. (iii) good example of Ohope soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts still grazed by stock; large part has been burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: Clarkson and Regnier (1989) Department of Lands and Survey (1984) McCaskill (1981c)

(158) Waiotahi Spit Scenic and Historic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-02 Taneatua
LOCALITY and GRID REFERENCE: 11km W of Opotiki W15 782483
AREA(ha): 32 **ALTITUDE(m):** 0-30 **RAINFALL(mm):** 1400
TOPOGRAPHY: gently undulating sand spit; rock outcrops **PARENT MATERIAL:** red sandstone; aeolian sand
VEGETATION: pohutukawa forest; wetland fern-grassland; mamaku fernland
SOILS: yellow-brown sand (Ohope)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains nationally rare relatively undisturbed soil-coastal pohutukawa forest associations. (ii) Waiotahi spit is one of the few, largely undeveloped sand spits under crown control in the Opotiki district. (iii) good examples of Ohope soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned; trail bike, dune buggy and horse damage; rubbish dumping
TENURE: scenic reserve, historic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
NOTES: Historic pa site at eastern end of sandspit.
REFERENCES: Clarkson and Regnier (1989) Department of Lands and Survey (1984)

(159) Waiotane Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-02 Taneatua
LOCALITY and GRID REFERENCE: 20km SE of Whakatane W15 650446
AREA(ha): 255 **ALTITUDE(m):** 6-259 **RAINFALL(mm):** 1450
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** greywacke, marine sandstones, conglomerates and interbedded pumiceous tuffs, and derived colluvium; alluvial silts, sands and gravels **VEGETATION:** puriri/tawa forest; rewarewa/kanuka forest
SOILS: yellow-brown pumice soil (Whakatane), yellow-brown earth (Tawhia)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only reserved example of soils under puriri/tawa forest in Taneatua Ecological District. This forest type would have once been common on hill country close to the coast in this area. (ii) good examples

of Whakatane soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned; still grazed by stock; deer and possum present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Beadel and Shaw (1988) McCaskill (1979a) Department of Lands and Survey (1984)

(160) White Pine Bush Scenic Reserve (1)

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 14-02 Taneatua

LOCALITY and GRID REFERENCE: 3km S of Whakatane W15 567469

AREA(ha): 4.5 **ALTITUDE(m):** 15 **RAINFALL(mm):** 1500

TOPOGRAPHY: flat alluvial terrace **PARENT MATERIAL:** alluvial sand and silt over tephra **VEGETATION:** kahikatea forest; introduced grassland; bracken fernland; exotic treeland; kanuka scrub

SOILS: gley soil (Rewatu), recent soil (Rangitaiki)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) soils under native forest on lowland terraces are nationally uncommon. (ii) good examples of Rewatu and Rangitaiki soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** weed problems

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: The only reserved stand of kahikatea forest on the Rangitaiki Plains.

REFERENCES: Beadel and Shaw (1988) McCaskill (1979a) Smale (1984)

(161) Otoru Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 15-01 Ranginui

LOCALITY and GRID REFERENCE: 12km SE of Otorohanga S16 143238

AREA(ha): 232 **ALTITUDE(m):** 210 **RAINFALL(mm):** 1700-1900

TOPOGRAPHY: steep hillslope; river terraces **PARENT MATERIAL:** volcanic ash; greywacke and ignimbrite, and derived alluvium and colluvium **VEGETATION:** podocarp/broadleaved forest; broadleaved forest

SOILS: yellow-brown loam (Moeatoa Pukerata)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Pukerata soils are uncommon. (ii) most Pukerata soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Tephra on greywacke.

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(162) Purukohukohu Experimental Basin

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 15-01 Ranginui

LOCALITY and GRID REFERENCE: Pauoa Range, 30km S of Rotorua U17 910030

AREA(ha): 94 **ALTITUDE(m):** 530-650 **RAINFALL(mm):** 1500

TOPOGRAPHY: steep hillslopes with narrow ridges **PARENT MATERIAL:** rhyolitic volcanic ash over sandstone and siltstone **VEGETATION:** podocarp/tawa forest; radiata pine exotic forest; introduced grassland

SOILS: podzolised yellow-brown pumice soil (Oruanui Tihoi), yellow-brown pumice soil (Tauhara)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) multidisciplinary research has been undertaken at this site for 20 years. (ii) good examples of Tauhara soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** radiata pine forest and introduced grassland

CONTACT PERSON: Rick Jackson **DATE OF INFORMATION:** November 1992

NOTES: The basin comprises three catchments: Puruorakau which is in native forest; Purutaka which is in pasture; and Puruki which was in pasture until planted in radiata pine in 1973.

REFERENCES: Jackson (1973, 1980) Beets and Brownlie (1987)

(163) Ongarue Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 15-02 Pureora

LOCALITY and GRID REFERENCE: 49km N of Taumaranui S17 221884

AREA(ha): 126 **ALTITUDE(m):** 375 **RAINFALL(mm):** 1800-2200

TOPOGRAPHY: steep hillslopes; rock bluffs **PARENT MATERIAL:** volcanic ash; rhyolite **VEGETATION:** podocarp-broadleaved forest; bracken fernland

SOILS: podzolised yellow-brown pumice soil (Tihoi), composite (Ngaroma), podzolised yellow-brown loam (Mahorehore)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils. (ii) only example of Mahorehore soils in this inventory. (iii) good examples of Ngaroma soils are uncommon. (iv) most Ngaroma soils have been developed for plantation forestry.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Ngaroma soils are composite podzolised yellow-brown pumice soils on yellow brown loams

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(164) Pureora Conservation Park

REGIONAL/CITY COUNCIL(S): Waikato and Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 15-02 Pureora

LOCALITY and GRID REFERENCE: central North Island, west of Lake Taupo T17 340030

AREA(ha): 72335 **ALTITUDE(m):** 40-1090 **RAINFALL(mm):** 1800-2200

TOPOGRAPHY: steep, dissected hillslopes; broad rolling ridges **PARENT MATERIAL:** volcanic ash **VEGETATION:** podocarp-broadleaved forest; podocarp/tawa forest

SOILS: podzolised yellow-brown pumice soil (Tihoi Benneydale), composite (Ngaroma), yellow-brown earth (Whakapapa Pukerata)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a moderate range of soil-native vegetation associations, including some that were formerly much more extensive. (ii) good examples of Ngaroma soils are uncommon. (iii) most Ngaroma soils have been developed for plantation forestry. (iv) most Pukerata soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned and logged

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: Called "Pureora Forest Park" in Department of Lands and Survey (1984). Ngaroma soils are composite podzolised yellow-brown pumice soils on yellow-brown loams

REFERENCES: Department of Lands and Survey (1984)

(165) Waipapa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 15-02 Pureora

LOCALITY and GRID REFERENCE: along Waikato River, 12km NW of Mangakino T16 432156

AREA(ha): 2528 **ALTITUDE(m):** 300-445 **RAINFALL(mm):** 1500-1700

TOPOGRAPHY: steep, dissected hillslopes **PARENT MATERIAL:** ignimbrite and derived colluvium; volcanic ash

VEGETATION: tanekaha forest; manuka shrubland; podocarp-broadleaved forest; self-sown mixed conifer stands

SOILS: yellow-brown pumice soil (Motumoa), yellow-brown pumice soil (Taupo Tokoroa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Tokoroa soils in this inventory. (ii) most Tokoroa soils have been developed for sheep and dairy farming. (iii) good examples of Motumoa soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** fires have removed original vegetation; pig present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(166) Aratiata Rapids Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri

LOCALITY and GRID REFERENCE: 11km N of Taupo U17 825827

AREA(ha): 142 **ALTITUDE(m):** 390 **RAINFALL(mm):** 1300-1500

TOPOGRAPHY: river banks; gorges and bluffs **PARENT MATERIAL:** rhyolite; pumice alluvium; volcanic ash

VEGETATION: scrubland; planting of broadleaved species

SOILS: yellow-brown pumice soil (Whenuaroa Taupo Motumoa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the reserve preserves the character of the Waikato Valley floor which is completely submerged downstream by hydro lakes. (ii) good examples of Whenuaroa and Motumoa soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(167) Huka Falls Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri

LOCALITY and GRID REFERENCE: adjacent Waikato River, just N of Taupo U18 798792

AREA(ha): 105 **ALTITUDE(m):** 390 **RAINFALL(mm):** 1300
TOPOGRAPHY: river terrace riser; gorge **PARENT MATERIAL:** pumice alluvium; volcanic ash **VEGETATION:** broadleaved shrubland
SOILS: yellow-brown pumice soil (Whenuaroa)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Whenuaroa soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** native plantings since 1960
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979ii) Department of Lands and Survey (1984)

(168) Maleme Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri
LOCALITY and GRID REFERENCE: 25km SE of Tokoroa U16 839106
AREA(ha): 18 **ALTITUDE(m):** 510 **RAINFALL(mm):** 1500
TOPOGRAPHY: alluvial flat **PARENT MATERIAL:** water-laid pumice tuffs and breccias; interbedded sandstone and siltstone, and derived colluvium **VEGETATION:** podocarp/tawa forest
SOILS: podzolised yellow-brown pumice soil (Oruanui)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Oruanui soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts still grazed
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(169) Maungaongaonga Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri
LOCALITY and GRID REFERENCE: 28km S of Rotorua U16 015155
AREA(ha): 196 **ALTITUDE(m):** 450-816 **RAINFALL(mm):** 1600
TOPOGRAPHY: moderately steep to steep volcanic cone; steep ridges and faces; easy hillslopes; fumarolic thermal area **PARENT MATERIAL:** volcanic ash; dacite and derived colluvium **VEGETATION:** podocarp-broadleaved forest; tawa-broadleaved forest; rewarewa forest; exotic pine forest; fernland; manuka-broadleaved shrubland
SOILS: yellow-brown pumice soil (Tauhara Taupo)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Tauhara soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** exotic conifers planted for soils and water conservation purposes; parts have been burned and grazed
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984) Vucetich and Wells (1978)

(170) Puaiti Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri
LOCALITY and GRID REFERENCE: 38km S of Rotorua U17 870043
AREA(ha): 37 **ALTITUDE(m):** 550 **RAINFALL(mm):** 1400-1600
TOPOGRAPHY: valley floor **PARENT MATERIAL:** ignimbrite and pumice breccia **VEGETATION:** broadleaved forest; podocarp-broadleaved forest; exotic pine forest
SOILS: podzolised yellow-brown pumice soil (Oruanui)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Oruanui soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** most podocarps have been logged
TENURE: scenic reserve **OWNER/MANAGER:** Rotorua District Council
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
NOTES: Called "Puaiti Scenic Reserve" in McCaskill (1979i).
REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(171) Rainbow Mountain Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri
LOCALITY and GRID REFERENCE: 24km SE of Rotorua U16 059153
AREA(ha): 438 **ALTITUDE(m):** 390-720 **RAINFALL(mm):** 1300
TOPOGRAPHY: steep volcanic cone; steam vents; thermal lakelets **PARENT MATERIAL:** dacite; volcanic mud **VEGETATION:** manuka-kanuka shrubland; broadleaved forest; kamahi forest; podocarp-broadleaved forest; sedgeland; exotic pine forest; thermal vegetation
SOILS: yellow-brown pumice soil (Maungakakamea), recent soil (Ngahewa), hydrothermally altered soil

IMPORTANCE: 1 **SIGNIFICANCE:** (i) area contains internationally rare hydrothermally altered soils and associated vegetation. (ii) only example of Maungakarama and Ngahera soils in this inventory.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(172) Te Kopia Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri

LOCALITY and GRID REFERENCE: Paeroa Range, 25km S of Rotorua U17 910066

AREA(ha): 2180 **ALTITUDE(m):** 420-745 **RAINFALL(mm):** 1300-2000+

TOPOGRAPHY: broken hillslopes; volcanic fault scarp; thermal areas **PARENT MATERIAL:** rhyolite and ignimbrite, and derived colluvium; volcanic ash **VEGETATION:** podocarp forest; podocarp-broadleaved forest; thermal herbfield

SOILS: podzolised yellow-brown pumice soil (Tihoi), yellow-brown pumice soil (Toahara), hydrothermally altered soil **IMPORTANCE:** 2 **SIGNIFICANCE:** (i) contains a moderate range of soils and soil-vegetation associations. (ii) contains internationally rare hydrothermally altered soils and associated vegetation. (iii) valuable site for understanding all Taupo pumice soils.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(173) Waiotapu Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-01 Atiamuri

LOCALITY and GRID REFERENCE: 30km S of Rotorua U16 043117

AREA(ha): 128 **ALTITUDE(m):** 240 **RAINFALL(mm):** 1300

TOPOGRAPHY: thermal area: mud pools, hot springs and cold lakes **PARENT MATERIAL:** volcanic ash and lapilli **VEGETATION:** prostrate kanuka-mingimingi shrubland; exotic pine forest; manuka shrubland; kamahi forest; swampland

SOILS: yellow-brown pumice soil (Waikokomuka Taupo), recent soil (Waiotapu), hydrothermally altered soil

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of soils and soil-vegetation associations. (ii) contains internationally rare hydrothermally altered soils and associated vegetation. (iii) only example of Waikokomuka and Waiotapu soils in this inventory. (iv) many Waiotapu soils have been developed for plantation forestry.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** road; artificial geyser

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: Complex of thermal soils. Temperature near ground level is 15-20 degrees C. Reserve is operated as a tourist resort by a concessionaire; there is a charge for admission.

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(174) Motere Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-02 Taupo

LOCALITY and GRID REFERENCE: 30km NNW of Tokaanu T18 385715

AREA(ha): 113 **ALTITUDE(m):** 550-650 **RAINFALL(mm):** 1500

TOPOGRAPHY: plateau; steep-sided gullies **PARENT MATERIAL:** volcanic ash; rhyolite **VEGETATION:** podocarp-broadleaved forest

SOILS: yellow-brown loam (Hingarae), podzolised yellow-brown pumice soil (Tihoi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Hingarae soils in this inventory.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b)

(175) Opepe Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16-02 Taupo

LOCALITY and GRID REFERENCE: 12km SE of Taupo U18 897656

AREA(ha): 118 **ALTITUDE(m):** 570 **RAINFALL(mm):** 1450

TOPOGRAPHY: smooth undulating surface **PARENT MATERIAL:** volcanic ash **VEGETATION:** podocarp/broadleaved forest

SOILS: podzolised yellow-brown pumice soil (Oruanui Tihio)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) demonstrates the large rimu–Tihoi sand and beyond rimu canopy–Oruanui soil relationships, and the unquestionable role of podzolising trees in the development of E, Bfe and Bh horizons. (ii) good examples of Tihia soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Taupo District Council

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: McCaskill (1979a) Department of Lands and Survey (1984)

(176) Rangitukua Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 16–02 Taupo

LOCALITY and GRID REFERENCE: western shore of Lake Taupo, 2km N of Kuratau T18 500543

AREA(ha): 208 **ALTITUDE(m):** 360–520 **RAINFALL(mm):** 1200–1300

TOPOGRAPHY: steep hillslopes; rocky bluffs; sandy beach **PARENT MATERIAL:** rhyolite and pumice, and derived colluvium **VEGETATION:** bracken–mixed shrubland; kowhai treeland

SOILS: yellow–brown pumice soil (Kuratau Pihanga), recent soil (Waiotaka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Kuratau and Waiotaka soils in this inventory. (ii) good examples of Pihanga soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(177) Waituhi Kuratau Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 16–02 Taupo

LOCALITY and GRID REFERENCE: Hauhangaroa Range, 25km E of Taumarunui T18 327548

AREA(ha): 1319 **ALTITUDE(m):** 390–670 **RAINFALL(mm):** 1800–2200

TOPOGRAPHY: hillslopes and ridges **PARENT MATERIAL:** greywacke, and derived colluvium and alluvium **VEGETATION:** lowland podocarp/broadleaved forest; podocarp–quintinia treeland

SOILS: podzolised yellow–brown loam (Pokaka Tihia), podzolised yellow–brown pumice soil (Tihoi Moerangi), yellow–brown loam (Whakapapa), organic soil (Tokaanu), recent soil (Te–Rangiita)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a wide range of little–modified soil–vegetation associations. (ii) contains peat soils which are important for Quaternary studies. (iii) only example of Moerangi, Tokaanu and Te Rangiita soils in this inventory. (iv) good examples of Tihia and Pokaka soils are uncommon. (v) most Pokaka soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979ii) Department of Lands and Survey (1984)

(178) Whirinaki Conservation Park

REGIONAL/CITY COUNCIL(S): Bay of Plenty and Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 17–02 Whirinaki

LOCALITY and GRID REFERENCE: Huiaarau Range, 145km E of Rotorua V18 297666

AREA(ha): 60900 **ALTITUDE(m):** 360–1365 **RAINFALL(mm):** 1800–2200

TOPOGRAPHY: easy undulating to moderately steep hillslopes; river valleys **PARENT MATERIAL:** argillite, greywacke and ignimbrite, and derived colluvium and alluvium; volcanic ash; deep pumice alluvium **VEGETATION:** broadleaved/podocarp forest; podocarp forest; tussockland; sedgeland; frost flat matland and shrubland; exotic forest

SOILS: yellow–brown earth (Te–Teki), yellow–brown pumice soil (Kaingaroa), gley soil (Rewatu), podzolised yellow–brown pumice soil (Tihoi Urewera Pukerimu)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a wide range of little–disturbed soil–vegetation associations, on a wide range of parent materials. (ii) only example of Te Tiki, Kaingaroa and Pukerimu soils in this inventory. (iii) good examples of Rewatu soils are uncommon. (iv) most Kaingaroa soils have been developed for forestry, and some extensive sheep farming.

VULNERABILITY: 3

TENURE: national park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Colin Vucetich **DATE OF INFORMATION:** August 1991

NOTES: This forest established in 130 AD on fresh Taupo ash–ignimbrite which was approximately 1m thick.

(179) Tongariro National Park

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu and Waikato **ECOLOGICAL DISTRICTS(S):** 18–01 Tongariro

LOCALITY and GRID REFERENCE: three volcanoes (Tongariro, Ngauruhoe and Ruapehu) in the centre of the North Island Plateau T20 360200

AREA(ha): 78 651 **ALTITUDE(m):** 500-2797 **RAINFALL(mm):** 2400-6400

TOPOGRAPHY: gentle to very steep mountain slopes and ridges; gullies; bluffs; lava flows; hot crater lake; ring plain; lahar mounds; bogs **PARENT MATERIAL:** andesite and derived colluvium and volcanic ash **VEGETATION:** rimu/kamahi-black maire forest; red and silver beech forest; mountain beech forest; dracophyllum-red tussock shrub-tussockland; hebe scrub; kanuka-manuka scrub; red tussock tussockland; alpine herbfield; gravelfield

SOILS: lithosol, yellow-brown pumice soil (Pihanga Rangipo Turangi), recent soil (Ngauruhoe), yellow-brown loam (Whakapapa), podzolised yellow-brown loam (Pokaka), composite (Waimarino), podzolised yellow-brown pumice soil (Mangatepopo)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a wide range of little-disturbed soil-vegetation associations. (ii) only example of Rangipo, Turangi, Ngauruhoe, Waimarino and Mangatepopo soils in this inventory. (iii) good examples of Pihanga, Turangi and Pokaka soils are uncommon. (iii) most Pokaka soils have been developed for extensive sheep farming. (v) contains Ngauruhoe soil reference site.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** red deer, pig and possum present; heather and lodgepole pine are notable introduced weeds

TENURE: national park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: Waimarino soils are podzolised composite yellow-brown pumice soils on yellow-brown loams. At high altitude steep bed rock slopes are associated with partly vegetated patches on andesitic ash. At intermediate altitudes there is a more complete vegetation cover with active erosion.. Ngauruhoe soils dominate on the ring plain, also some Pihanga and Rangipo soils; more complete vegetation cover.

REFERENCES: Department of Lands and Survey (1984)

(180) Aorangiwai Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 19-02 Motu

LOCALITY and GRID REFERENCE: Mount Aorangi, 80km N Gisborne Y15 629525

AREA(ha): 751 **ALTITUDE(m):** 200-1276 **RAINFALL(mm):** 2100-2300

TOPOGRAPHY: steep hillslopes and ridges; bluffs **PARENT MATERIAL:** sandstone and siltstone, and derived colluvium and alluvium **VEGETATION:** podocarp-broadleaved forest; red beech forest; black beech forest

SOILS: yellow-brown earth (Pahaoa Mangatea)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good example of Pahaoa soils. (ii) most Pahaoa soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981c) Department of Lands and Survey (1984)

(181) Haupoto Swamp

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 19-02 Motu

LOCALITY and GRID REFERENCE: 25km NW of Opotiki X15 132580

AREA(ha): 178 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1400-1600

TOPOGRAPHY: valley floor hollow **PARENT MATERIAL:** alluvium and peat **VEGETATION:** raupo reedland, Carex swamp; manuka scrub

SOILS: yellow-brown loam (Whakatane), organic soil (Matao)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) excellent example of peat soils, important for Quaternary studies. (ii) only example of Matao soils in this inventory. (iii) good examples of Whakatane soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson et al. (1986)

(182) Motu Kaimeanui Island

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 19-02 Motu

LOCALITY and GRID REFERENCE: 55km NE of Opotiki Y14 334814

AREA(ha): 1.5 **ALTITUDE(m):** 0-15 **RAINFALL(mm):** 1400

TOPOGRAPHY: low-relief island **PARENT MATERIAL:** sandstone and mudstone **VEGETATION:** broadleaved forest

SOILS: yellow-brown loam (Tikirau)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) one of the best examples of island soils in the ecological district. (ii) good

examples of Tikirau soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson et al. (1986)

(183) Motu Papuku Islands

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 19-02 Motu

LOCALITY and GRID REFERENCE: 35km SE of Opotiki

AREA(ha): 2 **ALTITUDE(m):** 0-15 **RAINFALL(mm):** 1400

TOPOGRAPHY: floodplain **PARENT MATERIAL:** alluvium **VEGETATION:** broadleaved forest

SOILS: yellow-brown loam (Tikirau)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) one of the best examples of island soils in the ecological district. (ii) good examples of Tikirau soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson et al. (1986)

(184) Rakauaroa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 19-02 Motu

LOCALITY and GRID REFERENCE: 10km SW of Rakauaroa township X17 016920

AREA(ha): 567 **ALTITUDE(m):** 680-1060 **RAINFALL(mm):** 1900-2100 **PARENT MATERIAL:** volcanic ash; sandstone and mudstone, and derived colluvium and alluvium **VEGETATION:** podocarp/tawa forest; beech forest

SOILS: podzolised yellow-brown pumice soil (Ruakituri), yellow-brown earth (Wharerata)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Ruakituri and Wharerata soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981c)

(185) Raukokore

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 19-02 Motu Y14 391819

AREA(ha): 115 **ALTITUDE(m):** 15 **RAINFALL(mm):** 1300

TOPOGRAPHY: beach; floodplain and terraces; river mouth; lagoon **PARENT MATERIAL:** alluvium; beach and aeolian deposits **VEGETATION:** tauhinu scrub; raupo reedland; lagoon vegetation; ti kouka swamp; taraire forest

SOILS: yellow-brown loam (Te-Kaha), recent soil (Oweka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the only example of lagoon soil-vegetation associations, and the only landform of its type in the ecological district. (ii) only example of Oweka and Te Kaha soils in this inventory.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson et al. (1986)

(186) Raukumara Conservation Park

REGIONAL/CITY COUNCIL(S): Bay of Plenty and Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 19-02 Motu and 20-02 Waiapu

LOCALITY and GRID REFERENCE: Raukumara Range; northern East Cape Y15 415530

AREA(ha): 115 100 **ALTITUDE(m):** -1752 **RAINFALL(mm):** 1800-4800

TOPOGRAPHY: steep mountain slopes and ridges; gullies **PARENT MATERIAL:** greywacke and Cretaceous rocks, and derived colluvium and alluvium; volcanic ash **VEGETATION:** lowland podocarp-broadleaved forest; podocarp-beech forest; alpine scrub, tussockland and herbfield

SOILS: yellow-brown loam (Raukumara), podzolised yellow-brown pumice soil (Urewera)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a moderate range of little-disturbed soil-vegetation associations. (ii) only example of Raukumara soils in this inventory.

VULNERABILITY: 3

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Department of Lands and Survey (1984)

(187) Kakanui

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: 2.5km SE of Te Araroa Z14 970805

AREA(ha): 1735 **ALTITUDE(m):** 10-384 **RAINFALL(mm):** 1500-1800

TOPOGRAPHY: marine terraces; hillslopes, ridges and gullies; sea cliff; basin **PARENT MATERIAL:** sandstone and mudstone and derived colluvium **VEGETATION:** broadleaved forest; beech forest; beech–broadleaved forest; kanuka forest and scrub; manuka scrub; flaxland; sedge–reed–grassland

SOILS: yellow–brown earth (Mangairoa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Mangairoa soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, local purpose and historic reserve, Maori land **OWNER/MANAGER:** Te Runanga O Ngati Porou (PO Box 226, Ruatoria)

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1991

REFERENCES: Regnier et al. (1988)

(188) Otanga

REGIONAL/CITY COUNCIL(S): Hawkes Bay and Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: two areas, 9 and 14km E of Cape Runaway Y14 665923

AREA(ha): 184 **ALTITUDE(m):** 0-360 **RAINFALL(mm):** 1500

TOPOGRAPHY: hillslopes; sea cliff **PARENT MATERIAL:** volcanic ash; mudstone and sandstone and derived colluvium **VEGETATION:** broadleaved forest; podocarp–broadleaved forest; pohutukawa forest and treeland; manuka, kanuka and Cassinia scrub; rockland

SOILS: yellow–brown loam (Wharekahika), yellow–brown earth (Potikirua)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Wharekahika and Potikirua soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, local purpose recreation reserve, private land

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1991

REFERENCES: Regnier et al. (1988)

(189) Otopotehetehe

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: two areas, 13km SE of Whangaparaoa Y14 638856

AREA(ha): 75 **ALTITUDE(m):** 150-200 **RAINFALL(mm):** 2000

TOPOGRAPHY: hillslopes and ridges; mud volcano and lake; knoll **PARENT MATERIAL:** volcanic ash; mudstone and sandstone and derived colluvium **VEGETATION:** kahikatea–broadleaved forest; beech–broadleaved forest; broadleaved forest; kanuka scrub; manuka/raupo reed–shrubland and shrub–reedland; mudfield

SOILS: yellow–brown earth (Mangaomeko), yellow–brown loam (Wharekahika)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Mangaomeko soils in this inventory. (ii) good examples of Wharekahika soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, Maori land **OWNER/MANAGER:** Te Runanga O Te Whanau Tribal Authority (Private Bag, Te Kaha)

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1991

REFERENCES: Regnier et al. (1988)

(190) Pukeamaru Range Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: Pukeamaru Range, 90km NE of Opotiki Z14 729814

AREA(ha): 3265 **ALTITUDE(m):** 30-992 **RAINFALL(mm):** 2400-3200

TOPOGRAPHY: rugged, steep hillslopes, ridges and bluffs **PARENT MATERIAL:** sandstone, mudstone and white mudstone, and derived colluvium **VEGETATION:** beech–broadleaved forest; broadleaved forest; beech forest; scrub; wetland vegetation; shrubland

SOILS: yellow–brown earth (Potikirua), yellow–grey earth (Mangatarata), yellow–brown pumice soil (Pukemaku)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a moderate range of little–disturbed soil–vegetation associations. (ii) only example of Mangatarata soils in this inventory. (iii) good examples of Potikirua soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Clarkson and Regnier (1989) Department of Lands and Survey (1984) McCaskill (1981c) Regnier et al. (1988)

(191) Rereauira

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: two parts, 7km SE of Cape Runaway Y14 578905

AREA(ha): 35 **ALTITUDE(m):** 15–54 **RAINFALL(mm):** 1500

TOPOGRAPHY: alluvial flat; hillslope and ridge **PARENT MATERIAL:** volcanic ash; peat **VEGETATION:** raupo–broadleaved shrub–reedland and reed–shrubland; kahikatea/broadleaved forest and treeland; rimu forest; beech forest

SOILS: yellow–brown loam (Matakaoa), organic soil (Te–Piki)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Te–Piki soils in this inventory. (ii) good examples of Matakaoa soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, private land

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1991

REFERENCES: Regnier et al. (1988)

(192) Tapuaeharuru

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: 5km S of Whangaparaoa Y14 510860

AREA(ha): 3640 **ALTITUDE(m):** 0–396 **RAINFALL(mm):** 1300–1500

TOPOGRAPHY: hillslopes and ridges; marine terraces; sanddunes; sea cliff **PARENT MATERIAL:** sandstone and mudstone, and derived colluvium; volcanic ash **VEGETATION:** beech forest; broadleaved forest and scrub; beech–broadleaved forest; podocarp forest; fernland; manuka scrub and forest; tussockland; grassland; sandfield

SOILS: yellow–brown earth (Whangaparaoa), yellow–brown loam (Matakaoa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Whangaparaoa soils in this inventory. (ii) good examples of Matakaoa soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, Maori land **OWNER/MANAGER:** Te Runanga O Te Whanau Tribal Authority (Private Bag, Te Kaha)

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1991

REFERENCES: Regnier et al. (1988)

(193) Te Koau

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: 7km NW of Te Awaroa Z14 772850

AREA(ha): 1250 **ALTITUDE(m):** 0–673 **RAINFALL(mm):** 1500–2500

TOPOGRAPHY: hillslopes and ridges; marine terrace; sea cliff **PARENT MATERIAL:** white mudstone, sandstone and argillaceous sandstone, and derived colluvium **VEGETATION:** broadleaved forest and scrub; kanuka forest; introduced grassland; beech forest; pohutakawa forest and scrub; manuka forest

SOILS: yellow–brown loam (Matakaoa Tikirau)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Tikirau soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection, Maori land **OWNER/MANAGER:** Te Runanga O Ngati Porou (PO Box 226, Ruatoria)

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1991

REFERENCES: Regnier et al. (1988)

(194) Whangaokeno Island

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20–01 Pukeamaru

LOCALITY and GRID REFERENCE: 2.5km E of East Cape Z14 017750

AREA(ha): 25 **ALTITUDE(m):** 0–129 **RAINFALL(mm):** 1500

TOPOGRAPHY: hillslopes; sea cliff **PARENT MATERIAL:** mudstone and sandstone, and derived colluvium **VEGETATION:** introduced grassland; rockland

SOILS: yellow–brown earth (Mangairoa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Mangairoa soils are uncommon.

VULNERABILITY: 3

TENURE: recommended area for protection, wildlife refuge **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** September 1991

NOTES: Called "Whangaokena (East Island) Wildlife Refuge" in Department of Lands and Survey (1984).

REFERENCES: Regnier et al. (1988) Department of Lands and Survey (1984)

(195) Anaura Bay Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-02 Waiapu

LOCALITY and GRID REFERENCE: Anaura Bay, 50km NE of Gisborne Z16 742160

AREA(ha): 226 **ALTITUDE(m):** 10-460 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslopes and ridges **PARENT MATERIAL:** calcareous sandy siltstone and derived colluvium

VEGETATION: coastal forest; kanuka-manuka treeland

SOILS: yellow-brown sand (Opoutama), yellow-brown earth (Waikairo Mararetu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Opoutama and Mararetu soils in this inventory. (ii) good examples of Waikairo soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** several archaeological sites within the reserve

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: The reserve is misnamed – should be "Anakura", meaning "red cave" (McCaskill 1981c).

REFERENCES: McCaskill (1981c) Department of Lands and Survey (1984)

(196) Norma Leonie Shelton Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-02 Waiapu

LOCALITY and GRID REFERENCE: 4.6km S of Tolaga Bay Z17 740964

AREA(ha): 15 **ALTITUDE(m):** 80-100 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** volcanic ash over sandstone **VEGETATION:** coastal broadleaved forest

SOILS: intergrade between yellow-grey and yellow-brown earth (Atua), yellow-brown earth (Marorori)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Marorori soils in this inventory. (ii) good examples of Atua soils are uncommon. (iii) most Atua soils have been developed for agriculture.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981c)

(197) Paraheka Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-02 Waiapu

LOCALITY and GRID REFERENCE: 35km N of Gisborne Y17 544088

AREA(ha): 142 **ALTITUDE(m):** 300-580 **RAINFALL(mm):** 1800

TOPOGRAPHY: steep hillslopes; gullies **PARENT MATERIAL:** sandstone and derived colluvium **VEGETATION:** podocarp/broadleaved forest; rewarewa forest

SOILS: yellow-brown earth (Waitaha Waihua), yellow-brown loam (Patoka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Waihua soils in this inventory. (ii) good examples of Patoka and Waitaha soils are uncommon. (iii) most Patoka soils have been developed for extensive sheep farming and forestry. (iv) most Waitaha soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** original vegetation cover removed; gully erosion a result of roadworks

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Originally known as Hodges Bush.

REFERENCES: McCaskill (1981c) Department of Lands and Survey (1984)

(198) Whakaroa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-02 Waiapu

LOCALITY and GRID REFERENCE: 20km N of Gisborne Y15 511920

AREA(ha): 138 **RAINFALL(mm):** 1600-1800

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** sandstone and derived colluvium **VEGETATION:** manuka and kanuka scrub; broadleaved forest; beech forest

SOILS: yellow-brown loam (Otahauri Patoka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Otahauri soils in this inventory. (ii) good examples of Patoka soils are uncommon. (iii) many Patoka soils have been developed for extensive sheep farming and forestry.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981iii)

(199) Calhome

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 5km N of Gisborne Y18 470746

AREA(ha): 20 **ALTITUDE(m):** 40-140 **RAINFALL(mm):** 1200

TOPOGRAPHY: moderately steep hillslopes; basin hollow **PARENT MATERIAL:** mudstone and sandstone, and derived colluvium; volcanic ash **VEGETATION:** black beech forest; kohekohe-titoke forest; kanuka forest; reedland **SOILS:** yellow-brown earth (Te-Ranui Tapui), yellow-brown loam (Pouawa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good example of a moderate range of soils under native vegetation. (ii) only example of Te Ranui and Taipui soils in this inventory.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** bog has been damaged by cattle and horse

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson and Clarkson (1991)

(200) Fairfield

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 5km SSW of Te Karaka Y17 361866

AREA(ha): 4 **ALTITUDE(m):** 40 **RAINFALL(mm):** 1000

TOPOGRAPHY: flat floodplain **PARENT MATERIAL:** alluvium **VEGETATION:** tawa forest

SOILS: recent soil (Waihirere)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) undisturbed recent soils under forest on lowland plains are nationally uncommon. (ii) only example of Waihirere soils in this inventory.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** probably has been logged; weeds (wandering Jew)

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: One of the few remaining forest stands on the Gisborne Plains.

REFERENCES: Clarkson and Clarkson (1991)

(201) Gentle Annie Local Purpose Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 16km W of Gisborne X18 297704

AREA(ha): 14 **ALTITUDE(m):** 120-200 **RAINFALL(mm):** 1300

TOPOGRAPHY: hillslopes **PARENT MATERIAL:** sandstone and mudstone **VEGETATION:** kohekohe forest; matai/kohekohe forest; kohekohe-tawa forest

SOILS: yellow-brown loam (Pouawa), yellow-brown earth (Mahoenui), intergrade between yellow-grey and yellow-brown earth (Taihape)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils under native vegetation. (ii) good examples of Taihape soils are uncommon. (iii) most Taihape soils have been developed for extensive sheep farming.

VULNERABILITY: 3

TENURE: local purpose reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson and Clarkson (1991)

(202) Grays Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 10km NNW of Gisborne Y18 417779

AREA(ha): 12.1 **RAINFALL(mm):** 1000

TOPOGRAPHY: flat floodplain; alluvial fan and terrace; slow-draining backwater swamps **PARENT MATERIAL:** alluvium; mudstone **VEGETATION:** kahikatea forest; coastal forest; Carex sedgeland; exotic forest

SOILS: recent soil (Makauri)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) areas of lowland recent soils under a moderate range of native vegetation are nationally uncommon. (ii) only example of Makauri soils in this inventory. (iii) most Makauri soils have been developed for agriculture.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** tracks, information sign and parking area

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: The forest community is the sole remnant of this vegetation type which was once common on the plains. Makauri

soils are gleyed recent soils.

REFERENCES: McCaskill (1981c) Pullar (1962)

(203) Grays Hill

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 10km NNW of Gisborne Y18 435795

AREA(ha): 71 **ALTITUDE(m):** 60-260 **RAINFALL(mm):** 1200

TOPOGRAPHY: moderately steep hillslopes and ridges; ridges; river valley; gullies **PARENT MATERIAL:** sandstone and mudstone, and derived colluvium; volcanic ash **VEGETATION:** kohekohe forest; semi-coastal forest; kanuka forest; black beech-hard beech forest

SOILS: yellow-brown loam (Otamauri)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the only example of soils under black beech – hard beech hybrids in the ecological district. (ii) only example of Otamauri soils in this inventory. (iii) most Otamauri soils have been developed for sheep farming.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** has been grazed

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson and Clarkson (1991)

(204) Mangatoetoe Stream

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 12km E of Rotorua X18 235753

AREA(ha): 22 **ALTITUDE(m):** 90-120 **RAINFALL(mm):** 1200

TOPOGRAPHY: alluvial terraces **PARENT MATERIAL:** sandstone and mudstone, and derived alluvium **VEGETATION:** matai-kahikatea/tawa forest

SOILS: yellow-brown earth (Waikairo)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) low altitude yellow-brown earth soils on terraces under native vegetation are nationally uncommon. (ii) good examples of Waikairo soils are uncommon.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** parts have been logged and grazed

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson and Clarkson (1991)

(205) Otara North

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 7km NNW of Te Karaka Y17 305985

AREA(ha): 75 **ALTITUDE(m):** 70-250 **RAINFALL(mm):** 1200

TOPOGRAPHY: terrace; hillslope; cliff **PARENT MATERIAL:** limestone and volcanic ash **VEGETATION:** Sellieria-ice plant herbfield, tauhinu shrubland, wharariki flaxland, tutu-rangiora-karamu shrubland

SOILS: yellow-brown earth (Pouawa Makorori), yellow-brown loam (Mihiwhitu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) largest are of soils under herbfield and shrubland on coastal cliffs and terraces in the ecological district. (ii) only example of Mihiwhitu soils in this inventory. (iii) good examples of Makorori soils are uncommon.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** stock present

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Pouawa and Mihiwhitu soils are 35cm of tephra on close jointed limestone. Makorori soil is also on close jointed limestone.

REFERENCES: Clarkson and Clarkson (1991)

(206) Pakowhai Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 20km NW of Gisborne Y18 352616

AREA(ha): 4.4 **ALTITUDE(m):** 20 **RAINFALL(mm):** 1300

TOPOGRAPHY: floodplain, alluvial fan, hillslopes **PARENT MATERIAL:** limestone and derived colluvium **VEGETATION:** pukatea-tikoki-puriri forest

SOILS: intergrade between yellow-grey and yellow-brown earth (Atua Waitaha)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) one of the few examples of soils under forest on a floodplain in the ecological district. (ii) good examples of Waitaha soils are uncommon. (iii) most Atua and Waitaha soils have been developed for extensive sheep farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson and Clarkson (1991)

(207) Paringahau

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 6km W of Te Karaka X17 295925

AREA(ha): 8 **ALTITUDE(m):** 60-180 **RAINFALL(mm):** 1200

TOPOGRAPHY: hillslopes **PARENT MATERIAL:** limestone and derived colluvium **VEGETATION:** kahikatea-matai forest; tikoki forest; tawa-tikoki forest

SOILS: yellow-brown earth (Pakarae)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) soils occurring under kahikatea-matai forest on colluvial toeslopes are uncommon in the ecological district.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson and Clarkson (1991)

(208) Repongaere Lakes

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 12km NW of Gisborne Y18 345784

AREA(ha): 72 **ALTITUDE(m):** 15-40 **RAINFALL(mm):** 1200

TOPOGRAPHY: flat floodplain; lake **PARENT MATERIAL:** alluvium **VEGETATION:** raupo reedland; herbfield; Eleocharis reedland; introduced herbfield and grassland; willow treeland

SOILS: organic soil (Pongakawa), gley soil (Kaiti), yellow-brown earth (Pouawa)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) moderate range of soils under native vegetation. (ii) peat soils are important for Quaternary studies. (iii) only example of Pongakawa and Kaiti soils in this inventory. (iv) most Pongakawa soils have been developed for dairying.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** cattle present; troublesome introduced plants

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Kaiti soils are gley recent soils.

REFERENCES: Clarkson and Clarkson (1991)

(209) Rimuhau

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 22km W of Gisborne X18 245666

AREA(ha): 110 **ALTITUDE(m):** 380-587 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** limestone and derived colluvium **VEGETATION:** kanuka forest; rewarewa forest; mixed broadleaved scrub and low forest; exotic pine forest

SOILS: yellow-brown pumice soil (Gisborne), yellow-brown earth (Mahoenui)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) largest area of soils under indigenous forest remaining in the ecological district. (ii) good examples of Gisborne soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Clarkson and Clarkson (1991)

(210) Te Arai Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20-03 Turanga

LOCALITY and GRID REFERENCE: 15km SW of Gisborne Y18 343641

AREA(ha): 8.9 **ALTITUDE(m):** 40-100 **RAINFALL(mm):** 1200

TOPOGRAPHY: alluvial terrace; hillslopes and toeslopes **PARENT MATERIAL:** sandstone and mudstone, and derived colluvium and alluvium **VEGETATION:** kohekohe-karaka forest; tawa-karaka forest; pukatea forest

SOILS: yellow-brown earth (Pouawa Atua), intergrade between yellow-grey and yellow-brown earth (Makorori)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) soils under pukatea forest are poorly represented in reserves in the ecological district. (ii) only example of Atua soils in this inventory. (iii) good examples of Makorori soils are uncommon. (iv) most Atua soils have been developed for agriculture.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: Clarkson and Clarkson (1991)

(211) Tuamotu Island

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20–03 Turanga
LOCALITY and GRID REFERENCE: 5km SE of Gisborne Y18 490652
AREA(ha): 3.3 **ALTITUDE(m):** 0–36 **RAINFALL(mm):** 1000
TOPOGRAPHY: steep-sided island **PARENT MATERIAL:** sandstone and mudstone **VEGETATION:** karaka forest; wharariki flaxland; sandfield; fennel–Isolepis sedgeland; herbfields; vineland; introduced grassland grassland
SOILS: yellow–brown earth (Pakarae), intergrade between yellow–grey and yellow–brown earth (Panikau)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) sole example of soils occurring on an island in the ecological district. (ii) only example of Panikau soils in this inventory.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** has been burned and farmed by Maori; quarrying; some weeds
TENURE: recommended area for protection
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: Clarkson and Clarkson (1991)

(212) Tueheni Point

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20–03 Turanga
LOCALITY and GRID REFERENCE: 5km SE of Gisborne Y18 507650
AREA(ha): 34 **ALTITUDE(m):** 0–60 **RAINFALL(mm):** 1000
TOPOGRAPHY: coastal promontory – cliffs and terraces **PARENT MATERIAL:** mudstone and sandstone
VEGETATION: Selleria–ice plant herbfield; tauhinu shrubland; wharariki flaxland; tutu rangiora–karamu shrubland
SOILS: yellow–brown earth (Pakarae), intergrade between yellow–grey and yellow–brown earth (Taihape)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) best and largest example of soils under native vegetation on coastal cliffs in the ecological district. (ii) good example of Taihape soils. (iii) most Taihape soils have been developed for extensive sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by cattle
TENURE: recommended area for protection
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: Clarkson and Clarkson (1991)

(213) Waihirere Recreation Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 20–03 Turanga
LOCALITY and GRID REFERENCE: upper catchment of Wahiere Stream, 12km NW of Gisborne Y17 413810
AREA(ha): 53 **ALTITUDE(m):** 60–200 **RAINFALL(mm):** 1000
TOPOGRAPHY: hillslopes; cliffs; ridges; alluvial terrace **PARENT MATERIAL:** sandstone and mudstone, and derived colluvium and alluvium **VEGETATION:** tawa–karaka coastal forest; wharariki rockland; kanuka forest; native forest plantation; exotic forest; introduced grassland
SOILS: yellow–brown earth (Ormond)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Ormond soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** playground; introduced native species
TENURE: recreation reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: Clarkson and Clarkson (1991)

(214) Te Urewera National Park

REGIONAL/CITY COUNCIL(S): Bay of Plenty and Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 21–03 Waikaremoana, 21–01 Waimana and 21–02 Ikawhenua
LOCALITY and GRID REFERENCE: eastern Huiairau Range and surrounding ranges including Ikawhenua, Kahikatea, Pukekohu and Panekiriri Ranges W17 653949
AREA(ha): 212 672 **ALTITUDE(m):** 150–1351 **RAINFALL(mm):** 1600–4800
TOPOGRAPHY: moderate to steep hill and mountain slopes; ridges; gullies; rocky ravines; bluffs; lakes **PARENT MATERIAL:** greywacke, calcareous sandstone and siltstone, and derived colluvium and alluvium; volcanic ash
VEGETATION: broadleaved–podocarp forest; broadleaved lowland forest; hard beech forest; red beech–podocarp–broadleaved forest; montane silver beech forest
SOILS: podzolised yellow–brown earth (Urewera Waikaremoana), podzolised yellow–brown pumice soil (Ruakituri Matawai), yellow–brown pumice soil (Tuai)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) a very extensive area containing a wide range of little-modified soil-vegetation associations. (ii) Waikaremoana, Ruakituri and Tuai soils only occur at one other site in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** deer, cattel, pig and possum present
TENURE: national park **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
NOTES: Largest unbroken tract of native forest in North Island. Urewera steepland soils derived from greywacke commonly remain stable when northerly cyclones completely saturate and render pumice derived soils unstable.
REFERENCES: Department of Lands and Survey (1984)

(215) Mangarere Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 22-01 Tiniroto
LOCALITY and GRID REFERENCE: 2km S of Rakauoa X17 090989
AREA(ha): 10 **ALTITUDE(m):** 450 **RAINFALL(mm):** 1700
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** volcanic ash **VEGETATION:** tawa-rewarewa forest
SOILS: podzolised yellow-brown loam (Matawai), yellow-brown pumice soil (Hangaroa)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Hangaroa soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been cleared
TENURE: scenic reserve **OWNER/MANAGER:** Depatment of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981c) Department of Lands and Survey (1984)

(216) Morere Springs Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 22-01 Tiniroto
LOCALITY and GRID REFERENCE: 40km E of Wairoa X19 258358
AREA(ha): 365 **ALTITUDE(m):** 152 **RAINFALL(mm):** 1600
TOPOGRAPHY: gentle to moderate hillslopes; thermal springs **PARENT MATERIAL:** sandstone and siltstone, and derived colluvium **VEGETATION:** podocarp-broadleaved forest with nikau; manuka treeland
SOILS: yellow-brown earth (Gisborne Mangatea Mahoenui Moumahaki), podzolised yellow-brown pumice soil (Waikaremoana)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waikaremoana, Mangatea and Gisborne soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned, goat present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(217) Strathblane Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 22-01 Tiniroto
LOCALITY and GRID REFERENCE: 48km W of Gisborne X18 110697
AREA(ha): 5.8 **ALTITUDE(m):** 200 **RAINFALL(mm):** 1400
TOPOGRAPHY: flat terraces **PARENT MATERIAL:** alluvium **VEGETATION:** kahikatea forest
SOILS: yellow-brown pumice soil (Tiniroto Hangaroa), yellow-brown earth (Mahoenui)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) good example of a range of low altitude terrace soils. (ii) only example of Tiniroto soils in this inventory. (iii) good examples of Hangaroa soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981c)

(218) Te Raupo Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 22-01 Tiniroto
LOCALITY and GRID REFERENCE: 9km off Wairoa-Lake Waikaremoana highway W18 832562
AREA(ha): 40 **RAINFALL(mm):** 2200
TOPOGRAPHY: terraces; steep hillslopes **PARENT MATERIAL:** mudstone and pumice **VEGETATION:** kowhai treeland; broadleaved-podocarp treeland; manuka shrubland
SOILS: yellow-brown pumice soil (Tuai)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Tuai soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** original vegetation has been cleared
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1981c)

(219) Wharerata Hill Scenic Reserve

REGIONAL/CITY COUNCIL(S): Gisborne **ECOLOGICAL DISTRICTS(S):** 22-01 Tiniroto

LOCALITY and GRID REFERENCE: 29km SW of Gisborne Y19 330468

AREA(ha): 18.7 **ALTITUDE(m):** 300-460 **RAINFALL(mm):** 2400

TOPOGRAPHY: steep dissected hillslopes **PARENT MATERIAL:** calcareous sandstone to siltstone **VEGETATION:** broadleaved forest; rimu/tawa forest

SOILS: podzolised yellow-brown loam (Matawai), yellow-brown earth (Wharerata)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Wharerata soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1981c) Department of Lands and Survey (1984)

(220) Hurumua Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 22-03 Waihua

LOCALITY and GRID REFERENCE: 5km NW of Wairoa W19 895340

AREA(ha): 0.3 **ALTITUDE(m):** 11 **RAINFALL(mm):** 1400

TOPOGRAPHY: flat river terrace **PARENT MATERIAL:** alluvium **VEGETATION:** kahikatea/broadleaved shrub-treeland

SOILS: recent soil (Awamate)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Awamate soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** severe weed infestation (blackberry, Himalayan honeysuckle)

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(221) Waipatiki Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 22-03 Waihua

LOCALITY and GRID REFERENCE: 34km N of Napier W20 522061

AREA(ha): 65 **ALTITUDE(m):** 120 **RAINFALL(mm):** 1200

TOPOGRAPHY: moderately steep hillslopes and spurs; gullies; river valley **PARENT MATERIAL:** marine sandstone and siltstone, and derived colluvium **VEGETATION:** coastal broadleaved forest; kanuka-rewarewa treeland; podocarp forest

SOILS: yellow-grey earth (Crownthorpe Tangoio Kidnappers)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Crownthorpe, Kidnappers and Tangoio soils are uncommon. (ii) most Tangoio soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(222) Hollow Hill Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23-01 Waitomo

LOCALITY and GRID REFERENCE: 19km SW of Otorohanga R16 867282

AREA(ha): 30 **ALTITUDE(m):** 390 **RAINFALL(mm):** 2500

TOPOGRAPHY: bluffs; cave **PARENT MATERIAL:** limestone and derived colluvium **VEGETATION:** broadleaved forest

SOILS: rendzina (Te-Mata/Waitomo)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) rendzinas under native forest are nationally uncommon. (ii) a good example of Te Mata/Waitomo soils under native vegetation.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Te Mata and Waitomo sets are mapped under the same symbol (113a) in New Zealand Soil Bureau (1954). Reserve contains New Zealand's largest cave.

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(223) Kurukuru Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23-01 Waitomo

LOCALITY and GRID REFERENCE: 30km S of Te Kuiti S17 012968

AREA(ha): 57 **ALTITUDE(m):** 300-425 **RAINFALL(mm):** 1500
TOPOGRAPHY: steep hillslopes; broken gullies; plateau; gentle sloping downs **PARENT MATERIAL:** volcanic ash over calcareous sandstone and siltstone, and derived colluvium **VEGETATION:** podocarp–broadleaved forest; hutu shrubland
SOILS: yellow–brown loam (Te–Kuiti Mapiu), yellow–brown earth (Mokau)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Te–Kuiti soils are uncommon. (ii) most Te–Kuiti soils have been developed for extensive sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat and cattle present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(224) Mahoenui Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo
LOCALITY and GRID REFERENCE: 49km S of Te Kuiti R17 700953
AREA(ha): 244 **ALTITUDE(m):** 120-475 **RAINFALL(mm):** 2500
TOPOGRAPHY: high bluffs; steep hillslopes **PARENT MATERIAL:** mudstone and derived colluvium; volcanic ash
VEGETATION: podocarp–tawa forest
SOILS: yellow–brown earth (Mangaotaki Pakau), yellow–brown loam (Waitanguru), recent soil (Kairanga)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of unmodified soils. (ii) good examples of Waitanguru and Mangaotaki soils are uncommon. (iii) most Waitanguru soils have been developed for dairying.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(225) Mangaokewa Gorge Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo
LOCALITY and GRID REFERENCE: 3km S of Te Kuiti S16 009131
AREA(ha): 197 **ALTITUDE(m):** 150-400 **RAINFALL(mm):** 2000
TOPOGRAPHY: river flats; steep hillslope; bluffs; limestone escarpment; waterfalls **PARENT MATERIAL:** sandstone, siltstone and limestone, and derived colluvium **VEGETATION:** kahikatea forest; podocarp–tawa forest; podocarp–broadleaved forest
SOILS: rendzina (Te–Mata Waitomo), yellow–brown earth (Moeatoa), yellow–brown loam (Te–Kuiti)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of soils and soil–vegetation associations. (ii) unmodified rendzinas are nationally uncommon. (iii) good examples of Te Kuiti soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Waitome District Council
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
NOTES: Te Mata and Waitomo soil sets are mapped under the same symbol in New Zealand Soil Bureau but described separately (1954). The influence of limestone outcrops extends well into the ash soils.
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(226) Mangaoronga Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo
LOCALITY and GRID REFERENCE: 9km N of Mahoenui R17 714953
AREA(ha): 140 **ALTITUDE(m):** 120 **RAINFALL(mm):** 2400-2800 **VEGETATION:** podocarp forest; (podocarp)/broadleaved forest; tree fern fernland; broadleaved shrubland
SOILS: yellow–brown loam (Tumutumu), rendzina (Bluff)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) rendzina–native forest associations are nationally uncommon. (ii) good examples of Bluff and Tumutumu soils are uncommon. (iii) most Bluff soils have been developed for sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
NOTES: Called "Mangaorongo Scenic Reserve" in McCaskill (1979ii).
REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(227) Mangapohue Natural Bridge Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo
LOCALITY and GRID REFERENCE: 25km W of Waitomo R16 720249

AREA(ha): 5.5 ALTITUDE(m): 165 RAINFALL(mm): 2500-2800

TOPOGRAPHY: moderately steep hillslopes; narrow limestone gorge **PARENT MATERIAL:** limestone and derived colluvium **VEGETATION:** podocarp–broadleaved forest

SOILS: yellow–brown loam (Waitanguru)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waitanguru soils are uncommon. (ii) most Waitanguru soils have been developed for dairying.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Focus of the reserve is a natural limestone double arch.

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(228) Marakopa Natural Tunnel Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo

LOCALITY and GRID REFERENCE: 25km W of Waitomo R16 794266

AREA(ha): 43 ALTITUDE(m): 130 RAINFALL(mm): 2500-2800

TOPOGRAPHY: steep bluffs **PARENT MATERIAL:** limestone and derived colluvium **VEGETATION:** podocarp–broadleaved forest

SOILS: rendzina (Te–Mata/Waitomo)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) unmodified rendzinas are nationally uncommon. (ii) good examples of Te Mata/Waitomo soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Te Mata and Waitomo soil sets are mapped under the same symbol in New Zealand Soil Bureau (1954).

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(229) Ngatamahine Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo

LOCALITY and GRID REFERENCE: 20km S of Te Kuiti S17 915952

AREA(ha): 107 ALTITUDE(m): 170-350 RAINFALL(mm): 1600

TOPOGRAPHY: steep, dissected hillslopes and ridges; plateau; gullies **PARENT MATERIAL:** volcanic ash on sandstone **VEGETATION:** podocarp/broadleaved forest; broadleaved forest; beech forest; podocarp forest; shrubland; fernland

SOILS: yellow–brown earth (Oniao Mohakatino), yellow–brown loam (Mapiu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils under native forest. (ii) only example of Oniao soils in this inventory. (iii) most Oniao soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** stock and goat present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Bayfield et al. (1986) Department of Lands and Survey (1984)

(230) Putaki Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo

LOCALITY and GRID REFERENCE: 18km W of Otorohanga R16 852301

AREA(ha): 66 ALTITUDE(m): 300 RAINFALL(mm): 2400

TOPOGRAPHY: moderately steep hillslopes **PARENT MATERIAL:** siltstone and derived colluvium **VEGETATION:** broadleaved forest; (podocarp)–broadleaved forest

SOILS: yellow–brown earth (Pakau), yellow–brown loam (Mangapohue Pomarangai)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Pomarangi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(231) Te Raumauka Caves Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–01 Waitomo

LOCALITY and GRID REFERENCE: 9km W of Otorohanga S16 970335

AREA(ha): 47 ALTITUDE(m): 160 RAINFALL(mm): 1700-1900

TOPOGRAPHY: steep broken hill country; caves; bluffs **PARENT MATERIAL:** limestone and derived colluvium

VEGETATION: kahikatea forest; broadleaved forest

SOILS: yellow-brown loam (Oparure Tumutumu Te-Kuiti)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Oparue soils in this inventory. (ii) good examples of Tumutumu soils are uncommon. (iii) most Te Kuiti soils have been developed for extensive sheep farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(232) Turaerae Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23-01 Waitomo

LOCALITY and GRID REFERENCE: 11km SE of Aria S17 900904

AREA(ha): 167 **ALTITUDE(m):** 140-340 **RAINFALL(mm):** 1600

TOPOGRAPHY: swampy riverflats; steep hillslopes; bluffs; plateau; gullies **PARENT MATERIAL:** volcanic ash on sandstone; alluvium **VEGETATION:** tawa forest; podocarp forest; beech forest; broadleaved shrubland; tree fern fernland; manuka shrubland; Carex sedgeland; bracken-introduced grassland

SOILS: yellow-brown pumice soil (Haupeehi), recent soil (Kairanga), yellow-brown earth (Mohakatino)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils and soil-native vegetation associations.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** serious weed problem (blackberry, Himalayan honeysuckle, willows and barberry); stream channel has been widened and excavated

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(233) Waipuna Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23-01 Waitomo

LOCALITY and GRID REFERENCE: 22km W of Te Kuiti R16 864190

AREA(ha): 351 **ALTITUDE(m):** 400-450 **RAINFALL(mm):** 1900-2200

TOPOGRAPHY: steep hillslopes; caves; streams; rock outcrops **PARENT MATERIAL:** volcanic ash; limestone and derived colluvium **VEGETATION:** podocarp-broadleaved forest

SOILS: yellow-brown loam (Pomarangai Te-Rauamoā), yellow-brown earth (Wairere)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Te Rauamoā soils in this inventory. (ii) good examples of Pomarangi soils are uncommon. (iii) most Te Rauamoā soils have been developed for extensive sheep farming, and some dairying.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Major cave system.

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(234) Waitaka Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 23-01 Waitomo

LOCALITY and GRID REFERENCE: 35km S of Te Kuiti S18 929787

AREA(ha): 920 **ALTITUDE(m):** 240-502 **RAINFALL(mm):** 1800-2200

TOPOGRAPHY: steep hillslopes and ridges; riverflats **PARENT MATERIAL:** calcareous sandstone and siltstone, and derived colluvium; volcanic ash **VEGETATION:** broadleaved forest; podocarp-broadleaved forest

SOILS: yellow-brown earth (Mahoenui Waitataura Mokau), yellow-brown loam (Mapiu Waihuka), composite (Hiwi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Hiwi and Waitataura soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Hiwi soils are composite yellow-brown loams on yellow-brown earths. Only reserve in district with tanekaha in association with other podocarps.

REFERENCES: McCaskill (1980) Department of Lands and Survey (1984)

(235) Waitanguru Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23-01 Waitomo

LOCALITY and GRID REFERENCE: 40km W of Te Kuiti R16 732118

AREA(ha): 177 **ALTITUDE(m):** 212-420 **RAINFALL(mm):** 2500

TOPOGRAPHY: rugged hill country, steep colluvial hillslopes; limestone outcrops; waterfall **PARENT MATERIAL:**

limestone and derived colluvium **VEGETATION:** broadleaved forest

SOILS: rendzina (Te-Mata/Waitomo)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good examples of rendzinas under native forest are nationally uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present; has been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Te Mata and Waitomo soil sets are mapped under the same symbol (113a) in New Zealand Soil Bureau (1954).

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(236) Aorangi Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 23-02 Taumarunui

LOCALITY and GRID REFERENCE: 18km W of Taumarunui R18 896518

AREA(ha): 2 **ALTITUDE(m):** 175-200 **RAINFALL(mm):** 1600

TOPOGRAPHY: flat alluvial terraces; steep bank **PARENT MATERIAL:** volcanic ash on sandstone and greywacke; alluvium **VEGETATION:** podocarp forest; kamahi forest; pasture

SOILS: yellow-brown loam (Matiere)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Matiere soils in this inventory.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: Most parts of the reserve have never been grazed. The reserve is a rare representative of this lowland forest type which has mostly been cleared.

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(237) Hikurangi Scenic Reserve (ii)

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 23-02 Taumarunui

LOCALITY and GRID REFERENCE: 24km N of Taumarunui S18 084666

AREA(ha): 114 **ALTITUDE(m):** 360-750 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslopes; elevated plateau **VEGETATION:** podocarp-broadleaved forest; podocarp forest

SOILS: yellow-brown earth (Whangamomona), yellow-brown loam (Timi Waihuka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Timi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and burned; goat present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(238) Kauhangaroa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 23-02 Taumarunui

LOCALITY and GRID REFERENCE: 10km WNW of National Park township S19 065271

AREA(ha): 153 **ALTITUDE(m):** 360 **RAINFALL(mm):** 1550

TOPOGRAPHY: steep hillslopes and ridges; gullies **PARENT MATERIAL:** sandstone and derived colluvium; tephra **VEGETATION:** rewarewa-tawa forest; kamahi forest; manuka-fivefinger/kiokio shrubland; manuka-podocarp broadleaved forestpasture

SOILS: yellow-brown loam (Timi Waihuka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Timi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** possum present; still grazed by stock

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Fuller and Edwards (1989)

(239) Lairdvale Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 23-02 Taumarunui

LOCALITY and GRID REFERENCE: 7km E of Taumarunui S18 090575

AREA(ha): 4.5 **ALTITUDE(m):** 456 **RAINFALL(mm):** 1400

TOPOGRAPHY: steep hillslope **PARENT MATERIAL:** calcareous sandstone and siltstone, and derived colluvium **VEGETATION:** (podocarp)-tawa forest; broadleaved shrubland

SOILS: yellow-brown earth (Waitataura)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waitakura soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(240) Motutara Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 6km SW of Taumarunui S18 008524

AREA(ha): 533 **ALTITUDE(m):** 180-580 **RAINFALL(mm):** 1550

TOPOGRAPHY: steep hillslopes and ridges; gullies; flat valley floor **PARENT MATERIAL:** banded mudstones and sandstone, and derived colluvium **VEGETATION:** tawa–hinau forest; podocarp–broadleaved forest; bracken–tree fern fernland; bracken/grass fernland; broadleaved shrubland

SOILS: yellow–brown earth (Whangamomona Waitataura), composite (Hiwi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waitakura and Hiwi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged; stock and goat present; bulldozed track along main ridge

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: Hiwi soils are composite yellow–brown loams on yellow–brown earths.

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(241) Ngamoturiki Scenic Reserve (section 13)

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 20km W of Raurimu S19 976333

AREA(ha): 4.9 **ALTITUDE(m):** 150-200 **RAINFALL(mm):** 1650

TOPOGRAPHY: gentle to steep hillslopes and ridges; bluffs; gullies; valley flats **PARENT MATERIAL:** massive mudstone; tephra **VEGETATION:** podocarp–broadleaved forest; manuka–toetoe grassland; podocarp–broadleaf treeland; manuka–broadleaved treelandpastureland

SOILS: yellow–brown earth (Whangamomona), yellow–brown pumice soil (Maraeroa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Maraeroa soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Fuller and Edwards (1989)

(242) Ngamoturiki Scenic Reserve (section 5)

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 20km W of Raurimu S19 987333

AREA(ha): 7.7 **ALTITUDE(m):** 150-200 **RAINFALL(mm):** 1650

TOPOGRAPHY: gentle slopes; river terraces; deep gorge **PARENT MATERIAL:** massive siltstone; volcanic ash

VEGETATION: podocarp forest; introduced grassland; manuka shrubland

SOILS: yellow–brown loam (Waihuka), yellow–brown pumice soil (Maraeroa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Maraeroa soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by cattle and sheep; goat present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1984)

(243) Ohinetonga Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: ajoints Owango township; 14km S of Taumarunui S19 175428

AREA(ha): 148 **ALTITUDE(m):** 400 **RAINFALL(mm):** 1650

TOPOGRAPHY: flat to rolling river terraces; rock bluffs **PARENT MATERIAL:** tephra **VEGETATION:** tawa–podocarp forest; matai forest; mixed podocarp forest

SOILS: yellow–brown pumice soil (Owango), yellow–brown loam (Kakahi), recent soil (Ohinemoa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) area contains a moderate range of little–disturbed soil–native vegetation associations. (ii) only example of Ohinemoa soils in this inventory. (iii) good examples of Kakahi soils are uncommon. (iv) most Owango soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by stock; tracks

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1984)

(244) Oio Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 14km W of Raurimu S19 066331

AREA(ha): 6.1 **ALTITUDE(m):** 400–430 **RAINFALL(mm):** 1650

TOPOGRAPHY: river terraces; steep banks; bluffs **PARENT MATERIAL:** tephra **VEGETATION:** matai–totara forest; herbfield; bluff vegetation; introduced grassland

SOILS: yellow–brown pumice soil (Benneydale Manunui)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good examples of soils under rare matai–totara forest. (ii) good examples of Mananui and Bennydale soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by stock

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

NOTES: Matai–totara forest is rare.

REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1984)

(245) Okahukura Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 18km NNW of Taumarunui S18 004680

AREA(ha): 245 **ALTITUDE(m):** 230–490 **RAINFALL(mm):** 1600

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** sandstone and derived colluvium **VEGETATION:** rimu/tawa forest; kahikatea forest; podocarp–kamahi forest and treeland; manuka/bracken fernland

SOILS: yellow–brown earth (Whangamomona), yellow–brown loam (Timi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) soils under podocarp forest and tawa with a high density of rimu are uncommon in this ecological district. (ii) good examples of Timi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(246) Otamati Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 30km S of Taumarunui S17 985841

AREA(ha): 42 **ALTITUDE(m):** 360–500 **RAINFALL(mm):** 1800

TOPOGRAPHY: steep sandstone bluffs with flat terrace below, plateau above **PARENT MATERIAL:** banded mudstone and sandstone, and derived colluvium **VEGETATION:** tawa forest; puketea forest; flax–tussockland; black beech forest; introduced grassland

SOILS: yellow–brown pumice soil (Mapara), yellow–brown earth (Mangatea Mohakatino)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soil–native vegetation associations. (ii) good examples of Mapara soils are uncommon. (iii) most Mapara soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goats and stock present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

NOTES: The reserve is in two parts: the second area is at GR: S17 994840.

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(247) Pokoera Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 10km W of Taumarunui S18 945554

AREA(ha): 84 **ALTITUDE(m):** 210–415 **RAINFALL(mm):** 1600

TOPOGRAPHY: very steep, rugged hillslope and ridges; bluffs; flat valley floor **PARENT MATERIAL:** volcanic ash; sandstone and greywacke **VEGETATION:** podocarp forest; tawa forest; rewarewa–kamahi forest

SOILS: yellow–brown earth (Whangamomona) yellow–brown pumice soil (Taumarunui), yellow–brown loam (Waihuka)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of little–disturbed soil–native forest vegetation. (ii) soils under dense podocarp forest are not well represented in this ecological district. (iii) only example of Taumarunui soils in this inventory. (iii) most Taumarunui soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat browsing

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(248) Puawai Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui
LOCALITY and GRID REFERENCE: 6km N of Owhango S19 176476
AREA(ha): 18 **ALTITUDE(m):** 350 **RAINFALL(mm):** 1600
TOPOGRAPHY: river terrace **PARENT MATERIAL:** tephra **VEGETATION:** kahikatea–rimu/matai forest; totara–rimu forest; introduced broadleaved shrubland; kamahi–mixed broadleaved forest; introduced grassland
SOILS: yellow–brown pumice soil (Owhango)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Owhango soils are uncommon. (ii) most Owhango soils have been developed for agriculture.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** weed problem; parts still grazed by stock; North Island Main Trunk railway passes through all three sections of the reserve
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
NOTES: The reserve comprises three disjoint parts.
REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1984)

(249) Tapui Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui
LOCALITY and GRID REFERENCE: 7km S of Taumarunui S19 055487
AREA(ha): 38 **ALTITUDE(m):** 300–330 **RAINFALL(mm):** 1600
TOPOGRAPHY: flat river terraces; rolling to steep hillslopes and ridges; deep gullies, bluffs; streams **PARENT MATERIAL:** tephra **VEGETATION:** podocarp–broadleaved forest; podocarp forest; shrubland; bluff vegetation; swampland; introduced grassland
SOILS: yellow–brown loam (Tangitu Manunui)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Tangitu soils in this inventory. (ii) good examples of Manunui soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still heavily grazed by stock
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1984)

(250) Upper Retaruke Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui
LOCALITY and GRID REFERENCE: 14km W of National Park S19 071216
AREA(ha): 9.2 **ALTITUDE(m):** 330 **RAINFALL(mm):** 1600
TOPOGRAPHY: flat terraces; steep hillslopes **PARENT MATERIAL:** tephra **VEGETATION:** kahikatea forest; red beech–rimu forest; broadleaved forest; tree fern fernland; swampland; introduced grassland
SOILS: yellow–brown pumice soil (Benneydale)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) one of only two reserves in the ecological district where soils occur under red beech forest. (ii) good examples of Benneydale soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still heavily grazed; many weeds; bulldozer tracks; ditches to drain road
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991
REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1984)

(251) Waikaka Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui
LOCALITY and GRID REFERENCE: 24km NW of Taumarunui R18 887720
AREA(ha): 41 **ALTITUDE(m):** 185–305 **RAINFALL(mm):** 2000
TOPOGRAPHY: hillslopes; stream terraces **PARENT MATERIAL:** alluvium derived from volcanic ash; banded mudstone and sandstone, and derived colluvium **VEGETATION:** tarata–kanuka tree–shrubbyland; kahikatea forest; tawa forest; rewarewa/kamahi forest; manuka–kanuka scrub
SOILS: yellow–brown earth (Mahoenui), recent soil (Kokau)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soil–native vegetation associations. (ii) good examples of Kokau soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by cattle
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** July 1991
REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(252) Whakapapa Gorge Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 23–02 Taumarunui

LOCALITY and GRID REFERENCE: 3.5km NE of Owango S19 184446

AREA(ha): 81 **ALTITUDE(m):** 305–450 **RAINFALL(mm):** 1900

TOPOGRAPHY: terrace **PARENT MATERIAL:** tephra; volcanic alluvium **VEGETATION:** rimu–kahikatea/tawa forest; rimu–totara forest; rewarewa/tawa/fern forest; broadleaved–podocarp shrubland, scrub and forest

SOILS: yellow–brown pumice soil (Owango)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains soils covered by vegetation which is unique to this ecological district. (ii) good examples of Owango soils are uncommon. (iii) most Owango soils have been developed for agriculture.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Lands and Survey

CONTACT PERSON: Wim Rijkse **DATE OF INFORMATION:** August 1991

REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1980)

(253) Mataru Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 24–01 North Taranaki

LOCALITY and GRID REFERENCE: 10km NE of Tahora R19 660495

AREA(ha): 14 ha **ALTITUDE(m):** 1100 **RAINFALL(mm):** 2400 mm

TOPOGRAPHY: plateau **PARENT MATERIAL:** alluvium **VEGETATION:** kahikatea forest; tawa–kamahi forest; manuka shrubland

SOILS: yellow–brown loam (New–Plymouth), yellow–brown earth (Kaama), recent soil (Kaikarangi)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of soils and soil–native vegetation associations. (ii) only example of Kaama soils in this inventory. (iii) good examples of Kaikarangi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991

NOTES: Proposed for scenic reserve status (Bayfield et al. (1986)).

REFERENCES: Bayfield et al. (1986)

(254) Mokau River Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 24–01 North Taranaki

LOCALITY and GRID REFERENCE: 11 disjoint areas along the left bank of the Mokau River; 3–27km from its mouth R17 647850

AREA(ha): 2274 **ALTITUDE(m):** 0–400 **RAINFALL(mm):** 1600–2000

TOPOGRAPHY: moderate to steep hillslopes; cliffs; meandering river **PARENT MATERIAL:** sandy mudstone, sandstone and conglomerate, and derived colluvium and alluvium **VEGETATION:** tawa forest; black beech forest; manuka–kamahi scrub; manuka grass–scrub; broadleaved scrub; introduced grassland

SOILS: yellow–brown earth (Moumahaki Mohakatino Te–Pari Mangatea Whirinaki Mahoenui), yellow–brown loam (Aria Mapiu)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a wide range of little–disturbed soil–native vegetation associations. (ii) good examples of Whirinaki soils are uncommon. (iii) most Te–pari soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged, burned and grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991

NOTES: Large coal deposits in the area, particularly on the true right bank (in Mokau Scenic Reserve), have been investigated for mining and development of a thermal power station.

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(255) Mokau Scenic Reserve

REGIONAL/CITY COUNCIL(S): Waikato **ECOLOGICAL DISTRICTS(S):** 24–01 North Taranaki

LOCALITY and GRID REFERENCE: 12 disjoint areas along the right bank of the Mokau River, 5–37km from its mouth R18 608769

AREA(ha): 546 **ALTITUDE(m):** 20–240 **RAINFALL(mm):** 1600–2000

TOPOGRAPHY: moderate to steep hill and mountain slopes; bluffs; terraces; meandering river **PARENT MATERIAL:** calcareous sandstone and mudstone, and derived colluvium and alluvium **VEGETATION:** podocarp forest; ponga fernland; manuka/bracken scrub

SOILS: yellow–brown earth (Mahoenui Mokau Mangatea Te–Pari Mohakatino), yellow–brown loam (Mapiu Aria)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Te–Pari soils are uncommon. (ii) most Te–Pari soils have

been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** August 1991

NOTES: Large coal deposits in the area have been investigated for mining and development of a thermal power station.

REFERENCES: McCaskill (1979b) Department of Lands and Survey (1984)

(256) Moki Scenic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 24-01 North Taranaki

LOCALITY and GRID REFERENCE: 45km NE of New Plymouth Q19 467469

AREA(ha): 11 **ALTITUDE(m):** 122-241 **RAINFALL(mm):** 2050

TOPOGRAPHY: undulating hillslopes and ridges; bluff **PARENT MATERIAL:** sandy mudstone and conglomerate, and derived colluvium **VEGETATION:** tawa forest; kohekohe forest; bluff vegetation; introduced grassland

SOILS: yellow-brown earth (Whangamomona), yellow-brown loam (Egmont)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Egmont soils are uncommon. (ii) most Egmont soils have been developed for intensive sheep farming and dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** stock, goats and possums present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991

REFERENCES: Clarkson and Boase (1982) McCaskill (1980) Department of Lands and Survey (1984)

(257) Mount Messenger Scenic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 24-01 North Taranaki

LOCALITY and GRID REFERENCE: 31km NE of Waitara Q18 497557

AREA(ha): 54 **ALTITUDE(m):** 61-213 **RAINFALL(mm):** 2050

TOPOGRAPHY: steep hillslopes and ridges; bluffs; gullies; valleys **PARENT MATERIAL:** volcanic ash on sandstone; sandy mudstone and sandstone and derived colluvium **VEGETATION:** tawa forest; manuka treeland; cliff face shrub-herbfield; slip shrubland; introduced grassland

SOILS: yellow-brown earth (Whangamomona Tongaporutu)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Tongaporutu soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** possums present

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991

NOTES: Other part of reserve is at GR: Q18 478548.

REFERENCES: Clarkson and Boase (1982) McCaskill (1984) Department of Lands and Survey (1984)

(258) Piki Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 24-01 North Taranaki

LOCALITY and GRID REFERENCE: 25km W of Taumarunui R18 833663

AREA(ha): 80 **ALTITUDE(m):** 180-300 **RAINFALL(mm):** 2000

TOPOGRAPHY: steep hillslopes and ridges; gullies; stream terraces **PARENT MATERIAL:** sandstone and banded mudstone, and derived colluvium and alluvium **VEGETATION:** tawa forest; kamahi forest; podocarp-broadleaved forest

SOILS: yellow-brown earth (Mokau Mahoenui), recent soil (Kokau)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Kokau soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by stock

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991

REFERENCES: Bayfield et al. (1986) McCaskill (1980) Department of Lands and Survey (1984)

(259) Pou Tehia Historic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 24-01 North Taranaki

LOCALITY and GRID REFERENCE: 51km NE of New Plymouth Q18 487641

AREA(ha): 0.8 **ALTITUDE(m):** 0-46 **RAINFALL(mm):** 1700

TOPOGRAPHY: sharp sandstone knoll; bluffs **PARENT MATERIAL:** sandstone **VEGETATION:** coastal broadleaved forest; mixed shrubland; willow treeland

SOILS: recent soil (Kairanga), saline soil (Te-Kowiwi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) one of the few reserves in Taranaki with coastal soil-native vegetation associations. (ii) only example of Te Kowiwi soils in this inventory.

VULNERABILITY: 3

TENURE: historic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991
NOTES: One of the few reserves in Taranaki that supports true coastal vegetation. Ahuriri is a saline recent soil.
REFERENCES: Clarkson and Boase (1982) McCaskill (1980)

(260) Tatu Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 24-01 North Taranaki
LOCALITY and GRID REFERENCE: 10km S of Ohura R18 785511
AREA(ha): 4.7 **ALTITUDE(m):** 180 **RAINFALL(mm):** 1800
TOPOGRAPHY: alluvial flat **PARENT MATERIAL:** alluvium **VEGETATION:** podocarp forest; introduced grassland
SOILS: recent soil (Kokau)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) recent soils under podocarp forest are nationally uncommon. (ii) good examples of Kokau soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been grazed
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991
NOTES: Podocarp forest is not well represented in protected natural areas in this district.
REFERENCES: Bayfield et al. (1986)

(261) Bushy Park Private Protected Land

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 24-02 Matemateaonga
LOCALITY and GRID REFERENCE: 25km NW of Wanganui R22 750546
AREA(ha): 87 **ALTITUDE(m):** 220-290 **RAINFALL(mm):** 1020
TOPOGRAPHY: uplifted marine terrace; gully **PARENT MATERIAL:** volcanic ash; sandstone and siltstone, and derived colluvium **VEGETATION:** podocarp/broadleaved forest
SOILS: yellow-brown loam (Egmont Westmere), intergrade between yellow-brown loam and yellow-brown earth (Parakino)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) excellent example of Westmere and Parakino soils which do not occur elsewhere in this inventory. (ii) most Westmere and Egmont soils have been developed for agriculture.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged
TENURE: private protected land **OWNER/MANAGER:** Royal Forest and Bird Protection Society
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(262) Papaitonga Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 24-02 Matemateaonga
LOCALITY and GRID REFERENCE: 5km SW of Levin S25 981600
AREA(ha): 111 **ALTITUDE(m):** 15-30 **RAINFALL(mm):** 1090
TOPOGRAPHY: lake formed in depression behind sand dunes; alluvial flat; two islands; terraces **PARENT MATERIAL:** loess over aeolian sand; peat; aeolian sand **VEGETATION:** broadleaved forest; sycamore-mahoe treeland; podocarp-broadleaved forest; exotic pine forest; manuka shrubland; gorse-flax shrubland; flax-raupo reed-flaxland; sedgeland
SOILS: organic soil (Ruakaka), yellow-brown loam (Kiwitea)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of relatively undisturbed soil-native vegetation associations. (ii) organic soils and yellow-brown loams under forest are nationally uncommon. (iii) most Kiwitea soils have been developed for dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** dairy effluent in stream is killing off raupo; drainage
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991
REFERENCES: Wassilieff et al. (1986)

(263) Rotokahu Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 24-02 Matemateaonga
LOCALITY and GRID REFERENCE: 21km W of National Park township
AREA(ha): 510 **ALTITUDE(m):** 305-609 **RAINFALL(mm):** 2000
TOPOGRAPHY: steep hillslopes; small lake; gorges, bluffs and waterfalls **PARENT MATERIAL:** marine sandstone and siltstone **VEGETATION:** broadleaved forest; beech forest; beech-broadleaved forest; wetland vegetation; manuka and kanuka scrub
SOILS: yellow-brown loam (Pokaka), yellow-brown earth (Moumahaki), yellow-brown pumice soil (Tapuwae Mapara)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a wide range of relatively undisturbed soil–native vegetation associations. (ii) only example of Tapuwae soils in this inventory. (iii) good examples of Mapara soils are uncommon. (iv) most Mapara, Pokaka and Tapuwae soils have been developed for extensive sheep farming.

VULNERABILITY: 3

TENURE: scenic reserve

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** August 1991

REFERENCES: Fuller and Edwards (1989) Department of Lands and Survey (1984)

(264) Whanganui National Park

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 24–02 Matemateaonga and 30–01 Rangitikei

LOCALITY and GRID REFERENCE: centred around middle reaches of Wanganui River, and Matemateaonga Range R20 745111

AREA(ha): 74231 **RAINFALL(mm):** 1000–1700

TOPOGRAPHY: steep hill and mountain slopes, often with sharp ridges; deeply entrenched gullies and meandering river gorge; flat river terraces **PARENT MATERIAL:** marine sandstone, limestone beds and calcareous concretions, and derived colluvium and alluvium **VEGETATION:** virgin podocarp forest; black beech, hard beech and silver beech forests; broadleaved scrub and forest; reverting introduced grassland; podocarp–broadleaved forest; rockland; wetland vegetation

SOILS: yellow–brown earth (Whangamomona Moumahaki Tahora Upokonui Turakina Tirangi), yellow–brown loam (Ohakune New–Plymouth Matamatau Kakahi Waihuka), yellow–brown pumice soil (Putiki), recent soil (Taharoa)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) a very extensive area containing a wide range of little–disturbed soil–vegetation associations. (ii) only example of Matamatau, Ohakune, Tirangi, Upokonui and Taharoa soils in this inventory. (iii) good examples of Ohakune, Kakahi, Putihi and Turakina soils are uncommon. (iv) most Ohakune soils have been developed for sheep and dairy farming and market gardening. (v) most Turakina soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat and possum present

TENURE: national park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** August 1991

NOTES: The national park encompasses four former scenic reserves: John Coull Memorial, Ngaporo, Papakino and Omaruhika. It comprises one of the largest tracts of virgin lowland forest in the North Island.

(265) Alfred Road

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: 6km SW of Inglewood P19 057213

AREA(ha): 150 **ALTITUDE(m):** 380–480 **RAINFALL(mm):** 3300

TOPOGRAPHY: debris flow mounds **PARENT MATERIAL:** debris flow deposits **VEGETATION:** kamahi forest; kamahi–swamp maire forest

SOILS: recent soil (Tukituki), gley soil (Hungahunga)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Hungahunga soils in this inventory. (ii) good examples of Tukituki soils are uncommon. (iii) most Hungahunga soils have been developed for dairy farming. (iv) most Tukituki soils have been developed for sheep farming.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** parts have been logged

TENURE: recommended area for protection

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

NOTES: Adjoins Egmont National Park.

REFERENCES: Bayfield and Benson (1986)

(266) Blue Rata Scenic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: 23km SW of New Plymouth P20 902156

AREA(ha): 33 **ALTITUDE(m):** 258–304 **RAINFALL(mm):** 2400

TOPOGRAPHY: flat, bouldery river terraces; debris flow mounds; braided river beds **PARENT MATERIAL:** alluvial gravel and sand **VEGETATION:** rata–kamahi forest; tawa forest; scrub; sedgeland; introduced grassland

SOILS: recent soil (Maero)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the only protected natural area of stoney soils under northern rata on the eastern side of the Hangatahuna (Stony) River. (ii) good examples of Maero soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** channel cleared for flood control

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** July 1991

REFERENCES: Clarkson and Boase (1982) McCaskill (1980) Department of Lands and Survey (1984)

(267) Cold Creek Bush

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: ajoin Egmont National Park P20 965005

AREA(ha): 350 **ALTITUDE(m):** 275–425

TOPOGRAPHY: lahar mounds **PARENT MATERIAL:** lahar deposits and volcanic ash **VEGETATION:** kamahi swamp maire forest; kahikatea; kahikatea–kamahi swamp maire, treeland, swampland

SOILS: intergrade between yellow–brown loam and recent soil (Hangatahua), yellow–brown loam (Kahui Pihama), gley soil (Awatuna)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils and soil–native vegetation associations. (ii) ironpans present in Awatuna soils are nationally uncommon. (iii) good examples of Awatuna soils are uncommon. (iv) most Kahui and Awatuna soils have been developed for dairying.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** has been logged; still grazed by stock

TENURE: recommended area for protection

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

REFERENCES: Bayfield and Benson (1986)

(268) Cross Road Swamp

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: 6km N of Stratford Q20 229126

AREA(ha): 20 **ALTITUDE(m):** 325 **RAINFALL(mm):** 2800

TOPOGRAPHY: flat ring plain hollow **PARENT MATERIAL:** peat **VEGETATION:** lowland swamp podocarp forest

SOILS: organic soil (Eltham)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland peat soils under podocarp forest are nationally rare. (ii) Eltham soils do not occur elsewhere in this inventory.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** being drained and cleared

TENURE: recommended area for protection

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

REFERENCES: Bayfield and Benson (1986)

(269) Egmont National Park

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: Mt Taranaki, Pouakai and Kaitoke Ranges P20 020116

AREA(ha): 33 534 **ALTITUDE(m):** 90–2518 **RAINFALL(mm):** 1300–8000

TOPOGRAPHY: gentle to steep mountain slopes and ridges; screes; gullies; bluffs; lahar mounds **PARENT MATERIAL:** andesite and diorite, and derived colluvium; lahar deposits; volcanic ash **VEGETATION:** lowland broadleaved forest; red tussockland; scrub; alpine herbfields and shrub–herbfields; gravelfield; snow tussockland; rockland

SOILS: yellow–brown loam (Patua Rowan), lithosol, recent soil (Maero Newall Tuhurangi Burrell Tukituki), gley soil (Patiki), brown granular clay (Te–Kie), intergrade between yellow–brown loam and recent soil (Uia), organic soil (Kaipaki)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) a very extensive area containing a very wide range of soils and soil–native vegetation associations. (ii) only example of Rowan, Newall, Patua, Tuhurangi, Kaipaki, and Uia soils in this inventory. (iii) good examples of Burrell, Maero, Tukituki and Patiki soils are uncommon. (iv) most Kaipaki soils have been developed for dairying. (v) most Newall soils have been developed for forestry. (vi) most Tukituki soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat and possum present

TENURE: national park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** July 1991

NOTES: Newall soils are composite recent soils on yellow–brown loams. Fresh andesitic ash appears to counter strong leaching effect to allow vigorous plant growth in the scrub zone. Between 250–1150m Patua soils dominate. Rowan soils with a coarse ash cap occur between 430–750m. Thicker Newall tephra gives rise to Maero, Tuhurangi and Burrell soils.

REFERENCES: Department of Lands and Survey (1984) Palmer et al. (1981)

(270) Everett Park Scenic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: 18km SE of New Plymouth Q19 211314

AREA(ha): 77 **ALTITUDE(m):** 91 **RAINFALL(mm):** 2100

TOPOGRAPHY: dissected lahar ringplain; cliffs **PARENT MATERIAL:** volcanic ash **VEGETATION:** kahikatea/tawa forest; introduced grassland

SOILS: recent soil (Esk), yellow–brown loam (Stratford)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) a good example of nationally rare recent soils and yellow-brown loams under native vegetation. (ii) most Esk soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** public facilities including carpark, picnic tables and tracks; parts still grazed
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** July 1991
REFERENCES: Clarkson and Boase (1982) McCaskill (1984) Department of Lands and Survey (1984)

(271) Hopkins Conservation Covenant

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25-01 Egmont
LOCALITY and GRID REFERENCE: 3.5km SW of Okato P19 834208
AREA(ha): 1.8 **ALTITUDE(m):** 75 **RAINFALL(mm):** 1500
TOPOGRAPHY: ring plain **PARENT MATERIAL:** alluvium **VEGETATION:** podocarp/broadleaved treeland
SOILS: intergrade between yellow-brown loam and recent soil (Hangatahaua)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Hangatahaua soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed by stock and burned
TENURE: conservation covenant **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(272) Makara Scenic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25-01 Egmont
LOCALITY and GRID REFERENCE: above Manganui River, 8km NE of Inglewood Q19 215297
AREA(ha): 2.9 **ALTITUDE(m):** 120 **RAINFALL(mm):** 2100
TOPOGRAPHY: steep hillslope **PARENT MATERIAL:** laharitic colluvium; volcanic ash **VEGETATION:** tawa/kamahia forest; introduced grassland
SOILS: recent soil (Esk), yellow-brown loam (Stratford)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) a good example of nationally rare recent soils and yellow-brown loams under native vegetation. (ii) most Esk soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by cattle; Maori pa site; old quarry
TENURE: scenic reserve **OWNER/MANAGER:** New Plymouth District Council
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1980) Department of Lands and Survey (1984)

(273) Maketawa Stream

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25-01 Egmont
LOCALITY and GRID REFERENCE: 5km SSW of Inglewood Q19 152219
AREA(ha): 13 **ALTITUDE(m):** 150 **RAINFALL(mm):** 2400
TOPOGRAPHY: lowland swamp; lahar ringplain **PARENT MATERIAL:** volcanic ash and lahar deposits
VEGETATION: tawa forest; swamp forest
SOILS: yellow-brown loam (Inglewood Stratford)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Inglewood soils are uncommon. (ii) most Inglewood have been developed for intensive sheep farming and dairying.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** parts are still grazed
TENURE: recommended area for protection
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991
REFERENCES: Bayfield and Benson (1986)

(274) Meeting of the Waters Scenic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25-01 Egmont
LOCALITY and GRID REFERENCE: 8km SE of New Plymouth P19 065329
AREA(ha): 27 **ALTITUDE(m):** 91-122 **RAINFALL(mm):** 1500
TOPOGRAPHY: flat river terraces; hillslopes **PARENT MATERIAL:** alluvium and volcanic ash **VEGETATION:** podocarp/tawa forest; broadleaved shrubland; broadleaved forest
SOILS: yellow-brown loam (New-Plymouth), recent soil (Esk)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) a good example of nationally rare recent soils and yellow-brown loams under native vegetation. (ii) most Esk soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** district council recreation reserve adjacent
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** July 1991
REFERENCES: Clarkson and Boase (1982) McCaskill (1980) Department of Lands and Survey (1984)

(275) Norfolk Road A

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: ajoin National Park Q20 120152

AREA(ha): 350 **ALTITUDE(m):** 500

TOPOGRAPHY: bouldery debris flows **PARENT MATERIAL:** debris flow deposits and volcanic ash **VEGETATION:** kamahi forest; kamahi–swamp maire forest; rimu–kamahi forest

SOILS: recent soil (Burrell)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good example of soil development on interfluvies (kamahi forest) and fluvies (kamahi–swamp maire forest). (ii) good examples of Burrell soils are uncommon.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** parts have been logged

TENURE: recommended area for protection

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

REFERENCES: Bayfield and Benson (1986)

(276) Okau Scenic Reserve

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: 22km W of Uruti R18 647507

AREA(ha): 5.3 **ALTITUDE(m):** 330 **RAINFALL(mm):** 2800

TOPOGRAPHY: small knob; alluvial riverflats **PARENT MATERIAL:** alluvium **VEGETATION:** tawa forest; kamahi–putaputaweta forest; kahikatea–carex tussock treeland; carex sedgeland; introduced grassland

SOILS: yellow–brown loam (New–Plymouth), recent soil (Kaikarangi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soil–native vegetation associations. (ii) good examples of Kaikarangi soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed; parts have been drained

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** July 1991

NOTES: Only record of swamp maire for area.

REFERENCES: Bayfield et al. (1986)

(277) Opua Road

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: 5km NE of Opunake P20 880003

AREA(ha): 7 **ALTITUDE(m):** 140 **RAINFALL(mm):** 1600

TOPOGRAPHY: undulating debris flows **PARENT MATERIAL:** debris flow deposits and volcanic ash **VEGETATION:** tawa forest; tawa–puketea forest

SOILS: intergrade between yellow–brown loam and recent soil (Hangatahua), gley soil (Punehu), yellow–brown loam (Oaonui)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) largest remnant of soils on debris flows under forest in Egmont Ecological Region. (ii) contains a moderate range of soils under native forest. (iii) only example of Oaonui soils in this inventory. (iv) good examples of Punehu soils are uncommon.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

REFERENCES: Bayfield and Benson (1986)

(278) Puketapu Road

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont

LOCALITY and GRID REFERENCE: 9km SE of Opunake P21 884870

AREA(ha): 2 **ALTITUDE(m):** 140 **RAINFALL(mm):** 1200

TOPOGRAPHY: steep coastal cliff **PARENT MATERIAL:** lahar deposits **VEGETATION:** coastal herbfield; coastal taupata–karaka scrub

SOILS: recent soil (Castlecliff), yellow–brown loam (Egmont)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Castlecliff soils in this inventory. (ii) good examples of Egmont soils are uncommon. (iii) most Egmont soils have been developed for intensive sheep farming and dairying.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

REFERENCES: Bayfield and Benson (1986)

(279) Rifle Range Road Lakes

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont
LOCALITY and GRID REFERENCE: 3km S of Hawea
AREA(ha): 46 **ALTITUDE(m):** 100 **RAINFALL(mm):** 1100
TOPOGRAPHY: two lakes; flat lakeshore **PARENT MATERIAL:** Stratford formation and Lepperton lahars
VEGETATION: raupo reedland; scirpus reedland
SOILS: yellow–brown loam (Egmont)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Egmont soils are uncommon. (ii) most Egmont soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 2
TENURE: recommended area for protection
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991
REFERENCES: Bayfield and Benson (1986)

(280) Rowan Road

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont
LOCALITY and GRID REFERENCE: 3km SW of Kaponga P20 068946
AREA(ha): 2 **ALTITUDE(m):** 250 **RAINFALL(mm):** 1600
TOPOGRAPHY: lahar ring plain **PARENT MATERIAL:** volcanic ash **VEGETATION:** tawa forest
SOILS: gley soil (Awatuna Glenn)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) best remaining soil–native forest association on the Opunake ash–mantled ringplain. (ii) only example of Glenn soils in this inventory. (iii) most Awatuna and Glenn soils have been developed for dairying.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** wind damaged; overgrazed
TENURE: recommended area for protection
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991
NOTES: Ironstone pans present in Awapuna soils.
REFERENCES: Bayfield and Benson (1986)

(281) Smith Open Space Covenant

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont
LOCALITY and GRID REFERENCE: 6.5km S of New Plymouth P19 034304
AREA(ha): 4.5 **ALTITUDE(m):** 170 **RAINFALL(mm):** 2000
TOPOGRAPHY: ring plain **PARENT MATERIAL:** volcanic ash **VEGETATION:** rimu–kahikatea/broadleaved forest
SOILS: yellow–brown loam (New–Plymouth Inglewood)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Inglewood soils are uncommon. (ii) most Inglewood soils have been developed for intensive sheep farming and dairying.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** DJ and RK Smith, QEII National Trust
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(282) Swampy Bush

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont
LOCALITY and GRID REFERENCE: 9km N of Opunake P20 828018
AREA(ha): 25 **ALTITUDE(m):** 180 **RAINFALL(mm):** 1400
TOPOGRAPHY: lahar mounds; intermound areas; fluves **PARENT MATERIAL:** lahar deposits **VEGETATION:** semi coastal tawa–puketea forest
SOILS: gley soil (Punehu Patiki), yellow–brown loam (Opua Skeet)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Skeet and Opua soils in this inventory. (ii) good examples of Patiki and Punehu soils are uncommon.
VULNERABILITY: 2
TENURE: recommended area for protection
CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991
REFERENCES: Bayfield and Benson (1986)

(283) Umutekai Bush

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25–01 Egmont
LOCALITY and GRID REFERENCE: 6km SW of New Plymouth P19 084347

AREA(ha): 28 ALTITUDE(m): 110 RAINFALL(mm): 1700

TOPOGRAPHY: lahar ringplain depression **PARENT MATERIAL:** lahar deposits **VEGETATION:** kahikatea-puketea swamp forest; kahikatea swamp forest; broadleaved forest; raupo reedland

SOILS: organic soil (Taihaia)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good example of organic soils under swamp forest. (ii) only example of Taihaia soils in this inventory. (iii) most Taihaia soils have been developed for dairying.

VULNERABILITY: 2

TENURE: recommended area for protection

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

REFERENCES: Bayfield and Benson (1986)

(284) Waipu Lagoons

REGIONAL/CITY COUNCIL(S): Taranaki **ECOLOGICAL DISTRICTS(S):** 25-01 Egmont

LOCALITY and GRID REFERENCE: near Bell Block, 6km ENE of New Plymouth P19 089409

AREA(ha): 4.5 ALTITUDE(m): 50 RAINFALL(mm): 1500

TOPOGRAPHY: lakes and lake shores on an uplifted marine terrace **PARENT MATERIAL:** aeolian sands; volcanic ash; alluvium **VEGETATION:** raupo reedland; flaxland; Eleocharis reedland

SOILS: yellow-brown sand (Patea), yellow-brown loam (New-Plymouth)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Dome Valley and Patea soils in this inventory. (ii) most Dome Valley and Patea soils have been developed for sheep farming, and some dairying and forestry.

VULNERABILITY: 2

TENURE: recommended area for protection, local purpose reserve

CONTACT PERSON: Alan Palmer **DATE OF INFORMATION:** August 1991

REFERENCES: Bayfield and Benson (1986)

(285) Kaimanawa Conservation Park

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu, Waikato and Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 27-01 Kaimanawa

LOCALITY and GRID REFERENCE: Kaimanawa Range, central North Island T19 611262

AREA(ha): 76 348 ALTITUDE(m): 550-1727 RAINFALL(mm): 1500-4500

TOPOGRAPHY: moderately steep to very steep mountains and ridges; some broad summit/shoulders; plateau **PARENT MATERIAL:** greywacke and argillite and derived colluvium; volcanic ash **VEGETATION:** podocarp forest; beech forest; kamahi forest; podocarp-kamahi forest; snow tussockland

SOILS: yellow-brown earth (Kaimanawa Urewera), yellow-brown loam (Otanewainuku), yellow-brown pumice soil (Taupo)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a moderate range of soils and soil-native vegetation associations. (ii) only example of Kaimanawa soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** large parts have been burned (natural, Polynesian and European fires); deer, possum and wild horses present; parts have been logged

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Called "Kaimanawa Forest Park" in Department of Lands and Survey (1984).

REFERENCES: Department of Lands and Survey (1984)

(286) Kaweka Conservation Park

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 27-01 Kaimanawa

LOCALITY and GRID REFERENCE: Kaweka Range U19 910200

AREA(ha): 67 145 ALTITUDE(m): 180-1724 RAINFALL(mm): 1200-5000

TOPOGRAPHY: steep mountain slopes and ridges; gullies; minor foothills (in the east) **PARENT MATERIAL:** greywacke and Tertiary rocks, and derived colluvium and alluvium; volcanic ash **VEGETATION:** beech forest; beech-podocarp forest; snow tussockland; manuka-kanuka scrub and shrubland

SOILS: yellow-brown earth (Tangitiki Urewera Kaweka Waiaruhe Rawea), yellow-brown pumice soil (Otamatea Te-Pohue), yellow-brown loam (Otupae)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a wide range of soils and soil-native vegetation associations. (ii) only example of Rawea soils in this inventory. (iii) good examples of Waiaruhe, Otupae, Otamatea, Kaweka and Te Pohue soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** deer and possum present

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

REFERENCES: Department of Lands and Survey (1984)

(287) Turangakumu Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 27–01 Kaimanawa
AREA(ha): 143 **RAINFALL(mm):** 1700
SOILS: yellow–brown earth (Kaweka)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Kaweka soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve
CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1978)

(288) Waipunga Falls Scenic Reserve

REGIONAL/CITY COUNCIL(S): Bay of Plenty **ECOLOGICAL DISTRICTS(S):** 27–01 Kaimanawa
LOCALITY and GRID REFERENCE: midway between Taupo and Napier on SH 5 V19 148447
AREA(ha): 45 **ALTITUDE(m):** 630 **RAINFALL(mm):** 2000
TOPOGRAPHY: steep broken plateau; waterfalls **PARENT MATERIAL:** ignimbrite and derived colluvium
VEGETATION: secondary kanuka–manuka treeland
SOILS: yellow–brown earth (Otamatea)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Otamatea soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991
REFERENCES: McCaskill (1979i) Department of Lands and Survey (1984)

(289) Ruahine Conservation Park

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu and Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 28–01 Ruahine
LOCALITY and GRID REFERENCE: Ruahine Range U22 753423
AREA(ha): 93 068 **ALTITUDE(m):** 300–1714 **RAINFALL(mm):** 1200–4500
TOPOGRAPHY: steep mountain slopes and ridges; gullies **PARENT MATERIAL:** greywacke with beds of massive gritstone, conglomerate and argillite, and derived colluvium and alluvium **VEGETATION:** beech forest; kamahi forest; podocarp forest; podocarp–beech forest; manuka–kanuka scrub; snow tussockland; subalpine scrub; alpine herbfields; rocklands
SOILS: yellow–brown earth (Rimutaka Ruahine Renata Mangamahu Whetukura), yellow–brown loam (Kopua Moawhango Mangatahi Titapu Otupae), intergrade between yellow–brown loam and yellow–brown earth (Makaretu), brown granular clay (Matamau), yellow–grey earth (Kidnappers), intergrade between yellow–grey and yellow–brown earth (Whangaehu)
IMPORTANCE: 1 **SIGNIFICANCE:** (i) very extensive area containing a wide range of soils and soil–native vegetation associations. (ii) only example of Renata, Makaretu, Moawhango, Whetukura, Mangatahi and Whangaehu soils in this inventory. (iii) good examples of Otupae, Kidnappers, Kopua and Matamau soils are uncommon. (iv) most Kopua soils have been developed for sheep and dairy farming. (v) most Mangatahi, Matamau, Moawhango and Whangaehu soils have been developed for sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** possums and deer present
TENURE: conservation park **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** July 1991
NOTES: Called "Ruahine Forest Park" in Department of Lands and Survey (1984).
REFERENCES: Department of Lands and Survey (1984)

(290) Balls Clearing Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29–01 Maungaharuru
LOCALITY and GRID REFERENCE: 5km NW of Puketitiri V20 134095
AREA(ha): 135 **ALTITUDE(m):** 610 **RAINFALL(mm):** 2000
TOPOGRAPHY: flatland **PARENT MATERIAL:** marine sandstone to siltstone **VEGETATION:** podocarp forest; tussock grassland and sedgeland; swampland
SOILS: gley soil (Kaiapo), recent soil (Pakowhai)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) an outstanding example of soils developed under podocarp forest. (ii) good examples of Pakowhai and Kaiapo soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(291) Bellbird Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29–01 Maungaharuru

LOCALITY and GRID REFERENCE: 59km N of Napier V19 400251

AREA(ha): 23 **ALTITUDE(m):** 700 **RAINFALL(mm):** 1600

TOPOGRAPHY: steep broken hillslopes; deep tomb-like gullies; bluffs; waterfalls; streams **VEGETATION:** podocarp-beech-broadleaved forest; manuka-kanuka treeland; browntop grassland

SOILS: yellow-brown pumice soil (Titiokura), podzolised yellow-brown pumice soil (Puketitiri)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils. (ii) good examples of Titiokura and Puketitiri soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and grazed; goat damage

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(292) Hutchinson Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29–01 Maungaharuru

LOCALITY and GRID REFERENCE: Puketitiri, 65km NW of Napier V20 163094

AREA(ha): 36 **ALTITUDE(m):** 550 **RAINFALL(mm):** 1800

TOPOGRAPHY: rolling to moderately steep hillslopes; deep gullies; flat areas **PARENT MATERIAL:** marine sandstone, siltstone and mudstone and derived colluvium **VEGETATION:** podocarp forest; podocarp-beech forest; manuka shrubland; exotic treeland; introduced grassland

SOILS: gley soil (Kaiapo), recent soil (Pakowhai)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Pakowhai and Kaiapo soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** large area was burnt in 1946

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(293) Opouahi Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29–01 Maungaharuru

LOCALITY and GRID REFERENCE: Lake Opouahi, 56km N of Napier V19 413214

AREA(ha): 21 **ALTITUDE(m):** 482 **RAINFALL(mm):** 1600

TOPOGRAPHY: lake; low hills; steep bluffs **PARENT MATERIAL:** sandstone and volcanic ash **VEGETATION:** podocarp-broadleaved forest; manuka-kanuka scrub; swampland; lake vegetation

SOILS: yellow-brown pumice soil (Titiokura)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Titiokura soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been burned and grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(294) William Hartree Memorial Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29–01 Maungaharuru

LOCALITY and GRID REFERENCE: 51km NW of Napier V20 190056

AREA(ha): 14 **ALTITUDE(m):** 600 **RAINFALL(mm):** 1600

TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** siltstone and sandstone, and volcanic ash **VEGETATION:** regenerating mixed broadleaved forest; manuka treeland; bracken fernland

SOILS: yellow-brown pumice soil (Taupo Te-Pohue), podzolised yellow-brown pumice soil (Puketitiri), yellow-brown earth (Mokamoka)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of little-disturbed soils. (ii) good examples of Te Pohue, Puketitiri and Mokamoka soils are uncommon.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

NOTES: Royal Forest and Bird Protection Society lodge (Patoka) in reserve.

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(295) Lattey and Gallen Open Space Covenant

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29–01 Maungaharuru

LOCALITY and GRID REFERENCE: below Maungaharu range, 37km NNW of Napier V20 358180

AREA(ha): 12 **ALTITUDE(m):** 400-460 **RAINFALL(mm):** 1300
TOPOGRAPHY: gentle to moderately steep hillslopes; deeply incised streams **PARENT MATERIAL:** rhyolitic tephra **VEGETATION:** podocarp forest; manuka and kanuka scrub
SOILS: podzolised yellow-brown pumice soil (Puketitiri), yellow-brown pumice soil (Te-Pohue)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Puketitiri and Te Pohue soils are uncommon.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** PB Lattey, RG Gallen, QEII National Trust
CONTACT PERSON: Mike Page **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(296) A'Deanes Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29-02 Heretaunga
LOCALITY and GRID REFERENCE: 30km W of Waipawa U22 920363
AREA(ha): 38 **ALTITUDE(m):** 299 **RAINFALL(mm):** 1200
TOPOGRAPHY: low alluvial terrace **PARENT MATERIAL:** loess over river gravels **VEGETATION:** podocarp-beech forest; introduced grassland
SOILS: recent soil (Argyll), yellow-brown loam (Kopua)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) best remaining example of an original soil-vegetation association on the Ruataniwha Plains. (ii) only example of Argyll soils in this inventory. (iii) good examples of Kopua soils are uncommon. (iv) most Kopua soils have been developed for sheep and dairy farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and grazed
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(297) Otatara Pa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29-02 Heretaunga
LOCALITY and GRID REFERENCE: south-western outskirts of Napier
AREA(ha): 28 **RAINFALL(mm):** 1000 **VEGETATION:** introduced grassland
SOILS: yellow-grey earth (Crownthorpe), yellow-grey earth (Raukawa)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Raukawa soils in this inventory. (ii) good examples of Crownthorpe soils are uncommon. (iii) most Raukawa soils have been developed for sheep farming.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** site disturbed by construction of Maori fortifications and food storage pits
TENURE: scenic reserve
CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991
REFERENCES: McCaskill (1978)

(298) Swinburn Open Space Covenant

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 29-02 Heretaunga
LOCALITY and GRID REFERENCE: near Springhill, 45km SW of Havelock North U22 948464
AREA(ha): 12 **ALTITUDE(m):** 300-320 **RAINFALL(mm):** 1200
TOPOGRAPHY: hillslopes **PARENT MATERIAL:** volcanic ash **VEGETATION:** broadleaved forest
SOILS: yellow-brown loam (Matamau)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Matamau soils are uncommon.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** HM Swinburn
CONTACT PERSON: Mike Page **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(299) Apiti Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 30-01 Rangitikei
LOCALITY and GRID REFERENCE: above Oroua River, 30km SE of Taihape T22 594367
AREA(ha): 32 **ALTITUDE(m):** 420-600 **RAINFALL(mm):** 1000
TOPOGRAPHY: steep terrace riser; bluffs **PARENT MATERIAL:** sandstone **VEGETATION:** podocarp-beech/broadleaved forest
SOILS: yellow-brown earth (Makuri)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Makuri soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** grazed by stock

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(300) Cleaver Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: 6km SW of Taihape T21 458624
AREA(ha): 6.0 **ALTITUDE(m):** 670-760 **RAINFALL(mm):** 1100
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** mudstone and sandstone, and derived colluvium **VEGETATION:** (podocarp)–broadleaved forest
SOILS: yellow–brown earth (Waiaruhe Whetukura)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waiaruhe and Whetukura soils are uncommon.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** WB Cleaver, QEII National Trust
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(301) Dress Circle Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: Rauhine settlement, dissected by Mangawharariki River, 8km E of Mangaweka T22 581472
AREA(ha): 66 **ALTITUDE(m):** 400-500 **RAINFALL(mm):** 1000
TOPOGRAPHY: river terrace tread and risers; river gorge; steep hillslopes **PARENT MATERIAL:** alluvium from greywacke and mudstone; sandstone and mudstone **VEGETATION:** podocarp–beech forest
SOILS: intergrade between yellow–grey and yellow–brown earth (Taihape), yellow–brown loam (Kiwitea Kawhatau), yellow–brown earth (Whetukura)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a moderate range of soils under virgin native forest.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** crossed by a metal road
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(302) Galbraith Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: slopes to Kawhatau River, 19km E of Mangaweka T22 598522
AREA(ha): 6.0 **ALTITUDE(m):** 390-460 **RAINFALL(mm):** 1000
TOPOGRAPHY: steep hillslopes; gully; terrace tread **PARENT MATERIAL:** sandstone and mudstone **VEGETATION:** podocarp/broadleaved forest
SOILS: yellow–brown loam (Kawhatau), yellow–brown earth (Pahiatua)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Pahiatua soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed by stock
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(303) Hihitahi Forest Sanctuary

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: 10km SE of Waiouru T21 460810
AREA(ha): 2170 **ALTITUDE(m):** 800-1100 **RAINFALL(mm):** 1100
TOPOGRAPHY: dissected plateau – gentle to very steep hillslopes and gullies **PARENT MATERIAL:** volcanic ash on sandstone, and derived colluvium **VEGETATION:** podocarp forest; podocarp–broadleaved forest; beech forest
SOILS: yellow–brown loam (Moawhango Irirangi), yellow–brown earth (Waiaruhe)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Irirangi and Moawhango soils are uncommon.
VULNERABILITY: 3
TENURE: forest sanctuary **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(304) Jones Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: 15km E of Wanganui S22 973386
AREA(ha): 2.7 **ALTITUDE(m):** 170 **RAINFALL(mm):** 1100
TOPOGRAPHY: uplifted marine terrace **PARENT MATERIAL:** mudstone and derived colluvium **VEGETATION:** kahikatea forest; flax–broadleaved shrubland
SOILS: intergrade between yellow–grey and yellow–brown earth (Whangaehu Kumeroa), yellow–grey earth (Marton)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) yellow–grey earths under native vegetation are nationally uncommon. (ii) only example of Marton soils in this inventory. (iii) good examples of Kumeroa soils are uncommon.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** PN Jones, QEII National Trust
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(305) Makuhou Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: 10km NE of Marton S22 123326
AREA(ha): 7.9 **ALTITUDE(m):** 120–220 **RAINFALL(mm):** 900
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** siltstone and sandstone, and derived colluvium **VEGETATION:** podocarp/broadleaved forest; manuka–kanuka shrubland
SOILS: yellow–brown earth (Whetukura), intergrade between yellow–grey and yellow–brown earth (Okioia)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Okioia soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(306) Mangoiria Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: above Oroua River, 20km SSE of Taihape T22 608393
AREA(ha): 56 **ALTITUDE(m):** 460–580 **RAINFALL(mm):** 1000
TOPOGRAPHY: extremely steep terrace riser; moderately steep hillslopes; terrace treads **PARENT MATERIAL:** sandstone and mudstone **VEGETATION:** beech forest; podocarp forest
SOILS: intergrade between yellow–grey and yellow–brown earth (Whangaehu)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Makuri soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(307) Pemberton Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: Pemberton, 15km SE of Mangaweka T22 553407
AREA(ha): 2.6 **ALTITUDE(m):** 520–540 **RAINFALL(mm):** 1200
TOPOGRAPHY: river terrace **PARENT MATERIAL:** volcanic ash **VEGETATION:** podocarp forest
SOILS: yellow–brown loam (Kiwitea)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland soils on terraces under native vegetation are nationally uncommon. (ii) good examples of Kiwitea soils are uncommon.
VULNERABILITY: 3
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** BC Pemberton, QEII National Trust
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1992)

(308) Pohoniutatane Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei
LOCALITY and GRID REFERENCE: above Turakina River, 35km W of Taihape S21 257637
AREA(ha): 26 **ALTITUDE(m):** 300–420 **RAINFALL(mm):** 900

TOPOGRAPHY: steep hillslopes; alluvial flats **PARENT MATERIAL:** sandstone and derived colluvium **VEGETATION:** podocarp/broadleaved forest
SOILS: yellow-brown earth (Turakina), gley soil (Raumati)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) lowland gley soils under native forest are uncommon in New Zealand. (ii) only example of Raumati soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** grazed by stock
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(309) Pryces Rahui Bush Private Protected Land

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 30-01 Rangitikei
LOCALITY and GRID REFERENCE: 20km SE of Hunterville T22 320323
AREA(ha): 13 **ALTITUDE(m):** 150 **RAINFALL(mm):** 1020
TOPOGRAPHY: river terrace tread **PARENT MATERIAL:** alluvium **VEGETATION:** podocarp forest
SOILS: recent soil (Karapoti), yellow-brown pumice soil (Putiki)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) recent soils under lowland podocarp forest are uncommon in New Zealand. They were formerly much more extensive. (ii) only example of Karapoti soils in this inventory. (iii) good examples of Putiki soils are uncommon.
VULNERABILITY: 3
TENURE: private protected land **OWNER/MANAGER:** Royal Forest and Bird Protection Society
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(310) Simpson Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 30-01 Rangitikei
LOCALITY and GRID REFERENCE: 5km N of Hunterville T22 323415
AREA(ha): 36 **ALTITUDE(m):** 300 **RAINFALL(mm):** 1200
TOPOGRAPHY: gentle hillslopes; river terraces **PARENT MATERIAL:** sandstone and mudstone, and derived colluvium **VEGETATION:** podocarp/broadleaved forest; broadleaved forest
SOILS: intergrade between yellow-grey and yellow-brown earth (Kumeroa Wainui), recent soil (Kairanga)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Wainui soils in this inventory. (ii) good examples of Kumeroa soils are uncommon. (iii) most Kairanga soils have been developed for agriculture.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(311) Te Kapua Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 30-01 Rangitikei
LOCALITY and GRID REFERENCE: 6.5km NW of Mangakino T22 437557
AREA(ha): 25 **ALTITUDE(m):** 300-518 **RAINFALL(mm):** 1020
TOPOGRAPHY: steep hillslopes and ridge **PARENT MATERIAL:** marine sandstone and siltstone, and derived colluvium **VEGETATION:** podocarp/broadleaved forest; beech-(rata) forest
SOILS: yellow-brown earth (Pahiatua Turakina), y
IMPORTANCE: 3 **SIGNIFICANCE:** (i) good example of Wanganui-Manawatu yellow-brown earths under native forest. (ii) good examples of Pahiatua soils are uncommon.
VULNERABILITY: 3
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992
REFERENCES: Department of Lands and Survey (1984)

(312) Totara Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 30-01 Rangitikei
LOCALITY and GRID REFERENCE: 40km NE of Palmerston North T23 528136
AREA(ha): 130 **ALTITUDE(m):** 140-240 **RAINFALL(mm):** 1200
TOPOGRAPHY: river terrace treads and riser **PARENT MATERIAL:** alluvium derived from greywacke and volcanic ash **VEGETATION:** podocarp/broadleaved forest
SOILS: intergrade between yellow-grey and yellow-brown earth (Tokeawa), yellow-brown loam (Kiwitea)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) an excellent example of lowland soils under relatively undisturbed native

vegetation. (ii) only example of Tokeawa soils in this inventory.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Manawatu District Council

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992

REFERENCES: Department of Lands and Survey (1984)

(313) Turangarere Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei

LOCALITY and GRID REFERENCE: above Hautapu River, 12km S of Waiouru T21 433772

AREA(ha): 7.6 **ALTITUDE(m):** 700–800 **RAINFALL(mm):** 1100

TOPOGRAPHY: steep colluvial hillslopes; terraces **PARENT MATERIAL:** volcanic ash **VEGETATION:** podocarp/broadleaved forest

SOILS: yellow–brown loam (Moawhango Irirangi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Irirangi and Moawhango soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged; disturbance by road construction

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992

REFERENCES: Department of Lands and Survey (1984)

(314) White Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 30–01 Rangitikei

LOCALITY and GRID REFERENCE: 19km NE of Fielding T23 455181

AREA(ha): 19 **ALTITUDE(m):** 500 **RAINFALL(mm):** 1100

TOPOGRAPHY: floodplain and terrace riser **PARENT MATERIAL:** alluvium derived from greywacke and volcanic ash **VEGETATION:** kahikatea/broadleaved forest

SOILS: intergrade between yellow–grey and yellow–brown earth (Whangaehu), recent soil (Manawatu Tukituki)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good example of lowland recent soils under native forest which are nationally uncommon. (ii) good examples of Manawatu and Tukituki soils are uncommon. (iii) most Manawatu soils have been developed for intensive sheep farming, dairying, market gardening and horticulture.

VULNERABILITY: 3

TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** RP White, QEII National Trust

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** October 1992

REFERENCES: Department of Lands and Survey (1984)

(315) Gordon Park Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 31–01 Manawatu Plains

LOCALITY and GRID REFERENCE: 41km NE of Wanganui R22 894414

AREA(ha): 15 **ALTITUDE(m):** 30 **RAINFALL(mm):** 900

TOPOGRAPHY: river terrace **PARENT MATERIAL:** alluvium over sandstone **VEGETATION:** podocarp forest

SOILS: gley soil (Te–Arakura)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good example of lowland gley soils under native forest, an association which is uncommon in New Zealand. (ii) only example of Te Arakura soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** poplars, willows, pine trees and introduced grasses also present

TENURE: scenic reserve **OWNER/MANAGER:** Wanganui District Council

CONTACT PERSON: Iain Campbell **DATE OF INFORMATION:** November 1992

REFERENCES: Department of Lands and Survey (1984)

(316) Kiripiti Scientific Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 31–01 Manawatu Plains

LOCALITY and GRID REFERENCE: 5km S of Otaki S25 905440

AREA(ha): 2.0 **ALTITUDE(m):** 20–35 **RAINFALL(mm):** 1100

TOPOGRAPHY: flat floodplain **PARENT MATERIAL:** stony alluvium **VEGETATION:** mixed broadleaved forest; introduced grassland

SOILS: yellow–brown loam (Kawhatau)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Kawhatau soils in this inventory. (ii) most Kawhatau soils have been developed for intensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been logged and grazed

TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** July 1991
REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(317) Wilson Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 31-01 Manawatu Plains
LOCALITY and GRID REFERENCE: 4.3km E of Bulls S23 167118
AREA(ha): 6.4 **ALTITUDE(m):** 120 **RAINFALL(mm):** 1100
TOPOGRAPHY: flat to rolling uplifted marine terrace; steep gully **PARENT MATERIAL:** greywacke alluvium
VEGETATION: rimu-totara/kanuka forest
SOILS: yellow-grey earth (Tokomaru)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) good example of lowland soils on terraces under native vegetation, an association which is nationally uncommon. (ii) only example of Tokomaru soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** JA Wilson, QEII National Trust
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** October 1992
NOTES: Called "Ngaioti Farms Open Space Covenant" in Department of Lands and Survey (1984).
REFERENCES: Department of Lands and Survey (1984)

(318) McKellar Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 31-01 Rangitikei
LOCALITY and GRID REFERENCE: 20km NNE of Marton S22 228430
AREA(ha): 28 **ALTITUDE(m):** 100 **RAINFALL(mm):** 1000
TOPOGRAPHY: steep hillslopes **PARENT MATERIAL:** mudstone and sandstone, and derived colluvium **VEGETATION:** manuka-kanuka-broadleaved scrub; introduced grassland
SOILS: intergrade between yellow-grey and yellow-brown earth (Whangaehu Pohangina)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Pohangina soils in this inventory.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed
TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** H McKellar, QEII National Trust
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** October 1992
REFERENCES: Department of Lands and Survey (1984)

(319) Himatangi Bush Scientific Reserve

REGIONAL/CITY COUNCIL(S): Wanganui-Manawatu **ECOLOGICAL DISTRICTS(S):** 31-02 Foxton
LOCALITY and GRID REFERENCE: 10km NE of Foxton S24 116830
AREA(ha): 19 **ALTITUDE(m):** 20 **RAINFALL(mm):** 900
TOPOGRAPHY: trough lying between converging sandunes **PARENT MATERIAL:** aeolian sands **VEGETATION:** mixed broadleaved forest; kanuka scrub; mixed shrub-grass shrubland; bracken fernland; tall lupin-grass shrubland; sedgeland
SOILS: yellow-brown sand (Himatangi Motuiti Foxton)
IMPORTANCE: 1 **SIGNIFICANCE:** (i) one of the few forest areas in the World where different soil surfaces of known age are reserved. (ii) preserves one of the last remnants of sand country forest in the Manawatu. Yellow-brown sands are also nationally uncommon. (iii) only example of Himatangi and Foxton soils in this inventory. (iv) good examples of Motuiti soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** kahikatea has been logged; cattle damage prior to fencing
TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** July 1991
REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(320) Nikau Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 31-02 Foxton
LOCALITY and GRID REFERENCE: 0.6km N of Paraparaumu R26 805313
AREA(ha): 11 **ALTITUDE(m):** 61-160 **RAINFALL(mm):** 1180
TOPOGRAPHY: gentle hillslopes above alluvial coastal plain **PARENT MATERIAL:** colluvium and alluvium derived from greywacke and argillite **VEGETATION:** broadleaved-nikau forest
SOILS: yellow-brown earth (Makara), intergrade between yellow-grey and yellow-brown earth (Porirua)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) only example of Porirua soils in this inventory. (ii) contains large numbers of nikau palms, which are now nationally much reduced from their former extent. (iii) most Porirua soils have been developed for extensive sheep farming, and some dairying.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by cattle
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** July 1991
REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(321) Pakipaki Bush Forest

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 31–02 Foxton
LOCALITY and GRID REFERENCE: 7.5km NW of Levin S25 969658
AREA(ha): 10 **ALTITUDE(m):** 40 **RAINFALL(mm):** 1100
TOPOGRAPHY: parabolic dune **PARENT MATERIAL:** aeolian sand **VEGETATION:** broadleaved forest; kanuka forest
SOILS: recent soil (Waitarere), yellow–brown sand (Foxton)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) an excellent example of yellow–brown sands under native forest – an association that was formerly much more extensive throughout New Zealand. (ii) also a good example of little–disturbed soils on a sand dune sequence.
VULNERABILITY: 2
TENURE: private land; recommended area for protection
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** November 1992
REFERENCES: Ravine (1992)

(322) Round Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 31–02 Foxton
LOCALITY and GRID REFERENCE: 3.2km N of Foxton S24 038825
AREA(ha): 51 **ALTITUDE(m):** 10–15 **RAINFALL(mm):** 900
TOPOGRAPHY: gentle to flat sand dune ridges and depressions **PARENT MATERIAL:** aeolian sands **VEGETATION:** lowland semi–swamp forest; pukatea forest; mixed broadleaved forest; podocarp mixed broadleaved forest; bracken fernland; coprosma shrubland; exotic pine forest
SOILS: yellow–brown sand (Motuiti Pukepuke), organic soil (Omanuka)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of freshwater soil–vegetation associations. (ii) one of the few areas of soils under pukatea semi–swamp forest remaining in the region. (iii) only example of Pukepuke and Omanuka soils in this inventory. (iv) good examples of Motuiti soils are uncommon.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** drained in 1979; kahikatea has been milled; samba deer damage
TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** July 1991
NOTES: One of few areas of pukatea–dominated semi–swamp forest remaining in region; it originally occupied over 2000ha of the Manawatu Plains.
REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(323) Te Hapua Road Swamp

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 31–02 Foxton
LOCALITY and GRID REFERENCE: 6.5km N of Waikanae R26 857403
AREA(ha): 15 **ALTITUDE(m):** 20–40 **RAINFALL(mm):** 1200
TOPOGRAPHY: sandplain; swale **PARENT MATERIAL:** peat; aeolian sand **VEGETATION:** flax–broadleaved shrub flaxland
SOILS: yellow–brown sand (Pukepuke Foxton), organic soil (Omanuka)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) an excellent example of relatively unmodified coastal sand and organic soils, each of which have been extensively developed for agriculture throughout New Zealand.
VULNERABILITY: 2
TENURE: private land; recommended area for protection
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** November 1992
REFERENCES: Ravine (1992)

(324) Te Harakiki Swamp

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 31–02 Foxton
LOCALITY and GRID REFERENCE: 2.5km NE of Waikanae R26 826374
AREA(ha): 120 **ALTITUDE(m):** 10–20 **RAINFALL(mm):** 1300
TOPOGRAPHY: parabolic dune and swale **PARENT MATERIAL:** peat; aeolian sand; alluvium **VEGETATION:** flax–toetoe–broadleaved shrub grassland; kanuka forest; kahikatea–pukatea treeland
SOILS: yellow–brown sand (Pukepuke Foxton), organic soil (Omanuka)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) an excellent example of relatively unmodified coastal sand and organic soils; each of which have been extensively developed for agriculture throughout New Zealand.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** adjacent sewage ponds; many weeds including blackberry, gorse, crack willow, inkweed, jointed rush, Manchurian wild rice, pines and wattles); severe stock damage on edges
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** November 1992
REFERENCES: Ravine (1992)

(325) Te Whanga Bush

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 31–02 Foxton
LOCALITY and GRID REFERENCE: 8km N of Levin S25 033686
AREA(ha): 15 **ALTITUDE(m):** 20 **RAINFALL(mm):** 1000
TOPOGRAPHY: sand plain and ridge **PARENT MATERIAL:** aeolian sand **VEGETATION:** broadleaved forest and shrubland; introduced grassland
SOILS: yellow–brown sand (Carnarvon)
IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Carnarvon soils in this inventory.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** grazed until 1987; many weeds, especially Jerusalem cherry and old mans beard
TENURE: private land; recommended area for protection
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** November 1992
REFERENCES: Ravine (1992)

(326) Waikawa Beach Road Forest

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 31–02 Foxton
LOCALITY and GRID REFERENCE: 7.5km NNE of Otaki S25 940544
AREA(ha): 1.2 **ALTITUDE(m):** 30 **RAINFALL(mm):** 1100
TOPOGRAPHY: sand plain **PARENT MATERIAL:** aeolian sand **VEGETATION:** kahikatea–tawa forest
SOILS: yellow–brown sand (Foxton Pinaki)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) yellow–brown sands under native forest are uncommon in New Zealand. (ii) good examples of Pinaki soils are uncommon.
VULNERABILITY: 2 **MODIFICATIONS/THREATS:** weed problem (Japanese honeysuckle, willow and blackberry)
TENURE: recommended area for protection
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** November 1992
REFERENCES: Ravine (1992)

(327) Whitiki Bush and Swamp

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 31–02 Foxton
LOCALITY and GRID REFERENCE: northern margin of Lake Horowhenua, 4km NW of Levin S25 010653
AREA(ha): 50 **ALTITUDE(m):** 20–30 **RAINFALL(mm):** 1100
TOPOGRAPHY: sand plain; dune lake; swale **PARENT MATERIAL:** aeolian sand; peat **VEGETATION:** broadleaved shrub–flax shrubland; kahikatea–puketea forest
SOILS: yellow–brown sand (Pukepuke Foxton), organic soil (Omanuka)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) the least modified remnant in the ecological district of coastal sand and organic soils, each of which has been extensively developed for agriculture throughout New Zealand.
VULNERABILITY: 2
TENURE: private land; recommended area for protection
CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** November 1992
REFERENCES: Ravine (1992)

(328) Jackson Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 33–01 Woodville
LOCALITY and GRID REFERENCE: 7km ESE of Woodville T24 601901
AREA(ha): 76 **ALTITUDE(m):** 90–300 **RAINFALL(mm):** 1000–1150
TOPOGRAPHY: gentle hillslopes and river flats **PARENT MATERIAL:** pumiceous sandstone and mudstone, minor limestone, and derived colluvium and alluvium **VEGETATION:** manuka–kanuka–broadleaved scrub; manuka–kanuka scrub; kahikatea–broadleaved treeland; introduced grassland
SOILS: yellow–brown loam (Matamau), yellow–brown earth (Mangamahu), rendzina (Pukeokahu), recent soil (Kairanga)
IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a wide range of soils under native vegetation. (ii) only example of Pukeokahu soils in this inventory. (iii) good examples of Matamau and Mangamahu soils are uncommon. (iv) fertiliser has never been applied to the farm area.
VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts still farmed

TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** TCR Jackson, QEII National Trust

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** October 1992

NOTES: Also known as the "Burslade Open Space Covenant".

REFERENCES: Department of Lands and Survey (1984)

(329) Makirikiri Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 33–01 Woodville

LOCALITY and GRID REFERENCE: 4km S of Dannevirke U23 744221

AREA(ha): 15 **ALTITUDE(m):** 180 **RAINFALL(mm):** 1200

TOPOGRAPHY: flat alluvial terrace **PARENT MATERIAL:** recent alluvial gravel and silts **VEGETATION:** podocarp–broadleaved forest; kowhai treeland

SOILS: yellow–brown earth (Moumahaki), intergrade between yellow–brown loam and yellow–brown earth (Takapau)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Takapau soils in this inventory. (ii) most Takapau soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** totara has been logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(330) Elsthorpe Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 34–01 Eastern Hawkes Bay

LOCALITY and GRID REFERENCE: 21km E of Waipawa V22 362364

AREA(ha): 37 **ALTITUDE(m):** 170 **RAINFALL(mm):** 1400

TOPOGRAPHY: flat alluvial floodplain **PARENT MATERIAL:** alluvium **VEGETATION:** podocarp–broadleaved forest

SOILS: recent soil (Twyford)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) good example of a floodplain recent soil under little–disturbed native vegetation, an association that is uncommon nationally. (ii) only example of Twyford soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** stock grazing

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(331) Maraetotara Gorge Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 34–01 Eastern Hawkes Bay

LOCALITY and GRID REFERENCE: 32km S of Hastings V22 438472

AREA(ha): 11 **ALTITUDE(m):** 340 **RAINFALL(mm):** 1100

TOPOGRAPHY: steep–sided gorge **PARENT MATERIAL:** marine sandstone to siltstone **VEGETATION:** coastal karaka–ngaio forest

SOILS: yellow–brown earth (Mokamoka Waimarama)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Waimarama and Mokamoka soils are uncommon. (ii) most Waimarama soils have been developed for sheep farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(332) Maraetotara Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 34–01 Eastern Hawkes Bay

LOCALITY and GRID REFERENCE: 44km S of Hastings V22 421417

AREA(ha): 31 **ALTITUDE(m):** 550 **RAINFALL(mm):** 1200

TOPOGRAPHY: gentle hillslopes **PARENT MATERIAL:** marine sandstone to siltstone **VEGETATION:** coastal podocarp–broadleaved forest; bracken fernland; introduced grassland

SOILS: recent soil (Pakipaki), yellow–grey earth (Maraetotara)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Pakipaki soils in this inventory. (ii) good examples of Maraetotara soils are uncommon. (iii) most Maraetotara soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** has been grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(333) Mohi Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Hawkes Bay **ECOLOGICAL DISTRICTS(S):** 34–01 Eastern Hawkes Bay

LOCALITY and GRID REFERENCE: 40km S of Hastings V22 435416

AREA(ha): 37 **RAINFALL(mm):** 1200

TOPOGRAPHY: undulating hillslopes and gullies **PARENT MATERIAL:** marine sandstone and limestone and derived colluvium **VEGETATION:** coastal podocarp–broadleaved forest

SOILS: yellow–grey earth (Maraetotara Waimarama), rendzina

IMPORTANCE: 2 **SIGNIFICANCE:** (i) rendzinas under little–disturbed native vegetation are nationally uncommon. (i) good examples of Waimarama and Maraetotara soils are uncommon. (ii) most Waimarama and Maraetotara soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged; still grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: Department of Lands and Survey (1984) McCaskill (1978)

(334) Waihi Falls Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 34–01 Eastern Hawkes Bay

LOCALITY and GRID REFERENCE: 40km E of Dannevirke U24 857809

AREA(ha): 21 **ALTITUDE(m):** 100 **RAINFALL(mm):** 1300

TOPOGRAPHY: steep rocky slopes; waterfall **PARENT MATERIAL:** argillite **VEGETATION:** podocarp–broadleaved forest; manuka scrub; kowhai treeland

SOILS: yellow–brown earth (Tinui Wilder Mataikona)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) only example of Wilder, Tinui and Mataikona soils in this inventory. (ii) most Mataikona, Tinui and Wilder soils have been developed for extensive sheep farming.

VULNERABILITY: 3

TENURE: scenic reserve **OWNER/MANAGER:** Tararua District Council

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** August 1991

REFERENCES: McCaskill (1978) Department of Lands and Survey (1984)

(335) Castlepoint Local Purpose Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 35–01 Eastern Wairarapa

LOCALITY and GRID REFERENCE: at Castlepoint, 48km E of Masterton U26 814283

AREA(ha): 60 **ALTITUDE(m):** 0–163 **RAINFALL(mm):** 900

TOPOGRAPHY: beach; dunes; gentle to steep hillslopes; promontory **PARENT MATERIAL:** aeolian sands; mudstone, sandstone and banded sandstone, and derived colluvium **VEGETATION:** introduced grassland; sandfield; tussock–scrub; coastal broadleaved scrub; herbfield

SOILS: yellow–brown earth (Wanstead), rendzina (Bluff)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the soil–vegetation associations are not represented in protected natural areas elsewhere in the Wairarapa. (ii) good examples of Bluff and Wanstead soils are uncommon. (iii) most Bluff soils have been developed for sheep farming.

VULNERABILITY: 2 **MODIFICATIONS/THREATS:** still grazed

TENURE: local purpose reserve

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Proposed for scenic reserve status (Wassilieff et al. (1986)).

REFERENCES: Wassilieff et al. (1986)

(336) Okoropunga

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 35–01 Eastern Wairarapa

LOCALITY and GRID REFERENCE: southeast Wairarapa coast, midway between the Pahaoa and Otarei Rivers S28 290690

AREA(ha): 0.6 **ALTITUDE(m):** 9 **RAINFALL(mm):** 1000

TOPOGRAPHY: uplifted beach ridges **PARENT MATERIAL:** sand overlying sand and gravel **VEGETATION:** introduced grassland

SOILS: anthropic soil (Tamahere)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) a classic example of a layered Maori plaggen soil.

VULNERABILITY: 1 **MODIFICATIONS/THREATS:** surrounding area has been fenced for deer farming, stock damage

TENURE: private land

CONTACT PERSON: Bruce McFadgen **DATE OF INFORMATION:** December 1992

NOTES: Associated feature is an adjacent barrow pit from which sand and gravel were taken to form the plaggen soil.

REFERENCES: McFagden (1980)

(337) Rawsthorn Open Space Covenant

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 35–01 Eastern Wairarapa

LOCALITY and GRID REFERENCE: near Te Wharau, 30km SSE of Masterton T27 438975

AREA(ha): 100 **ALTITUDE(m):** 300-437 **RAINFALL(mm):** 1200

TOPOGRAPHY: very steep hillslopes **PARENT MATERIAL:** mudstone and derived colluvium **VEGETATION:** podocarp/(broadleaved) forest; beech forest

SOILS: yellow–brown earth (Pahaoa)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Pahaoa soils are uncommon.

VULNERABILITY: 3

TENURE: QEII National Trust open space covenant, private land **OWNER/MANAGER:** AD Rawsthorn, QEII National Trust

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** October 1992

NOTES: Called "Howden DD Open Space Covenant" in Department of Lands and Survey (1984).

REFERENCES: Department of Lands and Survey (1984)

(338) Tora Bush

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 35–01 Eastern Wairarapa

LOCALITY and GRID REFERENCE: 38km SE of Martinborough S28 285637

AREA(ha): 549 **ALTITUDE(m):** 100-400 **RAINFALL(mm):** 1270

TOPOGRAPHY: moderately steep hillslopes and ridges; gullies **PARENT MATERIAL:** in the west, greywacke and argillite and derived colluvium; in the east, limestone and derived colluvium **VEGETATION:** black beech forest; mixed broadleaved forest; scrubland; exotic grassland

SOILS: yellow–brown earth (Opouawe Whakaroro)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) one of the best remaining soil–native forest associations in the Wairarapa, east of the Aorangi Range. (ii) only example of Whakaroro and Opouawe soils in this inventory.

VULNERABILITY: 2

TENURE: proposed scenic reserve

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Proposed scenic reserve in 1958, but reservation uncompleted since then (Wassilieff et al. 1986).

REFERENCES: Wassilieff et al. (1986)

(339) Carter Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 36–01 Wairarapa Plains

LOCALITY and GRID REFERENCE: Wairarapa Basin, 7.5km E of Carterton S26 287128

AREA(ha): 32 **ALTITUDE(m):** 61 **RAINFALL(mm):** 865

TOPOGRAPHY: flat alluvial floodplain and river terraces; swamps; lagoon; oxbow; steep gullied streams **PARENT MATERIAL:** alluvium **VEGETATION:** semi–swamp podocarp forest; swamp bushland and flaxland; coprosoma scrub; raupo swampland–grassland; gorse–broom scrub; exotic pine plantation

SOILS: yellow–grey earth (Kokotau), recent soil (Ruamahanga)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the soil–native forest association was formerly much more extensive but has been reduced by drainage for intensive sheep farming. (ii) only example of Ruamahanga and Kokotau soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** still grazed by cattle

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** July 1991

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(340) Tuhitarata Bush Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 36–01 Wairarapa Plains

LOCALITY and GRID REFERENCE: 25 km E of Featherston S27 268659

AREA(ha): 10 **ALTITUDE(m):** 5-10 **RAINFALL(mm):** 960

TOPOGRAPHY: flat poorly drained alluvial floodplain **PARENT MATERIAL:** silty alluvium **VEGETATION:** swamp podocarp–broadleaved forest; broadleaf scrub; introduced grassland

SOILS: recent soil (Ahikouka)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) the soil–native forest association was once extensive on the swampy floodplain of Lake Wairarapa. (ii) only example of Ahikouka soils in this inventory.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** most millable trees removed but vigorous regeneration of

major species; grazed

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Des Cowie **DATE OF INFORMATION:** July 1991

NOTES: Called Tuhitarata Bush Scenic Reserve in Wassilieff et al. (1986).

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(341) Haurangi Conservation Park

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 37-01 Aorangi

LOCALITY and GRID REFERENCE: Aorangi Mountains, south-west North Island S28 035706

AREA(ha): 19 373 **ALTITUDE(m):** 0-981 **RAINFALL(mm):** 1200-3000

TOPOGRAPHY: steep hill and mountain slopes and ridges; gullies; riverflats **PARENT MATERIAL:** greywacke and argillite, with minor metavolcanics, and derived colluvium **VEGETATION:** beech-podocarp forest; broadleaved-beech forest; tussock grassland

SOILS: yellow-brown earth (Makara Tuparoa)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a moderate range of yellow-brown earth-native vegetation associations. (ii) only example of Tuparoa soils in this inventory. (iii) most Tuparoa soils have been developed for extensive sheep farming.

VULNERABILITY: 3

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Called "Haurangi Forest Park" in Department of Lands and Survey (1984).

REFERENCES: Department of Lands and Survey (1984)

(342) Putangirua Pinnacles Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 37-01 Aorangi

LOCALITY and GRID REFERENCE: Palliser Bay, 16km by road from Lake Ferry Rd turnoff S28 265641

AREA(ha): 116 **ALTITUDE(m):** 0-300 **RAINFALL(mm):** 1400

TOPOGRAPHY: broad shingle valley with small stream; steep to precipitous eroding cliffs forming pinnacles; steep hillslopes; caves **PARENT MATERIAL:** sandstone-mudstone conglomerate colluvium and alluvium **VEGETATION:** mixed broadleaved forest; black beech forest; mixed broadleaf scrub; manuka scrub; cliff herbfield; streambed gravelfield; gorse scrub; sedgeland

SOILS: yellow-brown earth (Putangirua Kaikouta), yellow-grey earth (Tangoio), intergrade between yellow-grey and yellow-brown earth (Ponatahi)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the soil-native vegetation associations are unique in Wairarapa region. (ii) only example of Putangirua and Korkoro soils in this inventory. (iii) good examples of Tangoio soils are uncommon. (iv) most Korkoro soils have been developed for extensive sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** fire in 1940

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Called "Putangirua Scenic Reserve" in Wassilieff et al. (1986).

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(343) Hemi Matenga Memorial Park Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 38-01 Tararua

LOCALITY and GRID REFERENCE: 2km NE of Waikanae R26 860352

AREA(ha): 331 **ALTITUDE(m):** 152-514 **RAINFALL(mm):** 1500-2500

TOPOGRAPHY: steep hillslopes and ridges; gullies; streams **PARENT MATERIAL:** greywacke and derived colluvium **VEGETATION:** lowland coastal kohekohe forest; podocarp-broadleaved forest; mixed broadleaved forest; grassland

SOILS: yellow-brown earth (Makara Judgeford)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) soils under kohekohe forest are restricted to the Kapiti-Waikane area in New Zealand. (ii) good examples of Judgeford soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** goat damage

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(344) Kaitawa Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 38-01 Tararua

LOCALITY and GRID REFERENCE: 5km E of Waikanae R26 892355

AREA(ha): 557 **ALTITUDE(m):** 166-650 **RAINFALL(mm):** 1500

TOPOGRAPHY: steep hillslopes and ridges; gullies; flat river terrace **PARENT MATERIAL:** greywacke and derived colluvium; loess **VEGETATION:** kamahi-tawa forest; mixed broadleaved forest; treefern fernland

SOILS: yellow-brown earth (Ruahine), recent soil (Matamau)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) good examples of Matamau soils are uncommon. (ii) most Matamau soils have been developed for sheep farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** pig and goat present; has been heavily logged

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Contiguous with Tararua Conservation Park.

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(345) Lowry Bay Scenic Reserve and adjoining unna

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 38-01 Tararua

LOCALITY and GRID REFERENCE: on eastern hills above Lowry Bay, York Bay and Mahima Bay; 5km SW of Petone R27 702924

AREA(ha): 278 **ALTITUDE(m):** 30-230 **RAINFALL(mm):** 1380

TOPOGRAPHY: steep to very steep hillslopes and ridges; gullies **PARENT MATERIAL:** greywacke and derived colluvium and alluvium; deeply weathered greywacke **VEGETATION:** hard beech forest; black beech forest; mixed broadleaved forest; gorse scrub; mixed scrub; kahikatea-puketea forest; manuka-kanuka scrub; mixed broadleaved treeland

SOILS: yellow-brown earth (Tawai)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) contains a wide range of vegetation on Tawai soils. (ii) good examples of Tawai soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(346) Paraparaumu Scenic Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 38-01 Tararua

LOCALITY and GRID REFERENCE: 16km N of Paraparaumu S26 984312

AREA(ha): 172 **ALTITUDE(m):** 30-385 **RAINFALL(mm):** 1180

TOPOGRAPHY: rolling to steep hillslopes; gullies; terraces **PARENT MATERIAL:** greywacke colluvium; loess on terraces **VEGETATION:** kohekohe forest; podocarp-broadleaved forest; kanuka scrub; introduced grassland; gorse-manuka scrub

SOILS: yellow-brown earth (Makara Judgeford Ruahine)

IMPORTANCE: 3 **SIGNIFICANCE:** (i) the soil-vegetation associations are much reduced from their original extent. (ii) good examples of Judgeford soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been logged and burned

TENURE: scenic reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(347) Rimutaka Conservation Park

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 38-01 Tararua

LOCALITY and GRID REFERENCE: Rimutaka Ranges, southern North Island R27 847890

AREA(ha): 19 670 **ALTITUDE(m):** 0-1177 **RAINFALL(mm):** 1200-3500

TOPOGRAPHY: steep hill and mountain slopes and ridges; gullies **PARENT MATERIAL:** greywacke, argillite and minor metavolcanics, and derived colluvium and alluvium **VEGETATION:** beech forest; podocarp forest; beech-podocarp forest; broadleaved forest; induced scrub

SOILS: yellow-brown earth (Rimutaka Makara)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) an extensive area containing a moderate range of mostly yellow-brown earths under native vegetation.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Called "Rimutaka Forest Park" in Department of Lands and Survey (1984).

REFERENCES: Department of Lands and Survey (1984)

(348) Taita Research Station

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 38–01 Tararua

LOCALITY and GRID REFERENCE: 21km NE of Wellington R27 750006

AREA(ha): 89 **ALTITUDE(m):** 134–229 **RAINFALL(mm):** 1300

TOPOGRAPHY: moderately steep to steep hillslopes; gullies; cliffs; floodplain **PARENT MATERIAL:** greywacke and argillite, and derived colluvium and alluvium **VEGETATION:** introduced grassland; manuka scrub; bracken fernland; heathland; exotic pine treeland; hard beech forest

SOILS: yellow–brown earth (Taita Tawai Wingate Bucks Pomare Stokes), gley soil (Witako), recent soil (Pinehaven Waiwhetu)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) soils of the station have been studied in detail over a long period. (ii) only example of Taita, Wingate, Bucks, Pomare, Stokes, Witako, Pinehaven and Waiwhetu soils in this inventory. (iii) good examples of Tawai soils are uncommon.

VULNERABILITY: 1 **MODIFICATIONS/THREATS:** has been burned, no part of the present native forest was established earlier than the 1850's; still topdressed and grazed

TENURE: Crown land **OWNER/MANAGER:** Manaaki Whenua Landcare Research Ltd

CONTACT PERSON: Ian Atkinson **DATE OF INFORMATION:** September 1992

NOTES: Waiwhetu soils are gley recent soils.

REFERENCES: Atkinson (1973) Pohlen (1961)

(349) Tararua Conservation Park

REGIONAL/CITY COUNCIL(S): Wellington and Wanganui–Manawatu **ECOLOGICAL DISTRICTS(S):** 38–01 Tararua

LOCALITY and GRID REFERENCE: Tararua Range, southern North Island S25 090405

AREA(ha): 116 627 **ALTITUDE(m):** 100–1571 **RAINFALL(mm):** 1400–4000

TOPOGRAPHY: steep mountain slopes and ridges; rivers; minor glacial features **PARENT MATERIAL:** greywacke and derived colluvium and alluvium **VEGETATION:** beech–podocarp–kamahi forest; beech forest; sub–alpine Olearia scrub; alpine snow tussocklands

SOILS: yellow–brown earth (Rimutaka Mangamahu), yellow–brown loam (Kopua), recent soil (Rangitikei)

IMPORTANCE: 1 **SIGNIFICANCE:** (i) an extensive area containing a wide range of soils and little–modified soil–native vegetation associations. (ii) only example of Rangitikei soils in this inventory. (iii) good examples of Kopua soils are uncommon. (iv) most Kopua soils have been developed for sheep and dairy farming.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** parts have been burned and logged

TENURE: conservation park **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Called "Tararua Forest Park" in Department of Lands and Survey (1984).

REFERENCES: Department of Lands and Survey (1984) Williams (1975a) Williams (1975b)

(350) Turakirae Head Scientific Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 38–01 Tararua

LOCALITY and GRID REFERENCE: 17km SE of Wellington R28 709748

AREA(ha): 128 **ALTITUDE(m):** 0–30 **RAINFALL(mm):** 940

TOPOGRAPHY: coastal terrace; raised and tilted beach ridges; boulderfields **PARENT MATERIAL:** bouldery to stony alluvium; colluvium; beach rocks; peat **VEGETATION:** manuka shrubland; flat reed swampland; postrate shrubland; dry grassland; coastal grassland; raupo reedland

SOILS: recent soil (Turakirae)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) the reserve contains a nationally unique chronosequence of soils and vegetation on different aged tilted raised beaches. (ii) good examples of Turakirae soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** sheep and cattle grazing

TENURE: scientific reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: Chronosequence of vegetation and soils on different aged beaches.

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

(351) Kapiti Island Nature Reserve

REGIONAL/CITY COUNCIL(S): Wellington **ECOLOGICAL DISTRICTS(S):** 39–02 Cook Strait

LOCALITY and GRID REFERENCE: offshore island 8km NW of Paraparaumu Beach R26 714379

AREA(ha): 1965 **ALTITUDE(m):** 0–521 **RAINFALL(mm):** 1050

TOPOGRAPHY: gentle to steep hillslopes and ridges; gullies; streams **PARENT MATERIAL:** sandstone, grit and conglomerate alternating with semi–schistose argillites and derived colluvium; loess deposits; aeolian sands **VEGETATION:** grassland; kanuka shrubland; seral broadleaved forest; broadleaved forest; cliff vegetation

SOILS: yellow–brown earth (Makara), intergrade between yellow–grey and yellow–brown earth (Paremata Terawhiti), recent soil (Turakirae)

IMPORTANCE: 2 **SIGNIFICANCE:** (i) contains a moderate range of soils and little–disturbed soil–native veegetation associations. (ii) only example of Paremata and Terawhiti soils in this inventory. (iii) good examples of Turakirae soils are uncommon.

VULNERABILITY: 3 **MODIFICATIONS/THREATS:** farming removed forest from over half of the island; extensive possum damage

TENURE: nature reserve **OWNER/MANAGER:** Department of Conservation

CONTACT PERSON: Mike Page **DATE OF INFORMATION:** July 1991

NOTES: No possums or grazing animals therefore vegetation should improve to "an extent unequalled by forests on the mainland" (Wassilieff et al. 1986).

REFERENCES: Wassilieff et al. (1986) Department of Lands and Survey (1984)

5 SUMMARY

Site name, soil groups, soil mapping units, and importance ratings of sites in the inventory are summarised on the following lists. Summary lists can also be prepared for selected sites (eg. chosen by ecological district, regional council of importance rating, or selected individually) and for other fields on the record sheet. Summary tables of the soils groups and mapping units at selected sites can also be generated. Please address all requests for further summary lists and for summary tables to Dr Les Basher, Landcare Research, PO Box 69, Lincoln, Canterbury.

5.1 List of records by alphabetical name

A'Deanes Bush Scenic Reserve	296		
AH Reed Memorial Kauri Park	31	Dansey Road Scenic Reserve	141
Albert Dennis Scenic Reserve	49	Dress Circle Scenic Reserve	301
Alfred Road	265		
Alice Eaves Scenic Reserve	50	East Ngatukituki Ecological Area	81
Anaura Bay Scenic Reserve	195	Egmont National Park	269
Aorangi Scenic Reserve	236	Elsthorpe Scenic Reserve	330
Aorangiwai Scenic Reserve	180	Eric Baker Memorial Reserve	110
Apiti Scenic Reserve	299	Everett Park Scenic Reserve	270
Arai-te-Uru and Signal Station Reserve	10	Fairfield	200
Aratiata Rapids Scenic Reserve	166	Flexman Scenic Reserve	51
Arorangi Scenic Reserve	128	Galbraith Scenic Reserve	302
Awakino Government Purpose Reserve	43	Garret Open Space Covenant	97
		Gentle Annie Local Purpose Reserve	201
Balls Clearing Scenic Reserve	290	Gordon Gow Scenic Reserve	102
Bellbird Bush Scenic Reserve	291	Gordon Park Scenic Reserve	315
Black Lake Government Purpose Reserve	90	Grays Bush Scenic Reserve	202
Blue Rata Scenic Reserve	266	Grays Hill	203
Brabant Scenic Reserve	116		
Bream Islands Nature Reserve	32	Hakarimata Scenic Reserve	111
Bridal Veil Falls Scenic Reserve	117	Haupoto Swamp	181
Bryant Memorial Scenic Reserve	118	Haurangi Conservation Park	341
Bushy Park Private Protected Land	261	Hemi Matenga Memorial Park	
		Scenic Reserve	343
Calhome	199	Herekino Forest	4
Carrie Gibbons Scenic Reserve	135	Hihitahi Forest Sanctuary	303
Carter Scenic Reserve	339	Hikurangi Scenic Reserve (i)	15
Castle Rock	66	Hikurangi Scenic Reserve (ii)	237
Castlepoint Local Purpose Reserve	335	Himatangi Bush Scientific Reserve	319
Chiltern Scenic Reserve	67	Hollow Hill Scenic Reserve	222
Cleaver Open Space Covenant	300	Hopkins Conservation Covenant	271
Coatesville Scenic Reserve (South)	58	Hot Water Beach	75
Cold Creek Bush	267	Huka Falls Scenic Reserve	167
Coppermine Island	41	Hurumua Scenic Reserve	220
Coromandel Conservation Park	68	Hutchinson Scenic Reserve	292
Coulthards Scenic Reserve	60		
Cross Road Swamp	268	Jackson Open Space Covenant	328
		Jones Open Space Covenant	304
		Jubilee Park	98

Junction Scenic Reserve	104	Maleme Bush Scenic Reserve	168
Kaimai-Mamaku Conservation Park	82	Mamaranui Farm Settlement Scenic Reserve	17
Kaimanawa Conservation Park	285	Manaia Harbour	69
Kaitawa Scenic Reserve	344	Mangaiti Scenic Reserve	83
Kaitoke Scenic Reserve	76	Manganui Gorge Scenic Reserve	129
Kakanui	187	Manganui River Government Purpose Reserve	23
Kaniwhaniwha Scenic Reserve	112	Mangaokewa Gorge Scenic Reserve	225
Kapiti Island Nature Reserve	351	Mangaone Scenic Reserve	136
Katui Scenic Reserve	16	Mangaoronga Scenic Reserve	226
Kauhangaroa Scenic Reserve	238	Mangapiko Valley Scenic Reserve	95
Kaweka Conservation Park	286	Mangapohue Natural Bridge Scenic Reserve	227
Kawhia Harbour Scenic Reserve	119	Mangapouri Scenic Reserve	137
Kerikeri Inlet and Waipara Stream Scenic Reserve	33	Mangarere Scenic Reserve	215
Kidd Open Space Covenant	44	Mangataipa Scenic Reserve	11
Kiripiti Scientific Reserve	316	Mangatoa Scenic Reserve	130
Kirks Bush Scenic Reserve	61	Mangatoetoe Stream	204
Kohi Point Scenic Reserve	153	Manginangina Scenic Reserve	36
Kororareka Point Scenic Reserve	34	Mangoira Scenic Reserve	306
Kurukuru Scenic Reserve	223	Maraetotara Gorge Scenic Reserve	331
Lairdvale Scenic Reserve	239	Maraetotara Scenic Reserve	332
Lake Ohia Wetlands	2	Marakopa Natural Tunnel Scenic Reserve	228
Lake Okataina Scenic Reserve	142	Mataraua Forest	18
Lake Okawhao Government Purpose Reserve	91	Mataru Scenic Reserve	253
Lake Rotoiti Scenic Reserve	143	Maungakawa Scenic Reserve	105
Lake Rotoma Scenic Reserve	144	Maungaongaonga Scenic Reserve	169
Lake Rotongaro Government Purpose Reserve	92	Maungatapere Hill Scenic Reserve	24
Lake Taeoro Government Purpose Reserve	3	Maungatautari Mountain Scenic Reserve	106
Lake Tarawera Scenic Reserve	145	Maungaturoto Scenic Reserve	45
Lake Waiparaheka Scientific Reserve	35	Maurihiro Scenic Reserve	85
Lake Whangape Government Purpose Reserve	93	Maurihiro Scenic Reserve Extension	84
Lattey and Gallen Open Space Covenant	295	McKellar Open Space Covenant	318
Leigh Scenic Reserve	52	Meeting of the Waters Scenic Reserve	274
Little Barrier Island Nature Reserve	65	Middle and Green Islands	74
Logies Bush	53	Minden Scenic Reserve	131
Lowry Bay Scenic Reserve and adjoining unnamed reserves	345	Moanatuatua Peat Scientific Reserve	99
Mahoenui Scenic Reserve	224	Mohi Bush Scenic Reserve	333
Makara Scenic Reserve	272	Mokau River Scenic Reserve	254
Maketawa Stream	273	Mokau Scenic Reserve	255
Makirikiri Scenic Reserve	329	Moki Scenic Reserve	256
Makuhou Scenic Reserve	305	Montgomerys Memorial Bush Scenic Reserve	46
		Morere Springs Scenic Reserve	216
		Motere Scenic Reserve	174
		Motu Kaimeanui Island	182
		Motu Papuku Islands	183
		Motukaraka Scenic Reserve	12

Motukokako Point Scenic Reserve	113	Pokoera Scenic Reserve	247
Motuotu Island Nature Reserve	154	Pollock Open Space Covenant	71
Motutara Scenic Reserve	240	Pou Tehia Historic Reserve	259
Mount Messenger Scenic Reserve	257	Poutu Point Wildlife Reserve	47
Mount Ngongotaha Scenic Reserve	146	Pryces Rahui Bush Private	
Mount Tarawera Scenic Reserve	147	Protected Private Land	309
Ngamoturiki Scenic Reserve		Puaiti Bush Scenic Reserve	170
(section 5)	242	Puawai Scenic Reserve	248
Ngamoturiki Scenic Reserve		Puhinui Scenic Reserve	54
(section 13)	241	Pukeamaru Range Scenic Reserve	190
Ngatamahine Scenic Reserve	229	Pukekaroro Scenic Reserve	37
Nikau Scenic Reserve	320	Pukekohe Hill Scenic Reserve	26
Norfolk Road A	275	Pukenui Forest	38
Norma Leonie Shelton Scenic		Puketapu Road	278
Reserve	196	Puketi Scenic Reserve	7
North Cape Scientific Reserve	1	Puketoki Scenic Reserve	140
		Pukewharariki Forest	13
Ohinetonga Scenic Reserve	243	Pureora Conservation Park	164
Ohope Scenic Reserve	155	Puriri Scenic Reserve and Reserve	
Oio Scenic Reserve	244	Extension	77
Okahukura Scenic Reserve	245	Purukohukohu Experimental Basin	162
Okau Scenic Reserve	276	Putaki Scenic Reserve	230
Okoropunga	336	Putangirua Pinnacles Scenic	
Omahuta Forest	5	Reserve	342
Ongarue Scenic Reserve	163	Rainbow Mountain Scenic Reserve	171
Ongohi	70	Rakauroa Scenic Reserve	184
Opepe Scenic Reserve	175	Rangitoto Island Scenic Reserve	59
Opouahi Scenic Reserve	293	Rangitukua Scenic Reserve	176
Opouteke Scenic Reserve	19	Raoul Island and Kermadec Group	64
Opua Road	277	Raukokore	185
Otamatī Scenic Reserve	246	Raukumara Conservation Park	186
Otanga	188	Rawsthorn Open Space Covenant	337
Otara North	205	Red Hill Scenic Reserve	63
Otatara Pa Scenic Reserve	297	Repongaere Lakes	208
Otawa Scenic Reserve	138	Rereauira	191
Otopotehetehe	189	Riddell Open Space Covenant	100
Otoru Scenic Reserve	161	Rifle Range Road Lakes	279
		Rimuhau	209
Pakipaki Bush Forest	321	Rimutaka Conservation Park	347
Pakoka Scenic Reserve	120	Rotokahu Scenic Reserve	263
Pakowhai Scenic Reserve	206	Round Bush Scenic Reserve	322
Papaitonga Scenic Reserve	262	Rowan Road	280
Paraheka Scenic Reserve	197	Ruahine Conservation Park	289
Parahi Scenic Reserve	25	Ruapuke Scenic Reserve	122
Paranui Scenic Reserve	6		
Paraparaumu Scenic Reserve	346	Sail Rock	42
Paringahau	207	Simpson Scenic Reserve	310
Patumahoe Scenic Reserve	62	Smith Open Space Covenant	281
Pemberton Open Space Covenant	307	Strathblane Scenic Reserve	217
Penny Road Scenic Reserve	139	Sunnybrook Scenic Reserve	55
Piki Scenic Reserve	258	Swampy Bush	282
Pirongia Conservation Park	121	Swinburn Open Space Covenant	298
Pohoniuatane Scenic Reserve	308		

Tahu Moana Scenic Reserve	14	Purpose Reserve	132
Tairua River	78	Waihi Falls Scenic Reserve	334
Taita Research Station	348	Waihirere Recreation Reserve	213
Tangowahine Scenic Reserve	48	Waikaka Scenic Reserve	251
Tapuaeharuru	192	Waikare Lake Government	
Tapui Scenic Reserve	249	Purpose Reserve	94
Taraire Scenic Reserve	27	Waikareao Estuary Wildlife Refuge	133
Tararua Conservation Park	349	Waikawa Beach Road Forest	326
Tarukenga Scenic Reserve	148	Waikawau Bay	73
Tatu Scenic Reserve	260	Waikite Government Purpose	
Taumatotara East Scenic Reserve	123	Reserve	151
Te Arai Scenic Reserve	210	Waima Forest	21
Te Aroha Mountain Scenic Reserve	86	Waimana Gorge Scenic Reserve	156
Te Hapua Road Swamp	323	Waimangu Scenic Reserve	150
Te Harakiki Swamp	324	Waimata Settlement Scenic Reserve	28
Te Hunga Ecological Area		Wainamu Scenic Reserve	57
Extension	87	Wainui River Scenic Reserve	134
Te Kapua Scenic Reserve	311	Waiotahi Scenic Reserve	157
Te Karaka Memorial Scenic		Waiotahi Spit Scenic and Historic	
Reserve	114	Reserve	158
Te Kauri Park	124	Waiotane Scenic Reserve	159
Te Koau	193	Waiotapu Scenic Reserve	173
Te Kopia Scenic Reserve	172	Waipapa Scenic Reserve	165
Te Miro Scenic Reserve	107	Waipatiki Scenic Reserve	221
Te Puroa Scenic Reserve	115	Waipoua Forest Sanctuary	22
Te Rauamo Scenic Reserve	125	Waipu Caves Scenic Reserve	39
Te Raumauka Caves Scenic		Waipu Lagoons	284
Reserve	231	Waipuna Scenic Reserve	233
Te Raupo Scenic Reserve	218	Waipunga Falls Scenic Reserve	288
Te Rereatukahia	88	Wairere Falls Scenic Reserve	103
Te Tapui Scenic Reserve	108	Waitaka Scenic Reserve	234
Te Urewera National Park	214	Waitakaruru Scenic Reserve	96
Te Waerenga Scenic Reserve	149	Waitanguru Scenic Reserve	235
Te Whanga Bush	325	Waitekohe Stream	89
Thomson Kauri Grove Scenic		Waituhi Kuratau Scenic Reserve	177
Reserve	56	Walter Scott Private Protected	
Tongariro National Park	179	Land	126
Tora Bush	338	Warawara Forest	8
Totara Scenic Reserve	312	Ward Open Space Covenant	127
Trounson Kauri Park Scenic		West View Scenic Reserve	9
Reserve	20	Whakapapa Gorge Scenic Reserve	252
Tuamotu Island	211	Whakaroa Scenic Reserve	198
Tueheni Point	212	Whanganui National Park	264
Tuhitarata Bush Scenic Reserve	340	Whangaokeno Island	194
Turaerae Scenic Reserve	232	Whangaruru (North Head) Scenic	
Turakirae Head Scientific Reserve	350	Reserve	40
Turangakumu Scenic Reserve	287	Wharerata Hill Scenic Reserve	219
Turangarere Scenic Reserve	313	Whatitiri Mountain Scenic Reserve	29
		Whenuakite-Tapuaetahi	79
Umutekai Bush	283	Whewells Bush Scientific Reserve	101
Upper Retaruke Scenic Reserve	250	Whirinaki Conservation Park	178
		White Island	152
Waiau Falls Scenic Reserve	72	White Open Space Covenant	314
Waihi Estuary Government		White Pine Bush Scenic Reserve (1)	160

Whitiki Bush and Swamp	327
Whitiroa Beach	80
William Hartree Memorial Reserve	294
Williams Open Space Covenant	109
Wilson Open Space Covenant	30

Wilson Open Space Covenant	317
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Importance 1

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Coromandel Conservation Park	68	Pureora Conservation Park	164
Egmont National Park	269	Rainbow Mountain Scenic Reserve	171
Himatangi Bush Scientific Reserve	319	Rangitoto Island Scenic Reserve	59
Kaimai-Mamaku Conservation Park	82	Raoul Island and Kermadec Group	64
Kaimanawa Conservation Park	285	Raukumara Conservation Park	186
Kaweka Conservation Park	286	Ruahine Conservation Park	289
Lake Waiparaheka Scientific Reserve	35	Sail Rock	42
Little Barrier Island Nature Reserve	65	Tararua Conservation Park	349
Maungatautari Mountain Scenic Reserve	106	Te Urewera National Park	214
Maurihero Scenic Reserve	85	Tongariro National Park	179
Middle and Green Islands	74	Trounson Kauri Park Scenic Reserve	20
Mount Tarawera Scenic Reserve	147	Waimangu Scenic Reserve	150
Okoropunga	336	Waipoua Forest Sanctuary	22
		Whanganui National Park	264
		Whirinaki Conservation Park	178
		White Island	152

Importance 2

AH Reed Memorial Kauri Park	31	Everett Park Scenic Reserve	270
Awakino Government Purpose Reserve	43	Fairfield	200
Balls Clearing Scenic Reserve	290	Garret Open Space Covenant	97
Black Lake Government Purpose Reserve	90	Gordon Gow Scenic Reserve	102
Bushy Park Private Protected Land	261	Gordon Park Scenic Reserve	315
Coulthards Scenic Reserve	60	Grays Bush Scenic Reserve	202
Cross Road Swamp	268	Haupoto Swamp	181
Dansey Road Scenic Reserve	141	Haurangi Conservation Park	341
Elsthorpe Scenic Reserve	330	Hemi Matenga Memorial Park Scenic Reserve	343
		Herekino Forest	4
		Hollow Hill Scenic Reserve	222

Jackson Open Space Covenant	328	Pemberton Open Space Covenant	307
Jones Open Space Covenant	304	Pohoniuatane Scenic Reserve	308
Jubilee Park	98	Pokoera Scenic Reserve	247
		Pollock Open Space Covenant	71
		Poutu Point Wildlife Reserve	47
Kapiti Island Nature Reserve	351	Pryces Rahui Bush Private	
Kawhia Harbour Scenic Reserve	119	Protected Private Land	309
Kerikeri Inlet and Waipara Stream		Puhinui Scenic Reserve	54
Scenic Reserve	33	Pukeamaru Range Scenic Reserve	190
Kidd Open Space Covenant	44	Puketi Scenic Reserve	7
Kirks Bush Scenic Reserve	61	Purukohukohu Experimental Basin	162
Lake Ohia Wetlands	2	Repongaere Lakes	208
Lake Okataina Scenic Reserve	142	Riddell Open Space Covenant	100
Lake Okawhao Government		Rimuhau	209
Purpose Reserve	91	Rimutaka Conservation Park	347
Lake Rotongaro Government		Rotokahu Scenic Reserve	263
Purpose Reserve	92	Round Bush Scenic Reserve	322
Lake Taeroo Government Purpose			
Reserve	3	Strathblane Scenic Reserve	217
Lake Tarawera Scenic Reserve	145		
Lake Whangape Government		Tahu Moana Scenic Reserve	14
Purpose Reserve	93	Tairua River	78
Logues Bush	53	Tairua Scenic Reserve	27
		Tatu Scenic Reserve	260
Makara Scenic Reserve	272	Te Hapua Road Swamp	323
Manaia Harbour	69	Te Harakiki Swamp	324
Mangaokewa Gorge Scenic Reserve	225	Te Kopia Scenic Reserve	172
Mangaoronga Scenic Reserve	226	Te Tapui Scenic Reserve	108
Mangataipa Scenic Reserve	11	Totara Scenic Reserve	312
Mangatoetoe Stream	204	Tuhitarata Bush Scenic Reserve	340
Manginangina Scenic Reserve	36	Turakirae Head Scientific Reserve	350
Marakopa Natural Tunnel Scenic			
Reserve	228	Umutekai Bush	283
Mataru Scenic Reserve	253		
Meeting of the Waters Scenic		Waihi Estuary Government	
Reserve	274	Purpose Reserve	132
Moanatuatua Peat Scientific		Waikare Lake Government Purpose	
Reserve	99	Reserve	94
Mohi Bush Scenic Reserve	333	Waikareao Estuary Wildlife Refuge	133
Mokau River Scenic Reserve	254	Waikawa Beach Road Forest	326
Motuotu Island Nature Reserve	154	Waikawau Bay	73
		Waikite Government Purpose	
Nikau Scenic Reserve	320	Reserve	151
		Waiotahi Spit Scenic and Historic	
Ohope Scenic Reserve	155	Reserve	158
Oio Scenic Reserve	244	Waiotapu Scenic Reserve	173
Omahuta Forest	5	Waipu Caves Scenic Reserve	39
Opepe Scenic Reserve	175	Waitanguru Scenic Reserve	235
		Waituhi Kuratau Scenic Reserve	177
Pakipaki Bush Forest	321	Warawara Forest	8
Pakowhai Scenic Reserve	206	Whakapapa Gorge Scenic Reserve	252
Papaitonga Scenic Reserve	262	Whatitiri Mountain Scenic Reserve	29
Patumahoe Scenic Reserve	62	Whewells Bush Scientific Reserve	101

White Open Space Covenant	314
White Pine Bush Scenic Reserve (1)	160
Whitiki Bush and Swamp	327
Wilson Open Space Covenant	30
Wilson Open Space Covenant	317

Importance 3

A'Deanes Bush Scenic Reserve	296	Hot Water Beach	75
Albert Dennis Scenic Reserve	49	Huka Falls Scenic Reserve	167
Alfred Road	265	Hurumua Scenic Reserve	220
Alice Eaves Scenic Reserve	50	Hutchinson Scenic Reserve	292
Anaura Bay Scenic Reserve	195		
Aorangi Scenic Reserve	236	Junction Scenic Reserve	104
Aorangiway Scenic Reserve	180		
Apiti Scenic Reserve	299	Kaitawa Scenic Reserve	344
Arai-te-Uru and Signal Station		Kaitoke Scenic Reserve	76
Reserve	10	Kakanui	187
Aratiata Rapids Scenic Reserve	166	Kaniwhaniwha Scenic Reserve	112
Arorangi Scenic Reserve	128	Katui Scenic Reserve	16
		Kauhangaroa Scenic Reserve	238
Bellbird Bush Scenic Reserve	291	Kiripiti Scientific Reserve	316
Blue Rata Scenic Reserve	266	Kohi Point Scenic Reserve	153
Brabant Scenic Reserve	116	Kororareka Point Scenic Reserve	34
Bream Islands Nature Reserve	32	Kurukuru Scenic Reserve	223
Bridal Veil Falls Scenic Reserve	117		
Bryant Memorial Scenic Reserve	118	Lairdvale Scenic Reserve	239
		Lake Rotoiti Scenic Reserve	143
Calhome	199	Lake Rotoma Scenic Reserve	144
Carrie Gibbons Scenic Reserve	135	Lattey and Gallen Open Space	
Carter Scenic Reserve	339	Covenant	295
Castle Rock	66	Leigh Scenic Reserve	52
Castlepoint Local Purpose Reserve	335	Lowry Bay Scenic Reserve and	
Chiltern Scenic Reserve	67	adjoining unnamed reserves	345
Cleaver Open Space Covenant	300		
Coatesville Scenic Reserve (South)	58	Mahoenui Scenic Reserve	224
Cold Creek Bush	267	Maketawa Stream	273
		Makirikiri Scenic Reserve	329
Dress Circle Scenic Reserve	301	Makuhou Scenic Reserve	305
		Maleme Bush Scenic Reserve	168
East Ngatukituki Ecological Area	81	Mamaranui Farm Settlement Scenic	
Eric Baker Memorial Reserve	110	Reserve	17
Flexman Scenic Reserve	51	Mangaiti Scenic Reserve	83
		Manganui Gorge Scenic Reserve	129
Galbraith Scenic Reserve	302	Manganui River Government	
Gentle Annie Local Purpose		Purpose Reserve	23
Reserve	201	Mangaone Scenic Reserve	136
Grays Hill	203	Mangapiko Valley Scenic Reserve	95
		Mangapohue Natural Bridge Scenic	
Hakarimata Scenic Reserve	111	Reserve	227
Hihitahi Forest Sanctuary	303	Mangapouri Scenic Reserve	137
Hikurangi Scenic Reserve (i)	15	Mangarere Scenic Reserve	215
Hikurangi Scenic Reserve (ii)	237	Mangatoa Scenic Reserve	130
Hopkins Conservation Covenant	271	Mangaira Scenic Reserve	306

Maraetotara Gorge Scenic Reserve	331	Paranui Scenic Reserve	6
Maraetotara Scenic Reserve	332	Paraparaumu Scenic Reserve	346
Mataraua Forest	18	Paringahau	207
Maungakawa Scenic Reserve	105	Penny Road Scenic Reserve	139
Maungaongaonga Scenic Reserve	169	Piki Scenic Reserve	258
Maungatapere Hill Scenic Reserve	24	Pou Tehia Historic Reserve	259
Maungaturoto Scenic Reserve	45	Puaiti Bush Scenic Reserve	170
Maurihiro Scenic Reserve		Puawai Scenic Reserve	248
Extension	84	Pukekaroro Scenic Reserve	37
McKellar Open Space Covenant	318	Pukekohe Hill Scenic Reserve	26
Minden Scenic Reserve	131	Pukenui Forest	38
Mokau Scenic Reserve	255	Puketapu Road	278
Moki Scenic Reserve	256	Puketoki Scenic Reserve	140
Montgomerys Memorial Bush		Pukewharariki Forest	13
Scenic Reserve	46	Puriri Scenic Reserve and Reserve	
Morere Springs Scenic Reserve	216	Extension	77
Motere Scenic Reserve	174	Putaki Scenic Reserve	230
Motu Kaimeanui Island	182	Putangirua Pinnacles Scenic	
Motu Papuku Islands	183	Reserve	342
Motukaraka Scenic Reserve	12		
Motukokako Point Scenic Reserve	113	Rakauroa Scenic Reserve	184
Motutara Scenic Reserve	240	Rangitukua Scenic Reserve	176
Mount Messenger Scenic Reserve	257	Raukokore	185
Mount Ngongotaha Scenic Reserve	146	Rawsthorn Open Space Covenant	337
		Red Hill Scenic Reserve	63
Ngamoturiki Scenic Reserve		Rereauira	191
(section 5)	242	Rifle Range Road Lakes	279
Ngamoturiki Scenic Reserve		Rowan Road	280
(section 13)	241	Ruapuke Scenic Reserve	122
Ngatamahine Scenic Reserve	229		
Norfolk Road A	275	Simpson Scenic Reserve	310
Norma Leonie Shelton Scenic		Smith Open Space Covenant	281
Reserve	196	Sunnybrook Scenic Reserve	55
North Cape Scientific Reserve	1	Swampy Bush	282
		Swinburn Open Space Covenant	298
Ohinetonga Scenic Reserve	243		
Okahukura Scenic Reserve	245	Taita Research Station	348
Okau Scenic Reserve	276	Tangowahine Scenic Reserve	48
Ongarue Scenic Reserve	163	Tapuaeharuru	192
Ongohi	70	Tapui Scenic Reserve	249
Opouahi Scenic Reserve	293	Tarukenga Scenic Reserve	148
Opouteke Scenic Reserve	19	Taumatotara East Scenic Reserve	123
Opua Road	277	Te Arai Scenic Reserve	210
Otamati Scenic Reserve	246	Te Aroha Mountain Scenic Reserve	86
Otanga	188	Te Hunga Ecological Area	
Otara North	205	Extension	87
Otatara Pa Scenic Reserve	297	Te Kapua Scenic Reserve	311
Otawa Scenic Reserve	138	Te Karaka Memorial Scenic	
Otopotehetehe	189	Reserve	114
Otoru Scenic Reserve	161	Te Kauri Park	124
		Te Koau	193
Pakoka Scenic Reserve	120	Te Miro Scenic Reserve	107
Paraheka Scenic Reserve	197	Te Puroa Scenic Reserve	115
Parahi Scenic Reserve	25	Te Rauamo Scenic Reserve	125

Te Raumaauka Caves Scenic Reserve	231	Waipunga Falls Scenic Reserve	288
Te Raupo Scenic Reserve	218	Wairere Falls Scenic Reserve	103
Te Rereatukahia	88	Waitaka Scenic Reserve	234
Te Waerenga Scenic Reserve	149	Waitakaruru Scenic Reserve	96
Te Whanga Bush	325	Waitekohe Stream	89
Thomson Kauri Grove Scenic Reserve	56	Walter Scott Private Protected Land	126
Tora Bush	338	Ward Open Space Covenant	127
Tuamotu Island	211	West View Scenic Reserve	9
Tueheni Point	212	Whakaroa Scenic Reserve	198
Turaerae Scenic Reserve	232	Whangaokeno Island	194
Turangakumu Scenic Reserve	287	Whangaruru (North Head) Scenic Reserve	40
Turangarere Scenic Reserve	313	Wharerata Hill Scenic Reserve	219
		Whenuakite-Tapuaetahi	79
Upper Retaruke Scenic Reserve	250	Whitiroa Beach	80
		William Hartree Memorial Reserve	294
Waiau Falls Scenic Reserve	72	Williams Open Space Covenant	109
Waihi Falls Scenic Reserve	334		
Waihirere Recreation Reserve	213		
Waikaka Scenic Reserve	251		
Waima Forest	21		
Waimana Gorge Scenic Reserve	156		
Waimata Settlement Scenic Reserve	28		
Wainamu Scenic Reserve	57		
Wainui River Scenic Reserve	134		
Waiotahi Scenic Reserve	157		
Waiotane Scenic Reserve	159		
Waipapa Scenic Reserve	165		
Waipatiki Scenic Reserve	221		
Waipu Lagoons	284		
Waipuna Scenic Reserve	233		

5.3 List of records by soil groups

anthropic soil	95, 336
brown granular clay	1, 2, 4, 7, 8, 10, 15-22, 32, 36, 41, 52, 55, 57, 60, 62, 65-69, 71-73, 78, 79, 81, 82, 84-86, 88, 89, 106, 108, 109, 117, 121, 126, 269, 289
brown granular loam	41
brown loam	7, 29, 31, 33, 36, 63, 118, 119, 121, 122, 124, 127
composite soil	137, 141-143, 149, 163, 164, 179, 234, 240
gley soil	2, 3, 44, 91, 98, 100, 160, 178, 208, 265, 267, 269, 277, 280, 282, 290, 292, 308, 315, 348
hydrothermally altered soil	35, 64, 85, 150, 171-173

intergrade between yellow-brown loam and yellow-brown earth	261, 267, 269, 271, 277, 289, 329
intergrade between yellow-grey and yellow-brown earth	196, 201, 206, 210-212, 289, 301, 304-306, 310, 312, 314, 318, 320, 342, 351
lithosol	42, 59, 64, 74, 152, 179, 269
organic soil	2, 3, 58, 65, 90-94, 99, 121, 151, 177, 181, 191, 208, 262, 268, 269, 283, 322-324, 327
podzol	5, 14, 38, 52
podzolised yellow-brown earth	5, 9, 13, 34, 36, 46, 58, 75, 214
podzolised yellow-brown loam	134, 138, 140, 141, 146, 163, 177, 179, 215, 219
podzolised yellow-brown pumice soil	82, 137, 139, 141, 148, 162-164, 168, 170, 172, 174, 175, 177-179, 184, 186, 214, 216, 291, 294, 295
recent soil	5, 27, 43, 53, 64, 65, 68, 79, 85, 93, 102, 104, 105, 136, 142, 144, 145, 145, 147, 150, 152, 154, 160, 171, 173, 176, 177, 179, 185, 200, 202, 220, 224, 232, 243, 251, 253, 258-260, 264-266, 269, 270, 272, 274-276, 278, 290, 292, 296, 309, 310, 314, 321, 328, 330, 332, 339, 340, 344, 348-351
red loam	24, 29, 30, 63
rendzina	4, 5, 11, 39, 45, 54, 113, 119, 123, 222, 225, 226, 228, 235, 328, 333, 335
saline soil	69, 132, 133, 154, 259
yellow-brown earth	2, 5-7, 9, 10, 12-15, 23, 25-28, 31, 34, 36-38, 40, 41, 45, 46, 48-53, 56, 63, 66, 68, 70, 73, 76-78, 82, 84, 91, 92, 95, 96, 107, 110-115, 117, 119, 120, 123-125, 128-130, 135, 153, 156, 159, 164, 178, 180, 184, 187-190, 192, 194-197, 199, 201, 204, 205, 207-213, 216, 217, 219, 223-225, 229, 230, 232-234, 237, 239-241, 245-247, 251, 253-258, 263, 264, 285-289, 294, 299-303, 305, 308, 311, 320, 328, 329, 331, 334, 335, 337, 338, 341-349, 351
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yellow-brown pumice soil	82, 136, 143-145, 149, 151, 153, 155, 159, 162, 165, 165-167, 169, 171-173, 176, 178, 179, 190, 209, 214, 215, 217, 218, 232, 241-244, 246-248, 250, 252, 263, 264, 285, 286, 291, 293-295, 309
yellow-brown sand	2, 40, 73, 75, 80, 116, 118, 120, 122, 127, 157, 158, 195, 284, 319, 321-327
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Atua	196, 206, 210
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Awamate	220
Awapuku	4, 8, 65, 68-69
Awatuna	267, 280
Benneydale	164, 244, 250
Bluff	226, 335
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Carnarvon	325
Castlecliff	278
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7. REFERENCES

- Aitken, JF; Campbell, IB and Wilde, RH 1978 Soils of Stratford County, North Island, New Zealand. *New Zealand soil survey report* 42, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Arand, J; Basher, L; McIntosh, P and Heads, M 1991 Inventory of New Zealand soil sites of international, national and regional importance: Part one - South Island and southern offshore islands (1st edition). *New Zealand Society of Soil Science occasional publication* 1. 158 p.
- Atkinson, IAE 1961 Conservation of New Zealand soils and vegetation for scientific and educational purposes. *New Zealand science review* 19(4): 65-73.
- Atkinson, IAE 1964 The flora, vegetation and soils of Middle and Green Islands, Mercury Islands Group. *New Zealand journal of botany* 2: 385-402.
- Atkinson, IAE 1968 An ecological reconnaissance of Coppermine Island, Hen and Chickens Group. *New Zealand journal of botany* 6: 285-294.
- Atkinson, IAE 1972 Vegetation and flora of Sail Rock, Hen and Chicken Islands. *New Zealand journal of botany* 10: 545-558
- Atkinson, IAE 1973 Soils of Taita Experimental Station. *New Zealand Soil Bureau bulletin* 32, Department of Scientific and Industrial Research.
- Atkinson, IAE 1985 Scientific reserves for representative soils in New Zealand. *New Zealand soil news* 33(1): 30-31.
- Barratt, BC 1981 Soils of part Otorohanga County, North Island, New Zealand. *New Zealand soil survey report* 62, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Bayfield, M and Benson, MA 1986 Egmont Ecological Region. *Protected natural areas programme survey report* 2, Department of Lands and Survey, Wellington. 97 p.
- Bayfield, M; Benson, MA; Kelly, B; Boase, MR and Sait, SM 1986 Scenic reserves of East Taranaki. *Biological survey of reserves series* 17, Department of Lands and Survey, Wellington. 372 p.
- Beadel, SM and Shaw, WB 1988 Taneatua Ecological District. *Biological survey of reserves series* 12, Department of Conservation, Wellington. 138 p.
- Beets, PN and Brownlie, RK 1987 Puruki experimental catchment: site, climate, forest management and research. *New Zealand journal of forestry science* 17(2/3): 137-160.
- Black, TM; Nowell, SB and Hayward, BW 1991 Inventory of geologically-related historical sites and features of international, national and regional importance. *Geological Society of New Zealand miscellaneous publication* 52. 94 p.
- Brougham, AE and Reed, AW 1987 *Māori Proverbs*. Reed Methuen. 130 p.
- Bruce, JG 1978 Soils of part Raglan County, South Auckland, New Zealand. *New Zealand Soil Bureau bulletin* 41, Department of Scientific and Industrial Research.

- Bruce, JG 1979 Soils of Hamilton city, North Island, New Zealand. *New Zealand soil survey report* 31, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Campbell, IB 1977 Soils of part Wanganui County, North Island, New Zealand. *New Zealand Soil Bureau bulletin* 40, Department of Scientific and Industrial Research.
- Campbell, IB 1979 Soils of Rangitikei County, North Island, New Zealand. *New Zealand soil survey report* 38, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Clarkson, BR and Boase, MR 1982 Scenic reserves of West Taranaki. *Biological survey of reserves series* 10, Department of Lands and Survey, Wellington. 254 p.
- Clarkson, BR and Clarkson, BD 1991 Turanga Ecological District. *Protected natural areas programme survey report* 14, Department of Conservation, Gisborne. 131 p.
- Clarkson, BR and Regnier, CE 1989 West Gisborne. *Biological survey of reserves series* 16, Department of Conservation, Wellington. 176 p.
- Clarkson, BD; Daniel, LJ; Overmars, FB and Courtney, SP 1986 Motu Ecological District. *Protected natural areas programme survey report* 6, Department of Lands and Survey, Wellington. 153 p.
- Cowie, JD 1978 Soils and agriculture of Kairanga County, North Island, New Zealand. *New Zealand Soil Bureau bulletin* 33, Department of Scientific and Industrial Research.
- Cowie, JD 1979 Soils of Palmerston North city and environs, New Zealand. *New Zealand soil survey report* 24, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Cowie, JD and Money, SP 1965 Soils and agriculture of the Greytown District, Wairarapa, New Zealand. *New Zealand Soil Bureau report* 5, Department of Scientific and Industrial Research.
- Cowie, JD and Rijkse, WC 1977 Soils of Manawatu County, North Island, New Zealand. *New Zealand soil survey report* 30, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Cowie, JD; Fitzgerald, P and Owers, W 1967 Soils of the Manawatu-Rangitikei sand country. *New Zealand Soil Bureau bulletin* 29, Department of Scientific and Industrial Research.
- Denyer, K; Cutting, M; Green, C and Hilton, M (unpub.) Waitakere Ecological District. *Protected natural areas programme survey report* 15.
- Department of Conservation 1990 *Northland Kauri National Park Proposal - Public Discussion Paper*. Northland Conservancy. 51 p.
- Department of Lands and Survey 1984 *Register of Protected Natural Areas in New Zealand*. Department of Lands and Survey, Wellington. 472 p.
- Fuller, SA and Edwards, PG 1989 Southern Taumarunui. *Biological survey of reserves series* 15, Department of Conservation, Wellington. 183 p.

- Gardner, RO; Court, DJ and Ester, AE 1982 Scenic reserves of Lower North Auckland Land District. *Biological survey of reserves series 8*, Department of Lands and Survey, Wellington. 212 p.
- Gibson, AR and Healy, WB 1982 New Zealand Forest Service/Soil Bureau programme of evaluation of NZFS permanent plots: soil profiles and chemical data. *New Zealand Soil Bureau scientific report 56*. Department of Scientific and Industrial Research, Lower Hutt. 328 p.
- Hamilton, WM (compiler) 1961 Little Barrier Island (Hauturu). *New Zealand Department of Scientific and Industrial Research bulletin 137*. 198 p. Maps in separate folder.
- Hamilton, WM and Baumgart, IL 1959 White Island. *New Zealand Department of Scientific and Industrial Research bulletin 127*. 84 p.
- Hayward, BW and Ward, B 1989 Inventory of New Zealand fossil localities of international, national and regional importance (2nd edition). *Geological Society of New Zealand unpublished report 89/1*.
- Hewitt, AE 1992 New Zealand Soil Classification (version 3.0). *DSIR Land Resources scientific report 19*, DSIR Land Resources, Dunedin.
- Hillel DJ 1992 *Out of the Earth - Civilization and the Life of the Soil*. The Free Press, New York.
- Houghton, BF; Hayward, BW; Cole, JW; Hobden, B and Johnston, DM 1991 Inventory of Quaternary volcanic centres and features of the Taupo Volcanic Zone (with additional entries for Mayor Island and the Kermadec Islands). *Geological Society of New Zealand miscellaneous publication 55*. 156 p.
- Houghton, BF; Lloyd, EF; Keam, RF and Johnston, DM 1989 Inventory of New Zealand geothermal fields and features (2nd edition). *Geological Society of New Zealand miscellaneous publication 44*. 54 p.
- Humphreys, EA and Tyler, AM 1990 Coromandel Ecological Region. *Protected natural areas programme survey report*. Department of Conservation, Hamilton. 284 p.
- Jackson, RJ 1973 Catchment hydrology and some of its problems. *New Zealand Department of Scientific and Industrial Research information series 96*: 73-80. "Proceedings of Soil and Plant Water Symposium 1973". 124 p.
- Jackson, RJ 1980 Changes in physical properties of topsoils of yellow-brown pumice soils at Purukohukohu 1972-79. *New Zealand soil news 28(6)*: 208-211.
- Kennedy, NM 1981 Soil map of Rotorua City and environs, North Island, New Zealand. *New Zealand Soil Bureau map 206*, Department of Scientific and Industrial Research.
- Kermode, LO; Smith, IEM; Moore, CL; Stewart, RB; Ashcroft, J; Nowell, SB and Hayward, BW 1992 Inventory of Quaternary volcanoes and volcanic features of Northland, Auckland, South Auckland and Taranaki (first edition). *Geological Society of New Zealand Miscellaneous Publication 61*. 99 p.
- McCaskill, LW 1978 *Scenic reserves of Hawkes Bay/compiled from reports prepared by LW McCaskill*. Department of Lands and Survey, Wellington. 23 p.

- McCaskill, LW 1979a *Scenic reserves of South Auckland: book one: east of the Waikato River/compiled from reports prepared by LW McCaskill*. Department of Lands and Survey, Wellington. 51 p.
- McCaskill, LW 1979b *Scenic reserves of South Auckland: book two: east of Waikato River/compiled from reports prepared by LW McCaskill*. Department of Lands and Survey, Wellington. 38 p. [Note: the title should be "west of the Waikato River"]
- McCaskill, LW 1980 *Scenic reserves of Taranaki/compiled from reports prepared by LW McCaskill*. Department of Lands and Survey, Wellington. 42 p.
- McCaskill, LW 1981a *Scenic reserves of North Auckland: book one: north of Whangarei and Dargaville/compiled from reports prepared by LW McCaskill*. Department of Lands and Survey, Wellington. 35 p.
- McCaskill, LW 1981b *Scenic reserves of North Auckland: book two: south of Whangarei and Dargaville/compiled from reports prepared by LW McCaskill*. Department of Lands and Survey, Wellington. 44 p.
- McCaskill, LW 1981c *Scenic reserves of Gisborne/compiled from reports prepared by LW McCaskill*. Department of Lands and Survey, Wellington. 30 p.
- McCraw, JD 1965 *Land Inventory Survey - County Series: Ohinemuri. Soils. New Zealand Soil Bureau map 93*, Department of Scientific and Industrial Research.
- McCraw, JD and Bell, JL 1972 *Land Inventory Survey - County Series: Coromandel-Thames. Soils. New Zealand Soil Bureau map 109*, Department of Scientific and Industrial Research.
- McEwen, M (ed.) 1987 *Ecological regions and districts of New Zealand - with four 1:500 000 maps of New Zealand. New Zealand Biological Resources Centre publication 5*, Department of Conservation, Wellington. 4 parts.
- McFadgen, BG 1980 *Maori plaggen soils in New Zealand: their origin and properties. Journal of the Royal Society of New Zealand* 10(1): 3-18.
- McIntosh, PD 1985 *Soil/vegetation reserves and the contribution of the Dukes of Brabant to soil research. New Zealand soil news* 33(1): 24-26.
- McIntosh, PD 1987 *Register of soil-vegetation reserves - a request for New Zealand Society of Soil Science members to participate. New Zealand soil news* 35(5): 184-187, 209.
- McIntosh, PD and Meurk, CD 1986 *Soil-vegetation reserves in the South Island. New Zealand soil news* 34(4): 125-129.
- McLeod, M 1992a *Soil map of Hauraki Plains county, North Island, New Zealand. DSIR Land Resources map 312. Scale 1: 50 000*.
- McLeod, M 1992b *Soils of the Hauraki Plains county, North Island, New Zealand. DSIR Land Resources scientific report 31. Department of Scientific and Industrial Research, Lower Hutt*.
- McSweeney, G 1986 *Soil reserves - lost opportunities for nature conservation in New Zealand. New Zealand soil news* 34(4): 117-120.

- Meurk, CD; Molloy, BJP and Williams, PA 1985 Soil reserves. *New Zealand soil news* 33(4): 148-151.
- Milne, JDG and Northey, RD 1975 Soils of the Wellington urban area. *New Zealand soil survey report* 34, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Molloy, LF 1988 *The Living Mantle - soils in the New Zealand landscape*. Mallinson Rendel, Wellington, in association with the New Zealand Society of Soil Science. 239 p.
- Molloy, LF and Atkinson, IAE 1986 Protected areas of soil significance in the North Island. *New Zealand soil news* 34(4): 130-135.
- Newsome, PFJ 1987 The Vegetation Cover of New Zealand. *Water and Soil Miscellaneous Publication* 112. Water and Soil Directorate, Ministry of Works and Development, Wellington. 153 p. and two map sheets (1:1 000 000).
- New Zealand Soil Bureau 1954 General survey of the soils of North Island, New Zealand. *Soil Bureau bulletin* 5, Department of Scientific and Industrial Research, Wellington. 286 p.
- New Zealand Soil Bureau 1968 Soils of New Zealand - Part 3: Analytical data of the reference soils of New Zealand. *New Zealand Soil Bureau bulletin* 26(3), Department of Scientific and Industrial Research, Wellington.
- Northey, RD 1974 Soils of Pauatahanui area, Wellington, New Zealand. *New Zealand Soil Bureau scientific report* 13, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Nowell, S and Spörli, B 1992 Inventory of New Zealand structural geology sites of international, national and regional significance (first edition). *Geological Society of New Zealand Miscellaneous Publication* 54. 57 p.
- Orbell, GE 1974i Soils of Government horticultural research areas, Pukekohe, New Zealand. *New Zealand soil survey report* 20, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Orbell, GE 1974ii Soils of Manukau City experimental basin, Auckland, New Zealand. *New Zealand soil survey report* 25, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Orbell, GE 1979 Soils of part Franklin County, South Auckland, New Zealand. *New Zealand soil survey report* 33, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Pain, CF 1983 Soils of the Taharoa-Kawhia coastal area, North Island, New Zealand. *New Zealand soil survey report* 73. New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Palmer, RWP; Neall, VE and Pollock, JA 1981 Soils of Egmont and part Taranaki Counties, North Island, New Zealand. *New Zealand soil survey report* 64, New Zealand Soil Bureau, Department of Scientific and Industrial Research.

- Pohlen, IJ 1961 Taita Experimental Station 1948-1958. *New Zealand Soil Bureau information series 4*, 86 p.
- Priestley, R 1990 New Zealand landform inventory (2nd approximation). *Research School of Earth Sciences occasional paper 4*, Victoria University of Wellington, Wellington. 164 p.
- Priestley, R; Wyzoczanski, R and Nowell, SB 1991 Inventory of New Zealand mineral sites of international, national and regional importance. *Geological Society of New Zealand miscellaneous publication 53*. 60 p.
- Pullar, WA 1962 Soils and agriculture of the Gisborne Plains. *New Zealand Soil Bureau bulletin 20*, Department of Scientific and Industrial Research.
- Pullar, WA and Ayson, EC 1965 Soils and agriculture of Wairoa Valley, Hawkes Bay, New Zealand. *New Zealand Soil Bureau report 2*, Department of Scientific and Industrial Research.
- Pullar, WA; Hewitt, SR and Heine, JC 1978 Soils and land use of Whakatane borough and environs, Bay of Plenty, New Zealand. *New Zealand Soil Bureau bulletin 38*, Department of Scientific and Industrial Research.
- Ravine, DA 1992 Foxton Ecological District. *Protected natural areas programme survey report 19*, Department of Conservation, Wanganui. 264 p.
- Regnier, CE; Courtney, SP and Wiessing, MI 1988 Pukeamaru Ecological District. *Protected natural areas programme survey report 8*, Department of Conservation, Wellington.
- Rijkse, WC 1971 Land Inventory Survey - County Series: Woodville. Soils. *New Zealand Soil Bureau map 95*, Department of Scientific and Industrial Research.
- Rijkse, WC 1977 Soils of Pohangina County, North Island, New Zealand. *New Zealand Soil Bureau bulletin 42*, Department of Scientific and Industrial Research.
- Rijkse, WC 1979a Soils of part Tiniroto-Wairoa area, North Island, New Zealand. *New Zealand soil survey report 48*, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Rijkse, WC 1979b Soils of part Urewera-Waikaremoana area, North Island, New Zealand. *New Zealand soil survey report 45*, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Rijkse, WC 1979c Soils of Rotorua Lakes District, North Island, New Zealand. *New Zealand soil survey report 43*. New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Rijkse, WC 1980a Soils and agriculture of Waiapu Valley, East Coast, North Island, New Zealand. *New Zealand soil survey report 60*, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Rijkse, WC 1980b Soils of Mohaka-Aropaoanui area, North Island, New Zealand. *New Zealand soil survey report 55*, New Zealand Soil Bureau, Department of Scientific and Industrial Research.

- Rijkse, WC and Bell, JL 1974 Soils of Purukohukohu IHD experimental basin, Rotorua County, North Island, New Zealand. *New Zealand soil survey report* 18, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Rijkse, WC and Pullar, WA 1978 Soils of Tologa Bay flats, East Coast, North Island, New Zealand. *New Zealand soil survey report* 40, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Rijkse, WC and Vucetich, CG 1980 Soils of Wairakei Research Station, North Island, New Zealand. *New Zealand soil survey report* 57, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Rijkse, WC and Wilde, RH 1977 Soil map of the King Country. *New Zealand Soil Bureau map* 170, Department of Scientific and Industrial Research.
- Smale, MC 1984 White Pine Bush - an alluvial kahikatea (*Dacrycarpus dacrydioides*) forest remnant, eastern Bay of Plenty, New Zealand. *New Zealand journal of botany* 22(2): 201-206.
- Stirling, MW 1988 Inventory of New Zealand active earth deformation sites of international, national and regional importance (1st edition). *Geological Society of New Zealand miscellaneous publication* 38.
- Sutherland, CF; Cox, JE; Taylor, NH and Wright, ACS 1979-1981 Soil maps of North Cape-Houhora area, Kaitaia-Rawene area, Ahipara-Herekino area, Whangaroa-Kaikohe area, Bay of Islands area, Waipoua-Aranga area, Mangakahia-Dargaville area, Hukerenui-Whangarei area, Ruawai-Rototuna area, Maungaturoto-Kaipara area and Mangawhai-Warkworth area. *New Zealand Soil Bureau maps* 180-190. Department of Scientific and Industrial Research.
- Sutherland, CF; Wilson, AD; Cox, JE; Taylor, NH and Wright ACS 1985 Soil maps of parts of Helensville-Waitakere area and Whangaparaoa-Auckland area. *New Zealand Soil Bureau maps* 220-221. Department of Scientific and Industrial Research.
- Tate, KR; Ross, DJ; Speir, TW and Hart, PBS 1985 Soil - the fundamental life support system and its disturbance by man. In Campbell, IB (editor) *Proceedings of the soil dynamics and land use seminar, Blenheim, May 1985*. New Zealand Society of Soil Science (Lower Hutt) and New Zealand Soil Conservators Association.
- Taylor, NH 1958 Proceedings of the New Zealand Archaeological Society: 7 - soil science and New Zealand prehistory. *New Zealand science review* 16: 71-79.
- Taylor, NH 1960 Taita Experimental Station 1948-1958. Unpublished New Zealand Soil Bureau report, Department of Scientific and Industrial Research.
- Taylor, NH and Pohlen, IJ 1968 Soil survey method. *New Zealand Soil Bureau Bulletin* 25. Department of Scientific and Industrial Research. 242 p.
- Taylor, NH; Sutherland, CS and Wright, ACS 1948 Soil map of Whangarei County, New Zealand (4 sheets), 1:63 360. *Soil Bureau map* 17/1-4.
- Tonkin, P 1986 Scientific reserves for soils - an overview and draft guidelines. *New Zealand soil news* 34(4): 121-124.

- Vucetich, CG and Wells, N 1978 Soils, agriculture and forestry of Waiotapu region, central North Island, New Zealand. *New Zealand Soil Bureau bulletin* 31, Department of Scientific and Industrial Research.
- Vucetich, CG; Leamy, ML and Popplewell, MA 1960 Soils, forestry and agriculture of the northern part, Kaingaroa state forest and the Galatea basin. *New Zealand Soil Bureau bulletin* 18, Department of Scientific and Industrial Research.
- Wassilieff, MC; Clark, DJ and Gabites, I 1986 Scenic reserves of the Lower North Island. *Biological survey of reserves series* 14, Department of Lands and Survey, Wellington. 297 p.
- Watters, B; Priestley, R and Nowell, S 1992 Inventory of New Zealand metamorphic rock sites of international, national and regional significance (first edition). *Geological Society of New Zealand miscellaneous publication* 60. 47 p.
- Weaver, SD; Johnston, DM and Hayward, BW 1990 Inventory of New Zealand igneous geological sites and features (pre-Quaternary) of international, national and regional importance. *Geological Society of New Zealand miscellaneous publication* 49.
- Webb, TH and Espie, PR 1988 Canterbury reserves in relation to the soils of the South Island. Unpublished paper presented to the New Zealand Society of Soil Science conference, Nelson, November 1988.
- Whitehouse, IE; Hayward, B; McIntosh, P and Tonkin, P 1990 Preservation of soils, landforms and geological features. Paper delivered to Natural Heritage Conference, Palmerston North, January 1990. 6 p.
- Wilde, RH 1976 Soils of part Waitotara County, North Island, New Zealand. *New Zealand soil survey report* 26, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Williams, PA 1975a Studies of the tall-tussock (*Chionochloa*) vegetation/soil systems of the southern Tararua Range, New Zealand. 1. The soils and slump features. *New Zealand journal of botany* 13: 215-268.
- Williams, PA 1975b Studies of the tall-tussock (*Chionochloa*) vegetation/soil systems of the southern Tararua Range, New Zealand. 2. The vegetation/soil relationship. *New Zealand journal of botany* 13: 269-303.
- Wilson, AD 1980 Soils of Piako County, North Island, New Zealand. *New Zealand soil survey report* 39, New Zealand Soil Bureau, Department of Scientific and Industrial Research.
- Worthy, T 1990 Inventory of New Zealand caves and karst of international, national and regional importance (2nd edition). *Geological Society of New Zealand miscellaneous publication* 47.
- Wright, ACS 1961 Soil map of Little Barrier Island. *Department of Scientific and Industrial Research bulletin* 137.
- Wright, ACS and Metson, AJ 1959 Soils of Raoul (Sunday) Island, Kermadec Group. *New Zealand Soil Bureau bulletin* 10, Department of Scientific and Industrial Research.

Yeates, GW; Cox, JE; Ross, DJ and Stout, JD 1981 Biology and biochemistry of the soil profile below a kauri (*Agarthis australis* Salisb.) tree. *New Zealand Soil Bureau scientific report* 51. Department of Scientific and Industrial Research, Lower Hutt. 34 p.

8. GEOPRESERVATION INVENTORY REPORTS

Arand, J; Basher, L; McIntosh, P and Heads, M 1991 Inventory of New Zealand soil sites of international, national and regional importance: Part one - South Island and southern offshore islands (1st edition). *New Zealand Society of Soil Science occasional publication* 1. 158 p.

Arand, J; Basher, L; Wardle, R and Wardle, K 1993 Inventory of New Zealand soil sites of international, national and regional importance. Part two - North Island and northern offshore islands (1st edition). *New Zealand Society of Soil Science occasional publication* 2.

Black, TM; Nowell, SB and Hayward, BW 1991 Inventory of geologically-related historical sites and features of international, national and regional importance. *Geological Society of New Zealand miscellaneous publication* 52. 94 p.

Hayward, BW and Ward, B 1989 Inventory of New Zealand fossil localities of international, national and regional importance (2nd edition). *Geological Society of New Zealand unpublished report* 89/1.

Houghton, BF; Hayward, BW; Cole, JW; Hobden, B and Johnston, DM 1991 Inventory of Quaternary volcanic centres and features of the Taupo Volcanic Zone (with additional entries for Mayor Island and the Kermadec Islands). *Geological Society of New Zealand miscellaneous publication* 55. 156 p.

Houghton, BF; Lloyd, EF; Keam, RF and Johnston, DM 1989 Inventory of New Zealand geothermal fields and features (2nd edition). *Geological Society of New Zealand miscellaneous publication* 44. 54 p.

Kenny, JA and Hayward, BW 1992 Inventory of New Zealand sedimentary geology sites of international, national and regional significance. *Geological Society of New Zealand miscellaneous publication* 62. 119 p.

Kermode, LO; Smith, IEM; Moore, CL; Stewart, RB; Ashcroft, J; Nowell, SB and Hayward, BW 1992 Inventory of Quaternary volcanoes and volcanic features of Northland, Auckland, South Auckland and Taranaki (first edition). *Geological Society of New Zealand miscellaneous publication* 61. 99 p.

Nowell, S and Spörli, B 1992 Inventory of New Zealand structural geology sites of international, national and regional significance (first edition). *Geological Society of New Zealand miscellaneous publication* 54. 57 p.

Priestley, R 1990 New Zealand landform inventory (2nd approximation). *Research School of Earth Sciences occasional paper* 4, Victoria University of Wellington, Wellington. 164 p.

Priestley, R; Wyzoczanski, R and Nowell, SB 1991 Inventory of New Zealand mineral sites of international, national and regional importance. *Geological Society of New Zealand miscellaneous publication* 53. 60 p.

- Stirling, MW 1988** Inventory of New Zealand active earth deformation sites of international, national and regional importance (1st edition). *Geological Society of New Zealand miscellaneous publication* 38.
- Watters, B; Priestley, R and Nowell, S 1992** Inventory of New Zealand metamorphic rock sites of international, national and regional significance (first edition). *Geological Society of New Zealand miscellaneous publication* 60. 47 p.
- Weaver, SD; Johnston, DM and Hayward, BW 1990** Inventory of New Zealand igneous geological sites and features (pre-Quaternary) of international, national and regional importance. *Geological Society of New Zealand miscellaneous publication* 49.
- Worthy, T 1990** Inventory of New Zealand caves and karst of international, national and regional importance (2nd edition). *Geological Society of New Zealand miscellaneous publication* 47.

NEW ZEALAND SIGNIFICANT SOIL SITES INVENTORY RECORD SHEET

NEW ZEALAND SOCIETY OF SOIL SCIENCE

NAME: _____

LOCAL AUTHORITY: _____

ECOLOGICAL DISTRICT: _____

LOCALITY (enclose map): _____

METRIC MAP: _____ **NON METRIC MAP:** _____

AREA (ha): _____ **ALTITUDE (m):** _____ **RAINFALL (mm):** _____

TOPOGRAPHY (landforms and slopes): _____

PARENT MATERIAL (rock type and regolith): _____

VEGETATION (classes and dominant species): _____

SOIL GROUP(1): _____

SOIL MAPPING UNIT(1): _____

SOIL GROUP(2): _____

SOIL MAPPING UNIT(2): _____

SOIL GROUP(3): _____

SOIL MAPPING UNIT(3): _____

SOIL GROUP(4): _____

SOIL MAPPING UNIT(4): _____

SOIL GROUP(5): _____

SOIL MAPPING UNIT(5): _____

SOIL GROUP(6): _____

SOIL MAPPING UNIT(6): _____

OTHER SOILS: _____

PROFILE(S): _____ **LAB NUMBERS:** _____

IMPORTANCE: 1 = international 2 = national 3 = regional

SIGNIFICANCE: _____

MODIFICATIONS: _____

VULNERABILITY: 1 = site under threat
2 = site formally recommended for protection
3 = site is formally protected

(name threats) _____

TENURE: _____

OWNER/MANAGER: _____

SCIENTIFIC CONTACT PERSON: _____

REFERENCES: _____

NOTES: _____

DATE OF INFORMATION: _____

Notes:

- (i) Locations to be shown, where practical, as handrawn lines on photocopies of NZMS 260 or NZMS 1 base maps.
- (ii) List landforms, parent materials, vegetation and soil groups and mapping units in decreasing order of cover.

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