



Plant Conservation Strategy

Wellington Conservancy
(excluding Chatham Islands)

2004–2010



Department of Conservation
Te Papa Atawhai

Plant conservation strategy

Wellington Conservancy (excluding Chatham Islands)

2004–2010

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This document is a revised edition of 'Plant Conservation Strategy: Wellington Conservancy' by Raewyn Empson and John Sawyer published by the Department of Conservation in 1996.

Executive summary

The goal of plant conservation in Wellington Conservancy is to ensure that the region's indigenous plants and a representative suite of the region's indigenous plant communities, continue to exist in the wild as part of functioning ecosystems. This strategy outlines how this goal will be achieved for sites other than the Chatham Islands through implementation of three key work areas: in-situ management, ex-situ management and conservancy-wide initiatives.

The immediate focus for this strategy is protection of:

- 173 nationally threatened and uncommon indigenous vascular plant taxa
- 254 regionally threatened and uncommon indigenous vascular plant taxa
- 11 nationally threatened mosses and liverworts
- 20 threatened indigenous plant communities

These are the plant taxa and communities of greatest immediate conservation concern in Wellington Conservancy. A further twenty-seven non-threatened plant taxa important to the survival of other plants, iconic plants in the landscape, or of ethnobotanical significance, are also identified for conservation attention. Eight outcome targets are set for achieving plant conservation in Wellington Conservancy over a twenty year period. A series of objectives is provided to be achieved over the life of this strategy.

***In-situ* management**

In-situ management is highest priority for the department, and involves protection and management of wild sites that support threatened indigenous plants and communities. In-situ management can be viewed as a four part process: survey (to establish baseline information); habitat protection (legal and physical); monitoring; and recovery actions (such as translocation). Management options for *in-situ* protection are described in this report, including weed and animal pest control, legal protection and translocations.

***Ex-situ* management**

Priorities for *ex-situ* conservation management of threatened plants are identified with the principal objectives to provide material for use in species recovery programmes, and to provide an insurance against population or species extinctions. *Ex-situ* management guidelines for threatened plants are included as an appendix to this strategy.

Conservancy-wide initiatives

Survey and monitoring

Survey and monitoring of threatened plant populations is valuable for determining the current status of species in the wild, and documenting and interpreting change in condition over time. A record sheet is provided for use when recording occurrences of wild threatened plant populations. Priorities and guidelines for survey and monitoring of indigenous plants and communities are outlined.

Information management

Information about the distribution and ecology of indigenous plants in Wellington is stored on BIOWEB, the Department of Conservation's national plant database. This database will continue to be maintained with updates every three months.

Research

Plant conservation research opportunities are briefly described (see also Wellington Conservancy Research Prospectus 2003-2004. Department of Conservation 2003).

Public awareness and education

Opportunities for raising public awareness of plant conservation issues, and involving the community in initiatives are identified. This includes support of the New Zealand and Wellington Plant Conservation Networks, and use of the Department of Conservation website.

1. Purpose of the strategy

This strategy describes the Department of Conservation's responsibilities in relation to nationally and regionally threatened vascular plants and cryptogams (mosses and liverworts) and threatened plant communities in Wellington Conservancy (excluding the Chatham Islands).

The strategy contains targets, objectives and guidelines to assist the Department in its management of these species and communities. The strategy provides a framework that will guide plant conservation work programmes to ensure the primary goal of the strategy is achieved. This strategy enables the Department of Conservation to set priorities for its work on threatened plant species and communities and identifies standards for plant conservation work.

The strategy provides a basis for liaison with agencies, communities and individuals (including landowners) that share a responsibility for, or interest in, the management of indigenous plants. Such collaboration is a key mechanism for the Department to achieve plant conservation objectives. Past achievements, as a result of implementation of the previous regional plant conservation strategy (see Empson & Sawyer 1996) are described.

Further reference in this document to Wellington Conservancy excludes the Chatham Islands. For information about the strategic approach to protection and species recovery of the Chatham flora, see Walls (2003) and Walls *et al.* (2003).

2. Goal, targets and objectives

The goal of plant conservation in Wellington Conservancy is to ensure that the region's indigenous plants and a representative suite of the region's indigenous plant communities, continue to exist in the wild as part of functioning ecosystems. This strategy identifies eight outcome targets for plant conservation, based around the targets of the Global Strategy for Plant Conservation (Botanic Gardens Conservation International 2003) to be achieved over the next twenty years. A series of objectives is also provided to be achieved by 2010.

PLANT CONSERVATION OUTCOME TARGETS

Target 1: In-situ management of threatened plants

Sixty percent of Wellington Conservancy's nationally threatened and uncommon plant species are protected in-situ. Indigenous plant species that formerly occurred in the Conservancy are restored. A representative suite of the region's indigenous plant communities are fully protected in the wild, and the structure, composition and function of these communities is restored. Indigenous plant species and communities, now commonplace, are prevented from becoming threatened.

Target 2: Ex-situ management of threatened plants

Sixty percent of Wellington Conservancy's nationally acutely threatened plant species (Critical, Endangered and Vulnerable) are maintained in secure living collections (such as botanic gardens). Thirty percent of these ex-situ collections are used as an integral part of plant species recovery programmes including translocation and restoration programmes.

Target 3: Conservation status of plant species assessed

A regular assessment (every three years) is made of the regional and national conservation status of all plant species in Wellington Conservancy. An assessment process is developed and implemented for indigenous plant communities.

Target 4: Important plant areas protected

Fifty percent of Wellington Conservancy's most important areas for plant diversity are protected (physically and legally where necessary). Important plant areas are identified using criteria such as endemism, species richness, uniqueness or representativeness of habitat, or community composition.

Target 5: Education and awareness of native plants promoted

The importance of plant diversity and the need for its conservation is incorporated into communication (e.g. website), education (e.g. site education packs) and public-awareness programmes in Wellington Conservancy. Gaps in education and awareness programmes are plugged with additional materials and resources.

Target 6: Capacity for plant conservation built

Department of Conservation staff and key associates are given appropriate plant conservation training to achieve the goal of this strategy. Capacity is built through attendance at the Department's Ecological Management Skills programme courses and other courses as appropriate.

Target 7: National and regional plant conservation networks in the region strengthened

The New Zealand Plant Conservation Network and the Wellington Regional Plant Conservation Network are supported through provision of regular advice and facilitation of meetings. Networks provide a mechanism for exchanging information and technology, reduce duplication of effort, and optimise efficient allocation and use of plant conservation resources.

Target 8: Indigenous local knowledge about *rongoa* is protected and sustainable use of these species is supported

Indigenous plant species of local importance as *rongoa* are protected and systems developed and implemented to ensure sustainable use of, and access to, these plant materials.

1. *IN-SITU* MANAGEMENT OBJECTIVES

- 1.1 Determine requirements and priorities for management of populations of all acutely threatened plant species, including control of weeds and animal pests, through preparation of threatened plant population management plans;
- 1.2 Implement an annual work programme based on actions identified in population management plans;
- 1.3 Seek protection and conservation management of privately owned sites supporting threatened plant species and communities through consultation with landowners;
- 1.4 Develop and implement an assessment process for classifying and determining the conservation status of indigenous plant communities;
- 1.5 Determine requirements and priorities for protection and conservation management of threatened plant communities, including legal protection, and weed and animal pest control, through preparation and implementation of site management plans;
- 1.6 Develop an Important Plant Area programme, according to the procedures developed internationally under the Global Strategy for Plant Conservation, to identify the region's most important areas for plant diversity, undertake gap analysis to evaluate the extent to which these areas are protected;
- 1.6 Liaise with iwi to determine and facilitate appropriate management of plant species and communities of special significance to Maori (see Appendix 5);
- 1.7 Undertake a standard assessment of environmental effects to mitigate adverse effects of all new infrastructure development on lands administered by the Department of Conservation that support, or may support, threatened plant species or communities.

2. *EX-SITU* MANAGEMENT OBJECTIVES

- 2.1 Involve botanic gardens, horticulturalists, and commercial plant nurseries on an annual basis in the establishment and maintenance of *ex-situ* populations of threatened plant species according to guidelines, to provide:
 - Material for use in species recovery programmes
 - Insurance against population or species extinctions
 - Material for education and advocacy
- 2.2 Where species recovery actions dictate such work, propagate threatened plants and their associated species for translocation to enhance populations or restore species to sites from which they have been lost;
- 2.3 Determine priorities for plant collection and management of *ex-situ* collections, and follow standard guidelines;
- 2.4 Maintain samples of priority species in a long-term seed storage facility;
- 2.5 Replicate and maintain at least one population of 60% of acutely threatened plant species in a secure *ex-situ* location.

3. CONSERVANCY-WIDE OBJECTIVES

Information management

3.1 Maintain the Wellington Conservancy component of BIOWEB - the national plant database -through updates every three months;

3.2 Promote the BIOWEB data capture process to Departmental staff, staff at Greater Wellington, botanists and community restoration groups in the region to ensure that accurate information on the status of threatened plants is available;

Survey and monitoring

3.3 Determine priorities for survey and monitoring of threatened plant populations and communities, and develop guidelines to ensure that this work is standardised and effective;

3.4 Implement a monitoring programme for both threatened plant species and communities to determine the effectiveness of conservation management work and to detect environmental change (see Appendix 3);

Research objectives

3.5 Facilitate research into the ecology, variation patterns (within species and within populations), breeding biology, horticulture, biogeography and taxonomy of threatened plant species and so improve methods for protecting wild plant populations and communities;

Public awareness and education

3.6 Raise awareness of the conservancy's threatened plant species, plant species recovery issues, and the location of key sites for threatened plants;

3.7 Encourage and facilitate involvement of the public, landholders, special interest groups and local government in plant conservation, particularly of threatened plant species;

3.8 Identify opportunities for improvements in plant conservation education, and implement these as part of annual community awareness programmes;

3. Background

WELLINGTON CONSERVANCY

Wellington Conservancy is located in the lower North Island (Figure 1) and covers a land area of approximately 1,135,400 hectares. It is one of thirteen administrative regions of the Department of Conservation and also includes the Chatham Islands. Approximately 184,000 hectares (16%) of land in Wellington Conservancy are administered by the Department of Conservation.

Before human settlement, most of the region was forested, and a range of vegetation types existed, influenced by geology, climate and altitude. Shifting coastal dunes lined the region supporting sand binders such as *Desmoschoenus spiralis* (pingao) and *Spinifex sericeus* (spinifex). Inland from these were more stabilised dunes with *Coprosma acerosa* (sand coprosma) and *Pimelea arenaria* (sand daphne) and coastal escarpments lining Cook Strait supported forest that was dominated by *Dysoxylum spectabile* (kohekohe), *Myoporum laetum* (ngaio), northern rata (*Metrosideros robusta*) and *Alectryon excelsus* (titoki) interspersed with scrub communities dominated by *Coprosma propinqua* (mingimingi) *C. crassifolia*, *Discaria toumatou* (matagouri) and the vines *Muehlenbeckia complexa* (pohuehue), and *Scandia geniculata*.

Dune land forests on the west coast were dominated by *Alectryon excelsus* (titoki) and *Beilschmiedia tawa* (tawa) in drier areas, with *Dacrycarpus dacrydioides* (kahikatea) and *Laurelia novae-zelandiae* (pukatea) swamp forest in dune hollows. Lowland forest comprised dense podocarp and *Metrosideros robusta* (northern rata) stands with *Nothofagus truncata* (hard beech) and *Nothofagus solandri* var. *solandri* (black beech) on dry spurs and ridges. With increasing altitude in the Tararua and Rimutaka Ranges, canopy species changed from *Weinmannia racemosa* (kamahi), to *Nothofagus fusca* (red beech) and *Nothofagus menziesii* (silver beech), to almost pure silver beech at the tree-line, with alpine grassland and herbfield on the mountain tops.

The drier eastern country was characterised by forests rich in *Podocarpus totara*, *Prumnopitys taxifolia* (matai), kowhai (*Sophora microphylla* and *S. tetraptera*) and lowland ribbonwood (*Plagianthis regius*) on the fertile lowlands, and black and hard beech on steeper, less fertile sites. A more detailed description of the indigenous plant communities of the Wellington region is included in 'Wellington's Living Cloak', published by Wellington Botanical Society (Gabites 1993).

Wellington Conservancy now has a modified pattern of vegetation following settlement by both Maori and Pakeha. The three forest parks managed by the Department of Conservation protect extensive tracts of relatively unmodified indigenous vegetation, and these represent approximately 80% of the total land area managed by the conservancy. Protected remnant natural areas elsewhere in the conservancy are also important for the conservation of biological diversity, although the majority of these areas are small patches of indigenous habitat within a largely agricultural landscape. Seventy percent of all land units managed by the Department of Conservation are less than 50 hectares in size (Simpson 1996).

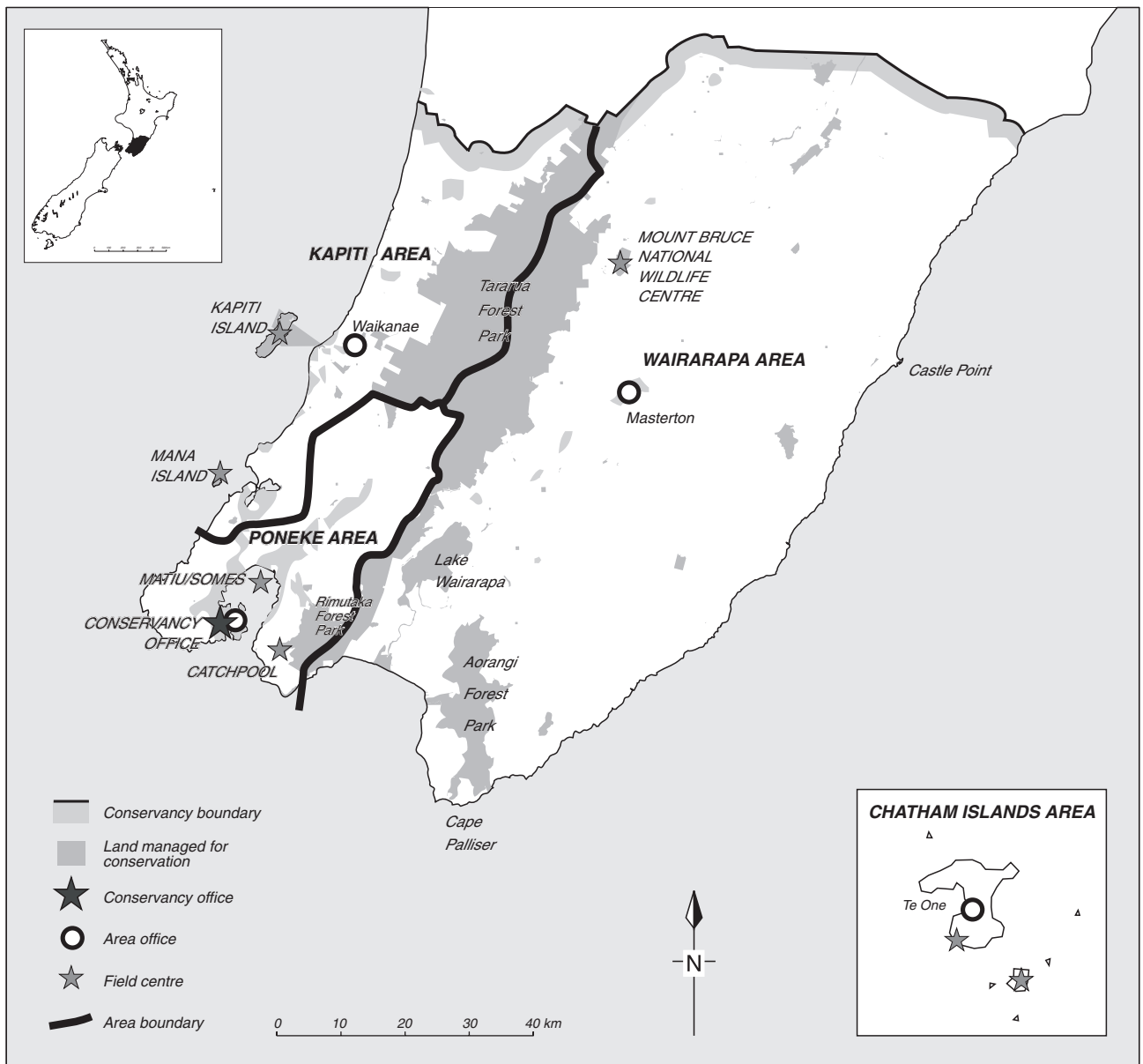


Figure 1. Location and spatial extent of Wellington Conservancy.

GLOBAL PLANT CONSERVATION STRATEGY

Since the Convention on Biological Diversity was ratified, in 1992, there has been a continuing decline in the status of the world's plant life. That has resulted in a new global initiative specifically to plan for plant conservation, led by Botanic Gardens Conservation International in collaboration with technical and professional bodies around the world. They proposed a Global Strategy for Plant Conservation with sixteen targets designed to guide conservation of threatened species and ecosystems (Botanic Gardens Conservation International 2003).

The strategy has goals for integrated (*ex situ* and *in situ*) conservation of plant diversity, linked to targets for research, information management, public education and awareness. The sixteen targets of the Global Strategy for Plant Conservation can be found at <http://www.biodiv.org>. This strategy was ratified by the New Zealand government in 2001 and there is now a need to work towards its national implementation through implementation of local plant conservation targets and providing data and indicators to monitor progress. This strategy provides local plant conservation targets and describes the processes to be followed to achieve them.

THREATENED VASCULAR PLANTS IN WELLINGTON CONSERVANCY

New Zealand has an indigenous vascular plant flora of c.2070-2315 taxa (Wilton & Breitwieser 2000; P.J. de Lange & S. P. Courtney unpubl. data). By Global standards this is a remarkably small flora. However, when one considers that at the species level between 83-85% of the indigenous flora is endemic to New Zealand (Wardle 1991; Wilton & Breitwieser 2000) then the global significance of the flora becomes immediately apparent.

Formal description is still required for approximately 500 of these taxa (S.P. Courtney pers. comm.). The development of threatened plant lists is one of the primary tools for identifying species of national conservation concern. In a recent assessment by the Department of Conservation of the status of indigenous species in New Zealand, 792 vascular plant taxa were identified as threatened or naturally uncommon (de Lange *et al.* 2004). That represents approximately 34 % of the vascular flora of New Zealand.

Table 1 shows the numbers of plant species in Wellington Conservancy in each national and regional threat category. In total, 173 nationally threatened and 254 regionally threatened indigenous vascular plant species have been recorded. Table 2 provides information about all these threatened species. Table 2 will be updated regularly using information obtained from field surveys to ensure it is accurate.

TABLE 1. SUMMARY STATISTICS FOR THREATENED AND UNCOMMON VASCULAR PLANTS IN WELLINGTON CONSERVANCY

CATEGORY	NO. SPECIES NATIONALLY (% NAT. TOTAL)	NO. SPECIES REGIONALLY
Extinct	1	26
Critical	13	68
Endangered	18	11
Vulnerable	9	5
Serious decline	14	4
Gradual decline	35	16
Sparse	31	48
Range restricted	40	22
Data deficient	13	49
Coloniser	1	4
Vagrant	1	1
Total	176	254

Populations of threatened plant species in Wellington Conservancy occur in a wide variety of habitat types and are distributed throughout all the altitudinal zones in the conservancy (Table 2). Some habitat types and some zones support a greater proportion of plants of conservation concern than others. Analysis of the altitudinal distribution of threatened plant species showed that 62 plant species (39%) are coastal, 75 (47%) are lowland, 45 (28%) are montane and 14 (9%) are subalpine or alpine species. The percentages do not add up to 100% as some species are not exclusive to one zone. An analysis of the geographical distribution of plant species by their preferred habitat revealed that 69 species of conservation concern (43%) are wetland plants.

More threatened plant species occur in lowland and coastal sites than in other habitat zones. These distribution patterns reflect greater levels of human disturbance in lowland and coastal habitats and wetland habitats than in other altitudinal zones or habitats. An assessment of the distribution of threatened plant populations showed that over 50% (observed in the wild since 1986) occur outside existing reserves or conservation areas (Sawyer 1997).

PROCESSES THAT LEAD TO POPULATION EXTINCTIONS

Many processes influence plant species' survival, and fluctuations in plant population sizes are normal in natural ecosystems. In Wellington, land development, habitat fragmentation, browsing and competitive pressure from introduced species have been largely responsible for recent population extinctions and the threatened status of many plants. For example, only 10% of wetlands remain of those that were formerly known in the Wellington region (Fuller 1993).

Animal pests, stock and exotic weeds all influence the structure and composition of indigenous plant communities and can result in losses of indigenous species. The survival of many species listed in Table 2, such as *Amphibromus fluitans*, *Crassula mataikona* and *Leptinella nana*, is directly threatened by the effects of weeds associated with changes in the local browsing or hydrologic regime.

Disrupted reproductive processes, such as loss of pollinators or loss of one sex, may have impacted on some populations and led to their extinction. Many processes that lead to population extinctions are still believed to be operating, and direct intervention to enhance and/or protect habitats and species is required if further extinctions are to be avoided. In some cases there may be difficulty managing threats *in-situ*. Where extinction-causing processes are unmanageable for *in-situ* populations, species may have to be moved to sanctuaries.

PRIORITIES FOR INDIGENOUS PLANT PROTECTION

Priorities for management of threatened indigenous plant species in Wellington Conservancy are provided in Table 2. In setting these priorities (High, Medium and Low), four criteria were used:

- Status of the taxon in the wild and its degree of legal protection
- Endemism
- The degree of threat facing the habitat of the taxon (as a result of disturbance, development or environmental change)
- Urgency and feasibility of carrying out work

The status of the taxon in the wild takes into account factors such as its distribution and its abundance. The most acutely threatened plant taxa are generally accorded highest priority (e.g. Critical, Endangered and Vulnerable). Taxa that do not occur on legally protected land anywhere throughout their range are also accorded higher priorities than those that occur in reserves and on other protected lands, although the assumption that protected lands confers protection to the plant species may not always be valid. Taxa for which limited data is available (Data Deficient), or that have gone unrecorded in the region for many years are high priority for survey.

Taxa endemic to the New Zealand botanical region are generally accorded higher priorities than others found elsewhere in the world. The degree of threat facing the habitat of the taxon (as a result of disturbance, development or environmental change) was also taken into account. Priorities are generally higher for taxa that occur in habitats under threat of fragmentation, disturbance, or rapid change.

Urgency of work is used to determine priorities: taxa known to be in rapid decline will be given higher priority than others that are more stable. The feasibility of management actions to improve the conservation status of the taxon also determines priorities.

TABLE 2. NATIONALLY AND REGIONALLY THREATENED NATIVE VASCULAR PLANTS IN WELLINGTON CONSERVANCY
Criteria used to select plants for inclusion in the list, and the terms used for each threat category, are given in Appendix 1

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Aciphylla glaucescens</i> (D. Glenny pers. comm.) formerly known as <i>Aciphylla</i> aff. <i>squarrosa</i> (A. "Tatarua")	Speargrass	Not threatened	Wairarapa Kapiti	Range restricted	Feral goats, pigs and deer	Tussock grassland, Taranua Range	Dicot herb	Monitor (5 yearly)	Low
<i>Aciphylla dissecta</i>	Speargrass	Range restricted	Wairarapa	Range restricted	Trampling	Tussock grassland, Taranua Range	Dicot herb	Monitor (5 yearly)	Low
<i>Aciphylla squarrosa</i>	Taramea, Speargrass	Not threatened	Poneke Kapiti Wairarapa	Regionally vulnerable	Stock, fire, weeds, goats	Coastal and montane	Dicot herb	Protect habitat, propagate	Medium
<i>Adelopetalum (Bulbophyllum) tuberculatum</i>	Bulb-leaf orchid	Sparse	Poneke Kapiti	Data deficient (DP)	Forestry and wind-throw, collecting	Epiphytic on rimu, rewarewa, hinau etc	Orchid	Survey and record	High
<i>Adiantum aethiopicum</i>	True maidenhair, maidenhair fern, makaka	Not threatened	Wairarapa	Sparse (DP)	Weeds, habitat clearance		Fern	Record when found. Monitor (5 yearly)	Low
<i>Adiantum formosum</i>	Giant maidenhair, plumed maidenhair	Vagrant (HD)	Kapiti Wairarapa	Coloniser	Weeds, habitat clearance		Fern	Record when found. Monitor spread. Check herbarium specimen for Kapiti record.	Low
<i>Adiantum fulvum</i>		Not threatened	Poneke Kapiti	Sparse	Weeds, habitat clearance	Forest	Fern	Monitor (5 yearly)	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Adiantum bispidulum</i>	Rosy maidenhair	Not threatened	Poneke	Data deficient	Weeds, habitat clearance	Coastal forest and shrub	Fern	Survey and record	Low
<i>Adiantum viridescens</i>		Not threatened	Kapiti Poneke	Sparse (DP)	Weeds, habitat clearance	Coastal and lowland forest	Fern		Low
<i>Agrostis muscosa</i>	Pincushion grass	Not threatened	Poneke Wairarapa	Data deficient	Weeds, trampling	Montane or subalpine bare ground and tussock grassland, margins of lakes and tarns, lowland in turf above coastal cliffs	Grass	Survey and record	Low
<i>Agrostis oresbia</i>	-	Sparse	Wairarapa Kapiti	Data deficient	Weeds, trampling	Alpine to sub-alpine tussock grassland, in watercourses, on rocky ground, cliffs, scree and river flats	Grass	Survey and record	Low
<i>Alepis flavida</i>	Yellow-flowered mistletoe	Gradual decline	Wairarapa Poneke	Extinct in wild (DP)	Possums and forestry	Beech forest	Mistletoe	Record if found. Raise awareness.	Low
<i>Ampfibromus fluitans</i>		Nationally endangered (EF)	Wairarapa Kapiti	Regionally critical (CD, EF, TO)	Spread of weeds, drainage	Wetland or swamp	Grass	Monitor (twice yearly)	High
<i>Anapbaloides subrigidum</i>		Not threatened	Wairarapa	Regionally critical (DP)	Stock	Favours limestone in Wellington area	Composite sub-shrub	Protect habitat	Medium

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Anemantele lessoniata</i>	Wind grass	Sparse (DP)	Wairarapa Poneke	Sparse (DP)	Forest clearance	Sea-level to montane forest, forest margins, scrub and bluffs	Grass	Record	Low
<i>Anemone tenuicaulis</i>	New Zealand anemone	Sparse	Wairarapa Kapiti	Data deficient	Weeds, habitat clearance		Dicot herb	Survey and record	Low
<i>Anogramma leptophylla</i>	Jersey fern	Gradual decline (EF, SO)	Wairarapa Poneke Kapiti	Sparse (EF)	Weeds, clearance of bush remnants	Banks and coastal cliff	Fern	Monitor	Medium
<i>Arthropodium cirratum</i>	Rengarenga lily	Not threatened	Poneke Kapiti Wairarapa	Regionally endangered	Weeds, fire, collectors	Coastal scrub	Monocot herb	Monitor, propagate, translocate, document Maori plantings (Heenan <i>et al.</i> in press)	Medium
<i>Asplenium</i> aff. <i>trichomanes</i>		Not threatened	Wairarapa	Regionally critical	Weeds, habitat clearance	Dry open scrubland. Probably calcicole	Fern	Record	Medium
<i>Asplenium apendiculatum</i> ssp. <i>apendiculatum</i>	Ground spleenwort	Not threatened	Poneke Kapiti Wairarapa	Sparse	Weeds	Inland rocky outcrops	Fern	Record when found	Low
<i>Asplenium lyallii</i>	Lyall's spleenwort	Not threatened	Wairarapa	Sparse	Weeds, stock, habitat clearance	Calcareous soils and rocks	Fern	Record when found	Low
<i>Asplenium obtusatum</i>	Shore spleenwort	Not threatened	Poneke Kapiti	Regionally critical (ST)	Weeds	Coastal cliffs and scrub	Fern	Monitor sites (yearly) and protect habitat	Medium

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Atriplex buchananii</i>	Saltbush	Sparse	Poneke	Regionally critical (OL, EF)	Coastal development, weed spread	Coastal salt pan	Dicot herb	Monitor (annually in spring) and protect habitat	Medium
<i>Atriplex cinerea</i>	Grey saltbush	Coloniser	Wairarapa	Extinct in wild	Coastal development	Coastal	Dicot herb	Record if found	Low
<i>Atriplex hollowayi</i>		Nationally critical	Poneke	Extinct in wild	Coastal development	Coastal dunes	Dicot herb	Record if found. Translocate from Northland?	Low
<i>Austrofestuca littoralis</i>	Sand tussock, hinarepe	Gradual decline (SO, HI, CD)	Wairarapa Poneke	Gradual decline	Coastal development, weed (marram)	Coastal dunes and rocky shores	Grass	Protect, propagate	Medium
<i>Baumea articulata</i>	Jointed twig rush, jointed baumea	Not threatened	Kapiti	Sparse	Weeds, habitat clearance	Standing water and edges of stream channels and lakes	Sedge	Record	Low
<i>Baumea juncea</i>	Tussock swamp twig rush	Not threatened	Poneke	Regionally endangered (DP)	Weeds, habitat clearance	Lowland swamps and salt marshes	Sedge	Record, protect	Medium
<i>Blechnum blechnoides</i>	Shore hard fern	Not threatened	Poneke Wairarapa	Gradual decline	Weeds, vegetation succession	Wet coastal banks and rock outcrops	Fern	Record	Low
<i>Blechnum</i>	Kiokio	Not threatened	Wairarapa	Sparse	Weeds, habitat clearance	Calcareous substrates	Fern	Record	Low
<i>Botrychium australe</i>	Parsley fern	Sparse (DP, SO)	Wairarapa Poneke	Regionally critical (DP)	Weeds	Disturbed forest habitat	Fern	Record, protect	Medium
<i>Botrychium bifforme</i>	Parsley fern	Not threatened	Poneke Kapiti Wairarapa	Gradual decline (DP)	Weeds	Disturbed forest habitat	Fern	Record	Low

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<i>Brachyscome radicata</i>	Roniu	Not threatened	Poneke Wairarapa	Data deficient	Weeds	Shrubland usually at higher altitudes	Composite herb	Survey and record	Low
<i>Brachyglottis compacta</i>		Range restricted (OL)	Wairarapa	Range restricted (ST)	Collectors, fire, weeds	Limestone cliff (Castlepoint local endemic)	Dicot shrub	Monitor (3 yearly)	Low
<i>Brachyglottis kirkii</i> var. <i>kirkii</i>	Kirk's daisy, kohurangi	Serious decline (CD)	Wairarapa Poneke Kapiti	Regionally critical (DP)	Possums, forest clearance, fire	Forest (now usually an epiphytic plant owing to browse)	Dicot shrub	Record, protect	Medium
<i>Brachyglottis lagopus</i>		Not threatened	Poneke Wairarapa	Serious decline (DP)	Fire, goats, collectors	Wet scrubland, rocky outcrops on south coast	Composite herb	Record	Low
<i>Brachyglottis pentacopa</i>		Range restricted (OL)	Wairarapa	Range restricted	Collectors, fire	Coastal forest (local endemic Mt Percy)	Dicot shrub	Monitor (4 yearly)	Low
<i>Brachyglottis sciadophila</i>		Gradual decline	Wairarapa	Regionally critical (RF)	Stock, clearance of lowland forest remnants	Lowland forest	Dicot herb	Record, protect	Medium
<i>Calochilus paludosus</i>		Sparse (EF)	Poneke Wairarapa	Extinct in wild	Collectors	Wetland	Orchid	Record if found	Low
<i>Carex appressa</i>	Tussock sedge	Not threatened	Wairarapa	Extinct in wild	Weeds, wetland drainage	Coastal wetland	Sedge	Record if found	Low
<i>Carex buchananii</i>	Buchanan's sedge	Not threatened	Wairarapa Poneke	Regionally critical	Weeds, stock	Lake margins	Sedge	Record, propagate	Medium

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<i>Carex cirrhosa</i>		Gradual decline (HL, DP)	Wairarapa	Extinct in wild (?DP)	Weeds, stock, habitat modification	Lake margins	Sedge	Record if found	Low
<i>Carex diandra</i>		Not threatened		Data deficient	Wetland drainage	Bogland	Sedge	Survey and record	Low
<i>Carex dipsacea</i>		Not threatened	Poneke Kapiti Wairarapa	Sparse (DP)	Weeds, habitat clearance	Wetland usually on slightly higher ground	Sedge	Record	Low
<i>Carex flaviformis</i>	Yellow sedge	Not threatened		Extinct in wild (DP)	Weeds, wetland development	Wetlands	Sedge	Record if found	Low
<i>Carex litorosa</i>	Sea sedge	Serious decline (DP, HD)	Kapiti Poneke	Regionally critical (OL)	Weed spread	Salt marsh and estuaries	Sedge	Protect, monitor, propagate	High
<i>Carex resectans</i>	Desert sedge	Not threatened		Regionally critical (DP)	Weeds, wetland development	Grasslands and lake margins	Sedge	Record	Medium
<i>Carex spirostris</i>		Not threatened		Data deficient	Weeds, habitat clearance	Coastal forest	Sedge	Survey and record	Low
<i>Celmisia</i> aff. <i>hieracifolia</i>		Not threatened		Range restricted	Weeds, habitat clearance	Montane - sub-alpine grassland	Composite herb	Monitor (5 yearly)	Low
<i>Celmisia spectabilis</i> subsp. <i>lancoolata</i>	Cotton daisy	Range restricted	Wairarapa	Range restricted	Weeds	Rocky outcrops at altitude e.g. taipos	Composite herb	Monitor (5 yearly)	Low
<i>Centipeda aotearana</i>	New Zealand sneezeweed	Data deficient	Kapiti Wairarapa	Data deficient	Weeds, stock trampling	Ephemeral wetlands	Composite herb	Survey and record	High

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<i>Centipeda minima</i> subsp. <i>minima</i>	Sneezeweed	Nationally critical (SO, EF)	Kapiti Poneke	Data deficient	Weeds	Wetland	Composite herb	Survey and record	High
<i>Cheilanthes distans</i>	Woolly cloak fern	Not threatened	Poneke Kapiti Wairarapa	Sparse	Coastal development, stock browse	Coastal cliffs and hot dry inland cliffs	Fern	Record	Low
<i>Chiloglottis trapeziformis</i>		Vagrant	Kapiti	Vagrant	Collectors, plantation forestry	Recorded in exotic pine forest	Orchid	Monitor, propagate	Low
<i>Chionochloa beddiei</i>	Beddie's tussock	Range restricted	Wairarapa Poneke	Range restricted	Weeds, habitat clearance	Coastal cliffs and rocky shores	Grass	Monitor (5 yearly)	Low
<i>Clematis afoliata</i>	Leafless clematis	Not threatened	Poneke Kapiti Wairarapa	Gradual decline (RF)	Weeds, stock browse, goats, habitat development, fire	Coastal shrublands and inland dry hillsides	Dicot liane	Record,	Low
<i>Clematis</i>		Not threatened	Wairarapa	Regionally critical	Fire, forest clearance	Lowland shrublands and forest	Dicot liane	Record, protect	Medium
<i>Convolvulus verecundus</i> subsp. <i>waitaha</i>	Tussock bindweed	Not threatened	Wairarapa	Range restricted	Coastal development, weeds	Coastal	Dicot herb	Monitor (6 yearly)	Low
<i>Coprosma acerosa</i>	Sand coprosma, tatarakeke	Not threatened	Poneke Kapiti Wairarapa	Gradual decline	Weeds, coastal development, motorised vehicles	Coastal dunes	Dicot shrub	Protect, translocate, Propagate	Low
<i>Coprosma obconica</i> subsp. <i>obconica</i>		Gradual decline	Wairarapa	Regionally critical (OL)	Fire, forest clearance	Lowland forest	Dicot shrub	Protect habitat, propagate and translocate	Medium

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<i>Coprosma pedicellata</i>		Gradual decline (CD)	Wairarapa	Regionally critical	Fire, forest clearance	Lowland swamp forest	Dicot shrub	Protect habitat, propagate and translocate	Medium
<i>Coprosma virescens</i>		Not threatened	Wairarapa Poneke	Regionally vulnerable	Fire, forest clearance	Lowland forest and shrubland	Dicot shrub	Protect, propagate	Medium
<i>Coprosma wallii</i>		Gradual decline (RF, CD)	Wairarapa	Regionally critical	Fire, forest clearance	Lowland forest	Dicot shrub	Protect habitat, propagate and translocate	High
<i>Coriaria</i> (a) (CHR 4697/45; Rimutaka)		Sparse	Wairarapa Poneke	Sparse (DP)	Weeds, coastal development, hybridisation	Riverbed at Palliser	Dicot shrub	Record, Protect	Low
<i>Corokia cotoneaster</i>	Korokio	Not threatened	Wairarapa	Sparse	Weeds		Dicot shrub	Record	Low
<i>Corunostylis nuda</i>		Sparse (SO, EF)	Wairarapa Poneke Kapiti	Regionally critical	Weeds, collectors	Infertile clay bank scrub	Orchid	Record when found, protect habitat	Medium
<i>Craspedia minor</i>	Small craspedia	Not threatened	Wairarapa Poneke	Data deficient	Weeds	Seepages	Composite herb	Survey and record	Low
<i>Craspedia uniflora</i> var. <i>maritima</i>		Not threatened	Kapiti Poneke	Regionally vulnerable	Weeds, collectors	Coastal cliffs and rock outcrops	Composite herb	Record	Low
<i>Craspedia viscosa</i>		Not threatened	Wairarapa	Data deficient	Weeds	Limestone outcrops	Composite herb	Survey and record	Low
<i>Crassula bunua</i>		Nationally critical (OL)	Kapiti	Extinct in wild	Weeds, drainage of wetlands	Wetland	Dicot herb	Record if found	Low
<i>Crassula kirkii</i>		Gradual decline (DP)	Poneke	Regionally endangered	Weeds	Coastal rocky shores and estuaries	Dicot herb	Record, protect	Medium

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<i>Crassula mataikona</i>		Data deficient	Wairarapa Poneke	Regionally critical (DP)	Coastal development, weeds	Coastal rocky shores and coastal clay	Dicot herb	Survey, record, protect	High
<i>Crassula moscbata</i>	Shore stonecrop	Not threatened	Poneke Wairarapa	Sparse	Weeds	Coastal rocky shores	Dicot herb	Record	Low
<i>Crassula multicaulis</i>		Sparse (EF)	?	Extinct in wild (EF, DP)	Weeds		Dicot herb	Record if found	Low
<i>Crassula peduncularis</i>		Nationally endangered (EF, SO)	Wairarapa Poneke	Regionally critical (EF, TO)	Weeds, drainage of wetlands	Ephemeral wetland turfs	Dicot herb	Monitor (yearly), protect	High
<i>Crassula ruamabanga</i>		Sparse	Wairarapa Poneke	Regionally critical (DP)	Weeds, trampling	Coastal forest and wetland around tree bases	Dicot herb	Monitor, protect	Medium
<i>Cyathea cunninghamii</i>	Gully tree fern	Not threatened	Kapiti Poneke Wairarapa	Sparse (DP)	Fire, forest clearance	Sheltered gullies in forest	Fern	Record	Low
<i>Dactylanthus taylorii</i>	Wood rose, Pua o te Reinga	Serious decline (CD, RF)	Wairarapa Poneke	Regionally critical	Collectors, possums, fire	Forest	Dicot herb	Monitor, protect	High
<i>Daucus glochidiatius</i>	New Zealand carrot	Serious decline (DP, SO)	Wairarapa Poneke	Regionally critical (DP)	Weeds		Dicot herb	Survey, record	High
<i>Deparia petersenii</i> ssp. <i>congrua</i>		Not threatened	Kapiti Wairarapa	Coloniser	None	Lowland forest	Fern	Record when found	Low
<i>Descampsia cespitosa</i>	Tufted hair grass	Gradual decline (SO, HI)	Kapiti Poneke Wairarapa	Extinct in wild	Weeds, forest and wetland clearance	Lowland to sub-alpine damp ground, grassland, wetlands or coastal swamps and lake margins	Grass	Record if found	Low

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<i>Desmoschoenus spiralis</i>	Pingao	Gradual decline (CD, EF)	Wairarapa Poneke Kapiti	Gradual decline	Spread of weeds (marram), rabbit and hare browse, motorised vehicles, trampling	Coastal dunes	Sedge	Protect, monitor, propagate, translocate	Medium
<i>Dichelachne micrantha</i>	Purple plume grass	Not threatened	Wairarapa	Data deficient	Weeds	Lowland roadsides and banks	Grass	Survey and record	Low
<i>Dichondra</i> "Big Flower"		Not threatened	Wairarapa	Sparse	Weeds, motorised vehicles	Coastal gravels	Dicot herb	Record	Low
<i>Dicksonia lanata</i>	Tuokura	Not threatened	Poneke	Data deficient	Fire	Forest and scrub	Fern	Survey and record	Low
<i>Diplazium australe</i>		Not threatened	Kapiti Poneke Wairarapa	Coloniser	Forest clearance	Disturbed forest and scrub	Fern	Record when found	Low
<i>Discaria toumatou</i>	Matagouri	Not threatened	Poneke Kapiti Wairarapa	Serious decline	Control by landowners, fire	Coastal shrublands and inland forest margins	Dicot shrub	Record, propagate, translocate	Low
<i>Doodia australis</i>	Pukupuku, rasp fern	Not threatened	Poneke Kapiti Wairarapa	Sparse	Weeds, forest clearance	Coastal forest and scrub	Fern	Record	Low
<i>Doodia mollis</i>		Sparse	Wairarapa	Regionally critical (OL)	Forest clearance	Dry scrubland	Fern	Record, protect	Medium
<i>Doodia squarrosa</i>		Gradual decline	Wairarapa Kapiti	Regionally critical	Clearance of bush remnants	Coastal forest	Fern	Record, protect, propagate	Medium

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<i>Drymoanthus flavus</i>		Serious decline	Wairarapa Poneke Kapiti	Regionally critical (DP, HD)	Collectors	Forest (epiphytic)	Orchid	Record, protect	High
<i>Einadia allanii</i>		Not threatened	Poneke Wairarapa	Serious decline	Coastal development, weeds	Coastal scrub and cliff	Dicot herb	Record	Low
<i>Eleocharis neozelandica</i>	Spike sedge	Gradual decline (EF)	Kapiti	Extinct in wild (DP)	Coastal development, weeds	Coastal dunes	Sedge	Record if found	Low
<i>Eleocharis pusilla</i>		Not threatened	Wairarapa	Data deficient	Wetland drainage	Ephemeral wetlands and mud banks around water bodies	Sedge	Record	Low
<i>Elymus multiflorus</i>	Blue wheat grass	Not threatened	Wairarapa	Sparse (DP)	Weeds	Coastal cliffs and rocks, frequently limestone	Grass	Record	Low
<i>Elymus tenuis</i>	Blue wheat grass	Data deficient		Data deficient	Weeds	Open fescue-tussock grassland	Grass	Survey and record	Medium
<i>Entelea arborescens</i>	Whau	Not threatened	Kapiti	Regionally critical (OL)	Fire, forest clearance	Coastal and lowland forest	Dicot tree	Protect, propagate, translocate	Medium
<i>Epilobium pallidiflorum</i>	Swamp willowherb, tarawera	Not threatened	Kapiti Wairarapa	Sparse	Weeds	Swamp	Dicot herb	Record	Low
<i>Epilobium chionanthum</i>		Gradual decline	Wairarapa	Data deficient	Weeds	Swamp	Dicot herb	Survey and record	Low
<i>Epilobium cinereum</i>		Not threatened	Wairarapa	Data deficient	Weeds	Hot dry banks and gravel beds	Dicot herb	Survey and record	Low

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<i>Eptilobium hirtigerum</i>		Data deficient (SO)	Kapiti Wairarapa Poneke	Extinct in wild (SO)	Weeds	Open ground	Dicot herb	Record if found	Low
<i>Eryngium vesiculosum</i>	Sea holly	Gradual decline (SO?)	Wairarapa Poneke	Sparse (DP)	Weeds, motorised vehicles, trampling	Coastal rocky shores	Dicot herb	Record	Low
<i>Euphorbia glauca</i>	New Zealand sea spurge, waiuatua	Serious decline (EF)	Poneke Kapiti	Regionally critical	Weeds	Coastal rocky shores	Dicot herb	Monitor, protect,	High
<i>Euphrasia "Mt Holdsworth"</i>	Eyebright	Not threatened	Wairarapa	Range restricted	Trampling	?	Dicot herb	Monitor (3 yearly)	Low
<i>Euphrasia drucei</i>	Eyebright	Range restricted	Wairarapa Kapiti	Range restricted (DP)	Trampling, collectors	Sub-alpine tussock, boggy areas	Dicot herb	Monitor (3 yearly)	Low
<i>Gabnia rigida</i>	Gahnia, mapere	Not threatened	Poneke	Regionally critical	Wetland drainage, fire	Wetland	Sedge	Protect, propagate, translocate	Medium
<i>Galium trilobum</i>		Data deficient	Wairarapa	Data deficient	Weeds	Wetland	Dicot herb	Survey and record	High
<i>Geranium solanderi</i> "large petals"		Not threatened	Wairarapa	Sparse (DP)	Weeds	Hot dry grassland	Dicot herb	Monitor (5 yearly)	Low
<i>Glossostigma cleistanthum</i>		Not threatened	Poneke Wairarapa	Data deficient	Weeds	Lake and river margins submerged	Dicot herb	Survey and record	Low
<i>Gonocarpus incanus</i>	Piripiri	Not threatened	Poneke Wairarapa	Sparse	Weeds	Scrub and poor ground	Dicot herb	Record	Low
<i>Grammitis pseudociliata</i>	Strap fern	Not threatened		Data deficient	Wind-throw	High altitude forest	Fern	Survey and record	Low

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<i>Gratiola nana</i>		Gradual decline	Wairarapa	Regionally critical (DP)	Wetland drainage, weeds	Lowland forest (one location)	Dicot herb	Record	Medium
<i>Gunnera arenaria</i>		Gradual decline	Kapiti	Data deficient	Coastal development, weeds	Coastal dunes	Dicot herb	Survey and record	Low
<i>Gunnera prorepens</i>		Not threatened	Wairarapa	Regionally critical	Weeds	Coastal dune hollows, stream banks and on mounds in swamps	Dicot herb	Record	Medium
<i>Hebe elliptica</i> var. <i>crassifolia</i>	Shore hebe	Range restricted	Kapiti	Range restricted	Weeds	Coastal rocky shores	Dicot shrub	Monitor (5 yearly)	Medium
<i>Hebe evenosa</i>	Hebe	Range restricted	Wairarapa	Range restricted	Fire, collection for firewood at huts	Alpine forest and shrublands	Dicot shrub	Monitor (5 yearly)	Medium
<i>Hebe</i> sp. (<i>Veronica salicifolia</i> var. <i>angustissima</i>)		Range restricted	Kapiti	Range restricted (DP)	Fire, landslips	River forest	Dicot shrub	Monitor (5 yearly)	Medium
<i>Hierochloa fusca</i>		Sparse (DP)	Kapiti	Data deficient	Weeds		Grass	Survey and record	Low
<i>Hobertia</i> aff. <i>sextylosa</i> (CHR: Taranua Range)		Gradual decline	Wairarapa Poneke	Data deficient	Fire, browsing	Forest	Dicot tree	Survey and record	Low
<i>Hymenophyllum atrovirens</i>		Sparse	Poneke Kapiti	Regionally critical	Forest disturbance	Wet rocks in forest	Fern	Record	Medium
<i>Hymenophyllum cupressiforme</i>		Not threatened	Wairarapa	Sparse	Forest disturbance	Beech forest on rocks under light shade	Fern	Record	Low

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<i>Hymenophyllum minimum</i>		Not threatened	Poneke	Sparse	Forest disturbance	Forest and open areas	Fern	Record	Low
<i>Hypolepis dicksonioides</i>	Giant hypolepis	Sparse (SO, EF)	Wairarapa Kapiti Poneke	Coloniser	Forest clearance, weeds	Wetlands and forest margins	Fern	Record when found	Low
<i>Hypolepis distans</i>		Not threatened	Poneke Kapiti	Sparse	Weeds	Bases of carices in swampland	Fern	Record	Low
<i>Ileostylus micranthus</i>	Pirita, small-flowered mistletoe	Not threatened	Poneke Kapiti Wairarapa	Gradual decline	Forest clearance, disease, possum browse, loss of seed dispersers	Lowland shrublands and swamp forest	Mistletoe	Record	Low
<i>Isachne globosa</i>	Swamp millet grass	Not threatened	Poneke Wairarapa	Sparse	Weeds, wetland drainage	Eutrophic wetlands	Grass	Record	Low
<i>Isoetes kirkii</i>	Quillwort	Not threatened	Wairarapa	Extinct in wild	Weeds	Around rocks in standing water	Fern ally	Record if found	Low
<i>Isolepis basilaris</i>		Serious decline (CD, EF)	Wairarapa Kapiti	Regionally endangered (DP)	Weeds, coastal development, trampling	Coastal wetlands and dune hollows	Sedge	Monitor, protect	Medium
<i>Isolepis praetextatus</i>		Not threatened		Extinct in wild	Wetland drainage	Coastal	Sedge	Record if found	Low
<i>Juncus holoschoenus</i> var. <i>holoschoenus</i>	Angled fruit rush	Nationally endangered (SO)	Wairarapa	Extinct in wild	Habitat clearance	Wetlands	Rush	Record if found	Low
<i>Juncus prismatocarpus</i>	Angled fruit rush	Not threatened	?	Data deficient	Wetland drainage	Lowland wetlands	Rush	Survey and record	Low

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<i>Juncus pusillus</i>	Dwarf rush	Not threatened	Wairarapa	Data deficient	Weeds	Coastal ephemeral wetlands	Rush	Survey and record	Low
<i>Koribalsella clavata</i>	Dwarf mistletoe, leafless mistletoe	Not threatened	Poneke Wairarapa	Regionally critical	Fire, scrub clearance	Wetland and coastal shrub (epiphytic)	Mistletoe	Protect	Medium
<i>Koribalsella lindsayi</i>	Dwarf mistletoe, leafless mistletoe	Not threatened	Poneke Kapiti Wairarapa	Sparse	Fire, clearance of bush remnants	Forest and scrub (epiphytic)	Mistletoe	Record	Low
<i>Koribalsella salicornioides</i>	Dwarf mistletoe, leafless mistletoe	Sparse (EF)	Wairarapa Kapiti	Gradual decline (DP)	Clearance of lowland scrub, fire	Lowland kanuka and manuka forest (epiphytic)	Mistletoe	Protect	Medium
<i>Kunzea</i> aff. <i>ericoides</i> (a) (AK 286079; Hokio)	Sand kanuka	Gradual decline	Kapiti	Gradual decline	Fire, land clearance	?	Dicot tree	Protect	Low
<i>Lepidium flexicaule</i>		Nationally vulnerable (SO, CD, EF)	Poneke	Extinct in wild	Weeds, coastal disturbance	Coastal	Dicot herb	Record if found	Low
<i>Lepidium obtusatum</i>		Extinct	Poneke	Extinct in wild	Collectors, weeds, Coastal development	Coastal rocky shores	Dicot herb	Record if found	Low
<i>Lepidium oleraceum</i>	Cook's scurvy grass, nau	Nationally endangered (EF, CD, HI)	Kapiti	Regionally critical	Weeds, loss of seals and sea birds, Albugo fungus, collectors	Coastal rocky shores	Dicot herb	Protect, monitor, propagate, translocate	High

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<i>Leptidium tenuicaule</i>	Shore cress	Gradual decline	Kapiti	Extinct in wild (DP)	Weeds, coastal disturbance	Coastal	Dicot herb	Record if found	Low
<i>Leptilaena bilocularis</i>		Data deficient	Wairarapa	Data deficient	Weeds, wetland drainage	Brackish streams	Monocot herb	Survey and record	High
<i>Leptinella dioica</i> subsp. <i>monoica</i>	Shore cotula	Gradual decline	Kapiti Poneke	Gradual decline	Weeds	Estuaries	Composite herb	Record	Low
<i>Leptinella dispersa</i> subsp. <i>dispersa</i>		Sparse	Wairarapa	Sparse (DP)	Weeds, wetland drainage	Wetlands	Composite herb	Record	Low
<i>Leptinella nana</i>	Pygmy button daisy	Nationally endangered (EF, CD)	Kapiti	Regionally critical	Weeds, trampling	Coastal rocky cliffs and gully	Composite herb	Monitor, protect, propagate, translocate	High
<i>Leptinella pusilla</i>		Not threatened	Poneke Wairarapa	Regionally critical	Weeds	Rocky coastal areas	Composite herb	Record, monitor	Medium
<i>Leptinella tenella</i>		Sparse (DP)	Kapiti Poneke Wairarapa	Sparse	Weeds, wetland drainage	Streams and swamps	Composite herb	Record	Low
<i>Libertia edgariae</i>		Range restricted	Poneke Wairarapa	Range restricted (DP)	Collectors, forest clearance	Coastal forest	Monocot herb	Monitor (5 yearly)	Medium
<i>Libertia peregrinans</i>		Gradual decline (CD, HD)	Kapiti Poneke	Regionally critical	Weeds, coastal disturbance	Coastal dunes	Monocot herb	Propagate, translocate	Medium
<i>Lindsaea linearis</i>		Not threatened	Poneke Wairarapa	Gradual decline	Weeds	Poor ground under kanuka	Fern	Record	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Linum monogynum</i> var. <i>chathamicum</i> Cockayne (CHR 417633)	New Zealand true flax, rauhuia	Nationally critical (CD, EF)	Poneke	Regionally critical (DP)	Weeds, collectors	Coastal rocky shores	Dicot herb	Survey, record, protect	High
<i>Lycopodiella cernua</i>		Not threatened	Poneke Wairarapa	Data deficient	Fire	Coastal scrub	Lycopod	Survey and record	Low
<i>Lycopodiella lateralis</i>		Not threatened	Poneke Wairarapa	Data deficient	Fire	Boggy upland areas	Lycopod	Survey and record	Low
<i>Mazus novaezeelandiae</i> subsp. <i>impollitus</i> f. <i>impollitus</i>	Dwarf musk	Serious decline (CD, HI)	Kapiti	Regionally critical	Weeds, coastal development	Coastal dunes	Dicot herb	Monitor, protect	High
<i>Mazus novaezeelandiae</i> subsp. <i>novaezeelandiae</i>	Dwarf musk	Serious decline (CD, HI)	Wairarapa Poneke Kapiti	Regionally endangered	Stock, weeds	Wetland seepages in forest	Dicot herb	Monitor, protect	High
<i>Mazus radicans</i>		Not threatened		Data deficient	Wetland drainage	Wetlands	Dicot herb	Survey and record	Low
<i>Meliclytus</i> aff. <i>alpinus</i> (a) (AK 230926 ; Wairarapa)		Nationally critical (RF, OL)	Wairarapa	Regionally critical	Fire	Scrub	Dicot shrub	Monitor	Low
<i>Meliclytus</i> aff. <i>obovatus</i> (AK 229988; Cook Strait)		Not threatened	Poneke Kapiti Wairarapa	Regionally critical	Roadside management, weeds	Coastal shrublands	Dicot shrub	Protect, propagate, translocate	Medium
<i>Meliclytus crassifolius</i> s.s.	Thick-leaved mahoe	Sparse (DP)	Wairarapa Poneke Kapiti	Gradual decline	Stock, weeds	Coastal shrublands	Dicot shrub	Protect, propagate, translocate	Medium

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Mentha cunninghamii</i>	New Zealand mint, hīoi	Not threatened	Poneke	Sparse (DP)	Weeds	Open places and grasslands	Dicot herb	Record	Low
<i>Microtis oligantha</i>	Small onion orchid	Not threatened	Poneke	Regionally critical (DP, OL)	Weeds, collectors	Wet short grassland usually at altitude	Orchid	Record	Medium
<i>Mida salicifolia</i>	Willow-leaved maire	Gradual decline (RF)	Wairarapa Poneke Kapiti	Regionally	Fire, possums	Forest	Dicot tree	Record, protect	Medium
<i>Minutulus repens</i>	Maori musk	Sparse (DP, SO)	Wairarapa Poneke Kapiti	Regionally endangered	Coastal development, weeds	Coastal saltmarsh and estuary	Dicot herb	Record, monitor, protect	Medium
<i>Morelotia affinis</i>		Not threatened	Poneke Wairarapa	Sparse	Weeds	Scrub and dry open banks	Sedge	Record	Low
<i>Muehlenbeckia astonii</i>	Shrubby tororaro	Nationally vulnerable (RF, GD)	Wairarapa Poneke	Regionally critical	Coastal development, fire, weeds, hybridisation	Coastal and inland shrublands	Dicot shrub	Protect, monitor, propagate, translocate	High
<i>Muehlenbeckia epbedroides</i>	Leafless muehlenbeckia	Sparse	Wairarapa Poneke	Regionally critical	Motorised vehicles, trampling, weeds	Coastal rocky platforms	Dicot herb	Protect, monitor	Medium
<i>Myosotis australis</i> var. <i>lytteltonensis</i>		Nationally critical (EF, HI, GD)	Poneke	Extinct in wild	Coastal development	Coastal cliffs	Dicot herb	Record if found	Low
<i>Myosotis pygmaea</i> var. <i>minutiflora</i>		Nationally vulnerable (EF)	Wairarapa	Range restricted	Weeds, collectors, coastal development	Coastal rocky shores	Dicot herb	Monitor (3 yearly)	High
<i>Myosotis spathulata</i>		Not threatened	Wairarapa	Data deficient	Weeds	Wet ground in forest	Dicot herb	Survey and record	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i>	Mousetail	Nationally endangered (HL, EF)	Wairarapa	Extinct in wild	Coastal development	Ephemeral wetlands	Dicot herb	Record if found	High
<i>Myriophyllum robustum</i>	Stout water milfoil	Gradual decline (CD)	Poneke	Extinct in wild	Wetland drainage, aquatic weeds	Coastal dune wetlands	Dicot herb	Record if found	Low
<i>Myriophyllum tootschii</i>	Small water milfoil	Not threatened	Wairarapa	Data deficient		Coastal dune wetlands, oioi bases around lakes	Dicot herb	Survey and record	Low
<i>Nematoceras</i> aff. <i>rivularis</i> (CHR 518025; Kaimai)		Data deficient	?	Data deficient	Collectors	?	Orchid	Survey and record	High
<i>Nematoceras</i> aff. <i>rivularis</i> (CHR 518313; "whiskers")		Data deficient	?	Data deficient	Collectors	?	Orchid	Survey and record	High
<i>Nematoceras</i> aff. <i>rivularis</i> (CHR 534752; "rest area")		Data deficient	Poneke	Regionally critical (DP)	Collectors	Wet banks	Orchid	Record, protect	High
<i>Nematoceras</i> aff. <i>trilobus</i> (CHR 534742; Trotters)		Data deficient	Wairarapa	Data deficient	Collectors	?	Orchid	Survey and record	High
<i>Nematoceras</i> aff. <i>trilobus</i> (CHR 537604; Rimutaka)		Data deficient	Poneke Wairarapa	Data deficient	Collectors	?	Orchid	Survey and record	High

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Nematoceras orbiculatus</i>		Not threatened	Wairarapa	Data deficient	Collectors, cattle trampling, swamp drainage	Wetland	Orchid	Survey and record	Low
<i>Nertera scapanioides</i>		Not threatened	Poneke Wairarapa	Data deficient	Weeds, wetland development	Wetlands	Dicot herb	Survey and record	Low
<i>Olearia lacunosa</i>		Not threatened	Wairarapa Kapiti	Range restricted	Fire, cutting for firewood	High altitude forest and scrub	Dicot shrub	Monitor (5 yearly)	Low
<i>Olearia cheesmanii</i>	Streamside tree daisy	Gradual decline (DP)	Wairarapa Kapiti	Regionally critical (DP)	Fire	Stream sides and forest margins	Dicot shrub	Record, protect	Medium
<i>Olearia gardneri</i>		Nationally critical (CD, RF)	Wairarapa	Regionally critical	Fire, slips, development of lowland forest remnants	Lowland forest	Dicot tree	Monitor, propagate, translocate	High
<i>Ophtoglossum petiolatum</i>	Stalked adder's tongue	Nationally endangered (CD, HI, SO)	Kapiti	Extinct in wild	Wetland drainage	Wetlands	Fern	Record if found	High
<i>Pellaea caldirupium</i>	Cliff brake	Not threatened	Poneke Wairarapa	Sparse	Weeds	Rocky cliffs and bluffs	Fern	Record	Low
<i>Peraxilla colensoi</i>	Scarlet mistletoe, piritā	Gradual decline (CD)	Kapiti Wairarapa	Regionally critical (DP)	Possums, loss of pollinators and seed dispersers, forestry	Beech forest (epiphytic)	Mistletoe	Monitor, protect	Medium
<i>Peraxilla tetrapetala</i>	Red mistletoe, pīrirangi	Gradual decline (HI, CD)	Wairarapa Poneke	Regionally critical (DP)	Possums, loss of pollinators and seed dispersers, forestry	Beech forest (epiphytic)	Mistletoe	Monitor, protect	Medium

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Ptilularia novaezelandiae</i>	Pillwort	Not threatened	Wairarapa	Regionally critical (OL)	Wetland drainage	Wetlands	Fern	Monitor, protect	Medium
<i>Pimelea</i> aff. <i>arenaria</i> (AK 216133; Southern New Zealand)	Sand daphne	Serious decline (DP, RF)	Wairarapa Poneke Kapiti	Regionally vulnerable	Weeds, coastal development	Coastal dunes	Dicot shrub	Protect, monitor	Medium
<i>Pimelea</i> aff. <i>aridula</i> (b) (AK 230900; Cook Strait)		Nationally vulnerable (OL)	Poneke	Regionally critical	Weeds, fire,	Coastal cliffs	Dicot shrub	Protect, monitor, translocate	High
<i>Pimelea gnidia</i>		Not threatened	Poneke Wairarapa	Data deficient	Weeds, forest clearance	Exposed ridge tops	Dicot shrub	Survey and record	Record
<i>Pimelea tomentosa</i> sens. str.		Serious decline (EF)	Wairarapa Kapiti	Regionally critical	Forest clearance, collectors	Dry shrubland	Dicot shrub	Protect, propagate, translocate	Medium
<i>Pittosporum cornifolium</i>	Perching kohukohu	Not threatened	Poneke Kapiti Wairarapa	Sparse (DP)	Forest clearance, possums	Forest, usually epiphytic, out of reach of possums	Dicot shrub	Record	Low
<i>Pittosporum divaricatum</i>		Not threatened	Poneke Wairarapa	Sparse	Fire	Beech forest	Dicot shrub	Record	Low
<i>Pittosporum obcordatum</i>	Heart-leaved kohuhu	Nationally endangered (CD, RF)	Wairarapa	Regionally critical	Fire, clearance of lowland forest remnants	Open terraces in lowland forest that are cold and wet in winter with poor drainage	Dicot tree	Protect, propagate, translocate	High
<i>Plagianthus divaricatus</i>	Salt-marsh ribbonwood, maakaka	Not threatened	Poneke Kapiti Wairarapa	Sparse	Coastal and estuarine development	Coastal rocky shores and estuaries	Dicot shrub	Record	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Pleurosorus rutifolius</i>	Blanket fern	Sparse (SO)	Wairarapa Poneke	Regionally critical	Weeds, fire	Coastal cliffs	Fern	Survey, record, protect	Medium
<i>Phumatochilus tasmanica</i>		Serious decline (EF, SO)	Wairarapa	Regionally critical (OL)	Vegetation succession, collectors	Clay banks in forest and scrub	Orchid	Monitor, protect	High
<i>Potamogeton ochreatus</i>	Blunt pondweed	Not threatened	Wairarapa	Sparse	Wetland drainage		Monocot herb	Record	Low
<i>Potamogeton pectinatus</i>	Fennel-leaved pondweed	Gradual decline	Wairarapa	Sparse (DP)	Wetland drainage	Standing water, coastal wetlands	Monocot herb	Record	Low
<i>Potentilla anserinoides</i>	Silverweed, koohai	Not threatened	Poneke Kapiti Wairarapa	Sparse	Coastal wetland drainage	Coastal dune slacks and wetlands	Dicot herb	Record	Low
<i>Pratia perpusilla</i>		Not threatened	Wairarapa Kapiti	Regionally endangered	Wetland development	Ephemeral wetlands and lake margins	Dicot herb	Record	Medium
<i>Pseudopanax ferox</i>	Fierce lancewood	Sparse (RF, CD)	Wairarapa	Regionally critical (ST)	Fire	Coastal forest	Dicot tree	Monitor, propagate, survey	Medium
<i>Pteris saxatilis sensu</i>		Not threatened	?	Data deficient	Weeds	Coastal	Fern	Survey and record	Low
<i>Pterostylis auriculata</i>	Greenhood	Data deficient	Kapiti	Regionally critical	Habitat clearance, weeds	Coastal forest	Orchid	Survey, record, monitor	High
<i>Pterostylis cardiostigma</i>	Greenhood	Not threatened	Poneke Wairarapa	Sparse	Fire	Well-lit forest	Orchid	Record	Low
<i>Pterostylis foliata</i>	Greenhood	Not threatened	Poneke Kapiti Wairarapa	Sparse (DP)	Collectors	Shrub and grassland	Orchid	Record	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Pterostylis micromega</i>	Swamp greenhood	Nationally critical (CD, HD)	Wairarapa Poneke	Regionally critical	Wetland drainage, trampling, collectors	Wetland or swamp	Orchid	Monitor, protect	High
<i>Pterostylis porrecta</i>	Greenhood	Data deficient	Wairarapa Kapiti	Regionally critical (DP)	Forest clearance	Forest	Orchid	Record	High
<i>Linguella (Pterostylis) puberrula</i>	Greenhood	Nationally critical	Poneke	Extinct in wild	Vegetation succession	Clay banks and scrub	Orchid	Record if found	High
<i>Ranunculus limosella</i>		Gradual decline	Wairarapa	Range restricted	Weeds	Ephemeral wetlands and muddy areas around water bodies with fluctuating water levels	Dicot herb	Monitor (6 yearly)	Low
<i>Ranunculus macropus</i>	Swamp buttercup	Serious decline	Kapiti Wairarapa Poneke	Data deficient	Weeds, wetland development	Wetlands and streams	Dicot herb	Survey and record	Medium
<i>Ranunculus recens</i> var. <i>recens</i>		Gradual decline (CD)	?	Extinct in wild	Weeds	?	Dicot herb	Record if found	Low
<i>Raoulia</i> aff. <i>booberi</i> (AK 239529; "coast")		Gradual decline	Poneke Wairarapa Kapiti	Gradual decline	Weeds, coastal development	Coastal sand spits, raised beaches, compacted coarse sand	Composite herb	Survey	Low
<i>Raoulia rubra</i>		Range restricted	Kapiti Wairarapa	Range restricted	Weeds	Taranui range	Composite herb	Monitor (6 yearly)	Low
<i>Raukawa edgerleyi</i>	Raukawa	Gradual decline (RF)	Poneke Kapiti Wairarapa	Sparse (DP)	Forest clearance	Forest	Dicot tree	Record	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Rhabdолоbannus solandri</i>	New Zealand gloxinia, taurepo	Not threatened	Poneke	Regionally critical (ST)	Fire, collectors	Coastal forest and cliffs	Dicot shrub	Monitor, propagate	Medium
<i>Rorippa palustris</i>	Marsh yellow cress	Not threatened	Kapiti	Data deficient	Wetland drainage	?	Dicot herb	Survey and record	Low
<i>Rubus squarrosus</i>	Leafless lawyer	Not threatened	Poneke Wairarapa	Sparse	Fire	Forest margins, scrub, cliff and coastal shrublands	Dicot liane	Record	Low
<i>Rumex flexuosus</i>	Maori dock	Not threatened	Wairarapa	Data deficient	Weeds	Grasslands, streambanks and wetlands	Dicot herb	Survey and record	Low
<i>Rumex neglectus</i>	Shore dock	Range restricted (HI)	Poneke	Regionally critical (OL, ST)	Collectors, weeds	Coastal rocky shores, gravely sandy beaches	Dicot herb	Protect, propagate, translocate	Medium
<i>Rytidosperma petrosum</i>		Range restricted	Wairarapa Kapiti Poneke	Range restricted	Weeds	Coastal cliffs	Grass	Monitor (5 yearly)	Medium
<i>Rytidosperma merum</i>		Not Threatened	Wairarapa	Range restricted (DP)	Weeds	Dry rocky ground, greywacke bluffs and open grassland	GrassGrass	Only known from Druce collections made from the southern Wairarapa (near Cape Palliser)	Medium
<i>Scandia geniculata</i>		Not threatened	Poneke Kapiti Wairarapa	Serious decline	Goats	Coastal cliffs and gullies	Dicot herb	Protect	Low
<i>Schizaea australis</i>	Southern comb fern	Not threatened		Sparse (DP)	Weeds	Boggy areas	Fern	Record	Low
<i>Schizaea bifida</i>	Forked comb fern	Not threatened	Poneke	Regionally critical (DP)	Weeds	Lowland scrub	Fern	Record	Medium

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Schizaea fistulosa</i>	Comb fern	Not threatened	?	Data deficient	Weeds	Lowland scrub	Fern	Survey and record	Low
<i>Schoenoplectus</i>									
	Wairarapa Poneke	Not threatened	Wairarapa Poneke	Sparse	Weeds, wetland drainage, artificial water treatment/ sewerage pond plantings using <i>S. californicus</i> (de Lange <i>et al.</i> 1998)	Wetlands	Sedge	Record	Low
<i>Schoenus apogon</i>		Not threatened	Wairarapa	Sparse	Weeds	Swamp margins and disturbed areas	Sedge	Record	Low
<i>Schoenus apogon</i> var. <i>caespitosa</i>		Not threatened	Wairarapa	Sparse	Stock	Damp ground	Sedge	Record	Low
<i>Schoenus concinnus</i>		Not threatened	?	Data deficient	Weeds	Coastal and wetland	Sedge	Survey and record	Low
<i>Sebaea ovata</i>		Nationally critical (EF, SO, CD, HD)	Poneke Kapiti	Extinct in wild	Weeds, coastal development	Coastal and lowland swamps	Dicot herb	Record if found. translocate if suitable habitat is found	Low
<i>Selliera rotundifolia</i>		Gradual decline (CD)	Kapiti	Gradual decline	Coastal development, weeds	Coastal and lowland swamps	Dicot herb	Survey	Medium
<i>Senecio ruffiglandulosus</i> var.		Not threatened	Poneke Wairarapa	Data deficient	Stock browse	Damp areas under forest	Composite herb	Survey and record	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Senecio sterquilinus</i>		Range restricted	Poneke	Range restricted	Vegetation succession	Coastal	Composite herb	Monitor (5 yearly)	Low
<i>Simplicia laxa</i>		Nationally endangered (HI, CD)	Wairarapa	Extinct in wild	Weeds, land clearance	Limestone rocky areas	Grass	Record if found	Low
<i>Sonchus kirikii</i>	New Zealand sowthistle, puha	Gradual decline (HI)	Kapiti Poneke	Sparse (DP)	Weeds	?	Composite herb	Record	Low
<i>Sopbora chathamica</i>	Kowhai	Not threatened	Poneke Kapiti	Range restricted	Fire, hybridisation	Coastal cliffs	Dicot tree	Monitor (5 yearly)	Low
<i>Sopbora molloyi</i>	Kowhai	Range restricted (CD)	Kapiti Wairarapa	Regionally vulnerable	Fire, vegetation succession	Coastal cliffs	Dicot shrub	Record, protect, cultivate	Medium
<i>Sparganium subglobosum</i>	Maru, bur-reed	Not threatened	?	Sparse (DP)	Wetland drainage	Wetland	Monocot herb	Record	Low
<i>Spiranthes novae-zelandiae</i>		Not threatened	Kapiti	Regionally critical (OL)	Wetland drainage, land development	Wetland	Orchid	Protect, translocate, propagate	Medium
<i>Stegostyla atradenia</i>		Not threatened	Wairarapa	Data deficient	Collectors	Poor ground under beech forest	Orchid	Survey and record	Low
<i>Strebilus banksii</i>	Large-leaved milk tree, ewekuri	Sparse	Wairarapa Poneke Kapiti	Regionally endangered	Forest clearance, rats	Coastal and inland forest	Dicot tree	Protect, propagate, translocate	Medium
<i>Suaeda novae-zelandiae</i>	Sea blite	Not threatened	Poneke	Regionally critical	Coastal development, weeds	Coastal rocky shores	Orchid	Protect, monitor	Medium
<i>Tetragonia tetragonioides</i>	New Zealand spinach, kookihi	Sparse (EF)	Wairarapa Poneke Kapiti	Sparse	Vehicles, weeds	Coastal rocky shores	Dicot liane	Monitor	Low

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Teucrium parvifolium</i>		Gradual decline (CD)	Wairarapa Poneke Kapiti	Gradual decline	Fire, stock, clearance of lowland forest remnants	Riparian forest	Dicot shrub	Record	Low
<i>Thelymitra aff. ixioides</i> (AK 251348 ; New Zealand)	Sun orchid	Sparse (DP, EF, SO)	Wairarapa Poneke	Regionally critical (DP)	Collectors	Clay banks and wetlands	Orchid	Survey	Medium
<i>Thelymitra formosa</i>	Sun orchid	Sparse (EF, DP)	Wairarapa Poneke	Data deficient	Collectors		Orchid	Survey and record	Low
<i>Tounsonia deflexa</i>		Sparse	Wairarapa Kapiti	Regionally critical (DP)	Collectors	?	Orchid	Record	Medium
<i>Trichomanes colensoi</i>		Sparse (DP)	Poneke Wairarapa Kapiti	Regionally critical	Weeds	Wet shaded and sheltered stream banks	Fern	Record	Medium
<i>Trichomanes elongatum</i>	Bristle fern	Not threatened	Kapiti	Regionally critical (DP)	Weeds	Wet sheltered stream banks	Fern	Record	Medium
<i>Trichomanes strictum</i>	Erect bristle fern	Sparse	Wairarapa Kapiti	Data deficient	Weeds, forest clearance, collectors	High altitude forests and stream sides	Fern	Survey and record	Low
<i>Trisetum antarcticum</i>		Gradual decline (HD)	Poneke Kapiti	Gradual decline (DP)	Weeds	Rocky shores and cliffs	Grass	Record	Low
<i>Tupeia antarctica</i>	White mistletoe, pirinoa	Gradual decline (CD)	Wairarapa Kapiti Poneke	Regionally critical	Fire, cutting of hosts, possums, clearance of lowland forest remnants	Forest (epiphytic)	Mistletoe	Monitor, protect	Medium

SPECIES	COMMON NAME	NATIONAL THREAT STATUS	AREAS IN CONSERVANCY	REGIONAL THREAT STATUS	KEY THREATS	HABITAT	PLANT GROUP	REQUIRED ACTIONS ¹	PRIORITY
<i>Urtica linearifolia</i>	Swamp nettle	Gradual decline (CD)	Wairarapa Kapiti	Regionally endangered	Weeds	Swamp forest and wetland edges	Dicot shrub	Protect, monitor, translocate	Medium
<i>Utricularia protrusa</i>	Bladderwort	Gradual decline	Kapiti	Regionally critical (DP)	Wetland drainage	?	Dicot herb	Survey, protect	Medium
<i>Vittadinia australis</i>	White fuzzweed	Data deficient	Wairarapa Poneke Kapiti	Regionally endangered	Weeds	?	Composite herb	Survey	High
<i>Wahlenbergia pygmaea</i> subsp. <i>tararua</i>	Hairbell	Nationally critical (ST, DP)	Wairarapa Kapiti	Data deficient	Trampling	?	Dicot herb	Survey and record	High
<i>Zanichellia palustris</i>	Horned pondweed	Not threatened	Wairarapa	Data deficient	Wetland drainage	Standing water	Monocot herb	Record	Low

¹ REQUIRED ACTIONS

Survey: Undertake a targeted survey to determine presence, geographical distribution and abundance.

Monitor: Undertake regular surveys to determine trends in population size and abundance, health of individuals plants, phenology and estimates of cover and condition.

Record: Record whenever the opportunity arises.

Translocate: Transfer plant to sites where it was historically known to occur or to new sites in the conservancy following approved transfer guidelines.

Propagate: Manage the species ex-situ in addition to management of wild populations.

Protect: The species requires legal and/or physical protection from threats including co-nenating, purchase and in-situ management such as plant and animal pest control.

Research: Research is required to assist with management of the species.

NATIONALLY THREATENED CRYPTOGAMS IN WELLINGTON CONSERVANCY

Four nationally threatened or uncommon bryophytes and seven nationally threatened or uncommon liverworts (see Table 3) have been recorded in Wellington Conservancy. Work is required on all these species, including survey, to obtain better information on their status in the wild and the threats they face, and research to understand their autecology. This work is a high priority since information about cryptogams in the conservancy is sparse.

TABLE 3. NATIONALLY THREATENED BRYOPHYTES IN WELLINGTON CONSERVANCY

SPECIES NAME	NATIONAL STATUS	QUALIFIERS	SPECIES DESCRIPTION
<i>Cephaloziella notbogena</i>	Data deficient		Liverwort
<i>Didymodon calycinus</i>	Nationally endangered	DP	Bryophyte
<i>Drucella integristipula</i>	Sparse		Liverwort
<i>Fissidens berteroi</i>	Nationally endangered	SO?	Bryophyte
<i>Herzogobryum vermiculare</i>	Nationally critical	SO?	Liverwort
<i>Hypnobartlettia fontana</i>	Range restricted	SO?	Bryophyte
<i>Macromitium angulatum</i>	Nationally critical	SO?, OL	Bryophyte
<i>Pachyschistocbila papillifera</i>	Nationally critical		Liverwort
<i>Pseudophocolea denticulate</i>	Nationally critical		Liverwort
<i>Ptychanthus stephensoniana</i>	Nationally critical		Liverwort
<i>Temnoma angustifolium</i>	Nationally critical		Liverwort

THREATENED PLANT COMMUNITIES

The lack of a national standardised system for classifying plant communities in New Zealand makes it impossible to list threatened plant communities accurately. A list is presented here of plant communities regarded as threatened (Table 4). More accurate information is required on plant communities and their classification to improve the accuracy of their status. The terminology used to describe communities is taken from a variety of sources including:

Nichols, J.L. 1976. A revised classification of the North Island indigenous forests. *New Zealand Journal of Ecology*, 21 (1): 105-132.

Atkinson, I.A.E. 1985. Derivation of vegetation mapping units for an ecological survey of Tongariro National Park, North Island, New Zealand. *New Zealand Journal of Botany* 23: 361-378.

Newsome, P.J.F. 1987. The Vegetative Cover of New Zealand. *National Water and Soil Conservation Authority Miscellaneous Publication* no. 112 153p. Wellington, New Zealand.

The conservation status is proposed without accurate data and without detailed criteria, and will be reviewed and developed as part of the plant conservation programme.

TABLE 4. THREATENED PLANT COMMUNITIES IN WELLINGTON CONSERVANCY

PLANT COMMUNITY		DESCRIPTION OF COMMUNITY	PROPOSED CONSERVATION STATUS	ACTIONS
Coastal dunes	Foredune	Shifting sand environment dominated by pingao and spinifex.	Endangered	Protection of the dune from weed invasion especially marram grass and motorised vehicles
	Consolidated coastal gravel and beach	Plant community growing on consolidated gravels in coastal zone. Supports threatened plants such as <i>Raoulia</i> aff. <i>bookeri</i> (AK 239529), <i>Austrofestuca littoralis</i> , <i>Zoysia minima</i> , <i>Pimelea</i> sp..	Endangered	Protect and control exotic weeds. Prevent damage by humans (trampling and use of motorised vehicles).
	Back dune	<i>Selliera radicans</i> , <i>S. rotundifolia</i> , <i>Carex pumila</i> , <i>Pimelea</i> aff. <i>arenaria</i> , <i>Coprosma acerosa</i> , <i>Discaria toumatou</i> , <i>Ozotbammus leptophyllus</i> , <i>Olearia solandri</i> .	Critical	Legally protect. Control exotic weeds. Prevent damage by humans (trampling and use of motorised vehicles and planting of exotic species).
	Dune slack	Community supporting <i>Typha orientalis</i> , <i>Potentilla anserinoides</i> , <i>Apodasmia (Leptocarpus) similis</i> .	Critical	Legally protect. Control exotic weeds. Prevent damage by humans (trampling and use of motorised vehicles).
	Sand dune forest	Forest dominated by totara and matai but supporting a diverse assemblage of native species including manuka (<i>Leptospermum scoparium</i>), toetoe (<i>Cortaderia toetoe</i>) and the mistletoes <i>Ileostylus micranthus</i> and <i>Korthalsella</i> sp.	Critical	Protect the dune from weed colonisation. Buffer dune forests by additional planting to prevent desiccation of the interior forest. Restore species that are already lost. Monitor changing condition of forest every 3 years.
	Coastal turf	Supports threatened plants such as <i>Muehlenbeckia ephedroides</i> , <i>Atriplex buchananii</i> , <i>Dicbondra</i> 'Big Flower'.	Vulnerable	Establish monitoring regime to detect change such as weed colonisation. Protect community from weed invasion.
Estuarine	Salt marsh	Plant community often dominated by saltmarsh ribbonwood (<i>Plagianthus divaricatus</i>) but also supporting rare plants such as <i>Leptinella dioica</i> subsp. <i>monoica</i> and <i>Carex litorosa</i> .	Endangered	Restore plant community. Monitor annually.
Alpine	Red tussock	Grassland dominated by <i>Chionochloa rubra</i>	Gradual decline	Inspect every 3 years to detect weed invasion and trampling damage and to monitor long-term succession.
Sub-alpine	Bog	Sphagnum, cushion species	Range restricted	Monitor every 5 years.
Forest	Pink pine	Plant community dominated by <i>Halocarpus biformis</i> .	Range restricted	Inspect every 5 years as part of monitoring programme to detect change in plant community.

PLANT COMMUNITY		DESCRIPTION OF COMMUNITY	PROPOSED CONSERVATION STATUS	ACTIONS
	Tree fuchsia	Forest community dominated by <i>Fuchsia exorticata</i> .	Serious decline	Continue monitoring programme at intervals of 5 years.
	Lowland alluvial podocarp / hardwood swamp forest	Community dominated by kahikatea forest but also <i>Phormium tenax</i> . Supports many threatened plants including <i>Coprosma pedicellata</i> , <i>Mazus novaezeelandiae</i> subsp. <i>novaezeelandiae</i> , <i>Teucrium parvifolium</i> , <i>Gratiolla nana</i> and <i>Pittosporum obcordatum</i> .	Serious decline	Legally protect and undertake restoration work especially for threatened plants. Control weeds such as willow.
Scrub	Grey scrub	A poorly defined plant community often found mainly in coastal areas, often seral, supporting <i>C. propinqua</i> , <i>Coprosma crassifolia</i> , <i>Melicytus crassifolius</i> , <i>Muehlenbeckia complexa</i> , <i>Olearia solandri</i> , <i>Rubus squarrosus</i> , <i>Ozothamnus leptophyllus</i> and <i>Discaria toumatou</i> (<i>matagouri</i>). May also support the threatened species <i>Muehlenbeckia astonii</i> . Not to be confused with <i>Leptospermum</i> scrub (found as secondary vegetation on fertile Wairarapa dry hill country).	Serious decline	Legally and physically protect sites supporting this plant community. Undertake restoration work to re-establish plants that may have already disappeared from this community.
Cliff	Coastal scarp	Supports a wide variety of plants including <i>Sophora molloyi</i> , <i>Arthropodium cirratum</i> , <i>Brachyglottis lagopus</i> , <i>Blechnum blechnoides</i> , and <i>Muehlenbeckia astonii</i> .	Serious decline	Protect remaining sites and undertake restoration of plant community
	Hot rock	Naturally rare plant community in Wellington supporting such plants as the ferns <i>Pellaea calidirupium</i> and <i>Pleurosorus rutifolius</i> .	Range restricted	Regularly inspect sites supporting this plant community as part of a monitoring programme.
	Shingle outwash fan	Supports <i>Coriaria</i> (a) (CHR 469745; Rimutaka)	Range restricted	Regularly inspect sites supporting this plant community as part of a monitoring programme. Seek protection for remaining sites.
Wetlands	Mesotrophic (medium fertility) wetlands	Dominated by <i>Phormium tenax</i> , <i>Juncus</i> sp. and <i>Baumea</i> sp. Standing water usually less than 1m deep.	Endangered	Protect, restore and monitor annually.
	Oligotrophic (low fertility) wetlands	Dominated by Sphagnum, blanket moss and rush-like plants. Little obvious surface water.	Critical	Protect, restore and monitor annually.

PLANT COMMUNITY	DESCRIPTION OF COMMUNITY	PROPOSED CONSERVATION STATUS	ACTIONS
Freshwater lake turf	Supports a wide range of plants including <i>Eleocharis pusilla</i> , <i>Lepilaena bilocularis</i> , <i>Zannicbellia</i> , <i>Ruppia polycarpa</i> , <i>Limosella lineata</i>	Endangered	Prevent incursion and spread of weeds.
Ephemeral wetlands	Often supporting threatened plants such as <i>Crassula peduncularis</i> , <i>Rorippa palustris</i> and <i>Isolepis basilaris</i> .	Critical	Protect plant community from drainage and weed invasion. Monitor annually.

PLANT TAXA ENDEMIC TO WELLINGTON CONSERVANCY

Seven plant taxa are endemic to Wellington Conservancy, meaning they are not found growing in the wild anywhere else in the world (see Table 5). These require regular monitoring to ensure they are not in serious and irreversible decline. In addition, a number of plant species are endemic to the Cook Strait region and are also found in Nelson/Marlborough Conservancy, such as *Chionochloa beddiei* and *Melicytus* aff. *obovatus*. *Brachyglottis pentacopa* (Mount Percy daisy) is also considered endemic but is part of a cline extending north to the East Coast region of New Zealand.

TABLE 5. PLANT SPECIES ENDEMIC TO WELLINGTON CONSERVANCY

LATIN NAME	COMMON NAME	AREA IN WELLINGTON CONSERVANCY
<i>Aciphylla dissecta</i>		Wairarapa
<i>Brachyglottis compacta</i>	Castlepoint daisy	Wairarapa
<i>Euphrasia drucei</i>		Wairarapa Kapiti
<i>Hebe evenosa</i>		Wairarapa
<i>Hoberia</i> aff. <i>sexstylosa</i> (AK 234306; Tararua Range)	Tararua lacebark	Wairarapa Poneke
<i>Myrsine</i> aff. <i>divaricata</i> (CHR 567280; Tararua Range)	Tararua matipo	Poneke Wairarapa
<i>Libertia edgariae</i>		Poneke
<i>Wahlenbergia pygmaea</i> subsp. <i>tararua</i>		Wairarapa

4. Past plant conservation work

Information about the status of the region's rare indigenous plants was first compiled by Wellington Botanical Society (Ogle 1981) and was used to assess the regional conservation status of the flora. In 1993 the status of plant species in Wellington Conservancy was reviewed by A.P. (Tony) Druce and Peter de Lange to provide a list for inclusion in the first edition of this strategy (Empson and Sawyer 1996). In late 2002, a panel of experts was convened to determine the national and regional status of plant species in the region¹. Since the preparation of the first strategy in 1996, significant advances have been made in plant conservation in Wellington Conservancy.

BIOWEB

The most important tool in the development of a plant conservation programme for Wellington was the establishment of a regional native plant database. Information about the distribution, cultivation requirements and ecology of all indigenous plant species was stored on that database. Subsequently that database has been transferred into the national BIOWEB database which holds information about all native plants in New Zealand.

Since 1993, 12,641 records have been made for occurrences of 854 plant species in Wellington Conservancy (Clayson Howell pers. comm.). That accounts for 35% of all native records on the national BIOWEB database. In addition, over 850 vascular plant species checklists have been prepared for areas in Wellington Conservancy (Sawyer 2001).

PLANT ACTION PLANS

Action plans for each threatened plant population were produced as a key part of implementing the plant strategy (see Townsend *et al.* 1998). Ninety-six action plans were prepared for fifty threatened plant species, and these have been implemented as part of the annual plant conservation programme undertaken by the Department of Conservation.

FIELD GUIDE AND PUBLICATIONS

'Plants of Conservation Concern in Wellington Conservancy' (Sawyer *et al.* 1998) was published to raise awareness of the region's threatened plant species. This book provides valuable baseline information about threatened plants in the conservancy.

¹ The expert panel comprised: Patrick Brownsey, Pat Enright, Barbara Mitcalfe, Peter de Lange, Aalbert Rebergen, Dick Gill, Ian Cooksley, Rob Stone, Eric Dorfman and John Sawyer.

Other plant conservation publications have been produced by the Department of Conservation. These include national publications, such as species recovery plans, and those concerned only with Wellington Conservancy (see Appendix 2). All these publications are available from the Department of Conservation's website.

REDISCOVERIES OF THREATENED PLANTS

Historical information (from old reports and herbaria) about threatened plant distributions has been used effectively to direct field surveys leading to re-discoveries of species not recorded at certain sites for many years. Some examples of species populations re-discovered include *Pterostylis micromega* at Lake Wairarapa, *Pittosporum obcordatum* beside the Ruamahanga River and at Ahi Paku, many populations of *Peraxilla tetrapetala* in Tararua Forest Park and the Hutt Valley, *Euphorbia glauca* and *Lepidium oleraceum* at the south end of Kapiti Island, *Rumex neglectus* on the south Wellington coast, *Muehlenbeckia astonii* near Martinborough, *Olearia gardneri* in the northern Wairarapa and numerous new populations of *Urtica linearifolia*.

In addition, several plants have been found as a result of field survey work being carried out for other reasons such as bat research and legal protection work. These species include *Peraxilla colensoi* (in western Tararua Forest Park), *Dactylanthus taylori* in northern Wairarapa, and numerous populations of *Coprosma pedecillata* and *Tupeia antarctica* throughout Wairarapa.

NEW RECORDS FOR WELLINGTON CONSERVANCY

A number of species have been recorded for the first time in the past six years. They have been found by members of Wellington Botanical Society and Conservation Corps, private individuals and Department of Conservation staff. Plant species found include *Pimelea tomentosa* (found by Wellington Botanical Society), *Korthalsella clavata* (Conservation Corps), *Doodia mollis* (Pat Enright), *Coprosma obconica* (Tony Silbery), *Clematis quadribracliolata* (Andrew Townsend) and *Brachyglottis sciadophila* (Andrew Townsend and Pat Enright).

CAPTIVE BREEDING AND TRAFFIC ISLANDS

While offshore islands offer a more traditional option for native plant conservation in New Zealand, urban landscapes including traffic islands and road reservations are now being used in the Wellington region as an integral part of plant species recovery. Captive breeding of threatened plant populations is now done at several sites in the region. For example, traffic islands and urban reservations are used for six species including *Euphorbia glauca*, *Pimelea* aff. *aridula* and *Muehlenbeckia astonii*. In addition, ex-situ populations of threatened plants have been established outside Departmental offices. For example, *Olearia gardneri* and *Pittosporum obcordatum* at Wairarapa Area Office. Many of these are now producing seed for use in species recovery work.

Captive breeding populations of threatened plants have also been established at other sites including Nga Manu Nature Reserve, where species such as *Spiranthes novaezeelandiae*, *Arthropodium cirratum*, *Euphorbia glauca* and *Streblus banksii* are grown. A greater number of threatened plants have been brought into cultivation for use in species recovery work. They include: *Muehlenbeckia ephedroides*, *Austrofestuca littoralis*, *Clematis afoliata*, *Rubus squarrosus* and *Pimelea arenaria*.

TRANSLOCATIONS

Seventeen threatened plant translocations were completed in Wellington Conservancy between 1987 and 1999 (see Coombs and Dopson, no date). Since then more translocations have been undertaken such as *Ileostylus micranthus*, *Rumex neglectus* and *Euphorbia glauca* to Matiu/Somes Island, *Muehlenbeckia astonii* to Castlepoint Scenic Reserve and Cape Palliser, *Gabnia rigida* to Mana Island. Monitoring of the success of these restoration projects will be required.

PLANT CONSERVATION NETWORK

Wellington Plant Conservation Network has been in existence since 1993 and was the first regional plant network in New Zealand. Membership includes local territorial authorities, the Department of Conservation, Wellington Botanic Gardens, members of Wellington Botanical Society and Forest and Bird, and local plant nurseries. A directory of members was published in 1999 (Department of Conservation 1999).

RESEARCH ON THREATENED PLANTS

Although most recent threatened plant research in Wellington Conservancy has been of a taxonomic nature, the resulting publications have a strong conservation focus, providing good guidelines for further research into management issues, e.g., the *Mazus novaezeelandiae* complex (Heenan 1998), *Coprosma pedicellata* (Molloy *et al.* 1999), *Sophora* spp. (Heenan *et al.* 2001). In addition to these publications, recent investigations have also examined the effectiveness of plant translocation (e.g., Norton 2001), or confirmed the indigenous status of trans-Tasman species, e.g., grey salt bush (*Atriplex cinerea*) on the basis of biogeography (de Lange *et al.* 1998).

IMPROVING PLANT STATUS

The goal of threatened plant conservation must ultimately be that species are secure enough that they are removed from threatened species lists, or at least that their status is improved. A difficulty making this assessment is that new listing systems have replaced old ones, and they use different criteria and different terminology. In Wellington Conservancy, the most common reason for a species to be removed from

a list is as a result of more individuals or populations of that plant being discovered. One species for which this is true is *Ileostylus micranthus* (the small-flowered mistletoe) which was listed as Declining but is now not nationally threatened.

In other cases the threatened status is being downgraded because of conservation management work. For example, *Dactyloctenium aegyptium* (wood rose) is now listed as Serious Decline (previously listed as Endangered by the World Conservation Union - IUCN) as techniques have improved for the protection of this species.

5. The Department's legal functions

Indigenous plants are not legally protected to the same extent that native fauna is protected under the Wildlife Act 1953. The Native Plant Protection Act 1934 once provided protection for indigenous plants but now plants are only protected where they are found on land administered by the Department of Conservation (in national parks, reserves and conservation areas), or on private land where covenants or Nga Whenua Rahui kawenata have been negotiated to protect them.

NATIVE PLANTS PROTECTION ACT 1934

Under this piece of legislation "every person commits an offence who takes any protected native plant that is growing on any Crown Land, or in any State Forest or public reserve, or on any road or street, or who, without consent of the owner or occupier of any private land, takes any protected native plant that is growing thereon"

Some plants were made exempt from this Act because they were serious weeds. Furthermore, some plants, for example those "*handgrown by man for ornamentation in a suburban borough*", are not native for the purposes of the Act. The Act, therefore, has some significant limitations.

RESERVES ACT 1977

The Reserves Act 1977 provides protection and management responsibilities for plants on reserves, for example:

Section 20(1) ...in relation to reserves classified as nature reserves, for the purpose of protecting and preserving in perpetuity indigenous flora or fauna or natural features that are of such rarity, scientific interest or importance, or so unique that their protection and preservation are in the public interest.(2) (d) Where ...biological, ...or other scientific features are present on the reserve, those features shall be managed and protected to the extent compatible with the principal or

primary purpose of the reserve: Similar provisions exist under Sections 17, 18, 19, 21 and 22 for Recreation, Historic, Scenic, Scientific, and Government Purpose reserves. Section 49 provides for the authorisation of the taking of specimens from a reserve for scientific or educational purposes;

Section 51 provides for the authorisation of the introduction of flora and fauna

(1) For the purpose of (a) restoring ecological communities in any Historic, Scenic, Nature, or Scientific Reserve; or (b) promoting the survival of any indigenous species of flora or fauna in any Nature or Scientific Reserve;

Sections 76 and 77 provides for the protection of private land by covenant agreement;

Section 94 sets out the offences under the Reserves Act and these include every person who, without authority:

Section 94(1)(d) Plants any tree, shrub, or plant of any kind, or sows or scatters the seed of any tree, shrub, or plant of any kind, or introduces any substance injurious to plant life, on any reserve; or.. (f) Removes or wilfully damages any, or any part of any wood, tree, shrub, fern, plant, ...on any reserve;

Authority has been delegated to the Conservator to issue permits under the Conservation Act 1987 and Reserves Act 1977 pursuant to the sections described above.

CONSERVATION ACT 1987

The Conservation Act 1987 and its associated statutes give the Department the responsibility for preserving and protecting all land and natural resources under its control for the purpose of maintaining the intrinsic values of these areas and resources for the present and future generations. Section 4 of the Conservation Act requires the Department to interpret and administer the Act so as to give effect to the principles of the Treaty of Waitangi. The Department therefore should involve the tangata whenua in conservation decisions regarding the management of plants, and Appendix 5 proposes some guidelines for management of such plants.

Section 17F requires the department to prepare Conservation Management Strategies (CMS), to provide direction for all areas and activities administered by the department. Wellington Conservancy has published its strategy with the following mission statement:

To protect and restore the natural and historic resources of the conservancy, for the purposes of preserving their intrinsic values, to provide for public appreciation and recreational enjoyment of them, and to safeguard them for future generations.

Section 27 relates to protection of private or Maori tenured land by covenant agreement or Nga Whenua Rahui kawenata.

Section 30 prohibits the taking of plants on or from conservation areas except in accordance with the Conservation Management Strategy or Conservation Management Plan for that area or with an authorisation from the department.

Section 39 makes it an offence to plant, sow or scatter seed in or on any conservation area without authority (Section 39(1)(d)), and to take any plant on or from a conservation area (Section 39(2)).

TRADE IN ENDANGERED SPECIES ACT 1989

Trade in Endangered Species Act 1989 together with TIES Amendment Act 1991 prohibits export of those species listed in the Appendices of the Convention on International Trade In Endangered Species of Fauna and Flora (CITES) unless they have appropriate permits (e.g., tree ferns and orchids are listed in Appendix II of CITES).

RESOURCE MANAGEMENT ACT 1991

The Resource Management Act provides protection mechanisms for indigenous flora and fauna through the scheduling of sites of ecological significance and through the resource consent process, whereby certain activities are controlled or discretionary. For example, certain activities are regulated in coastal areas, where many of Wellington Conservancy's threatened plants occur.

INTERNATIONAL CONVENTION ON BIODIVERSITY 1992

The International Convention on Biodiversity ratified in September 1993 obliges New Zealand to develop strategies, plans and programmes to promote conservation and the sustainable use of biodiversity. Although the obligations for the Department of Conservation are not spelt out, measures to be taken include:

- identification of important components of biodiversity, particularly those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;
- establishing/maintaining facilities for *ex-situ* conservation of, and research on, plants;
- establishing databases; and
- establishing a system of protected areas

This will take the form of both administrative and legal requirements. Under the Convention priority is given to *in-situ* conservation. *Ex-situ* conservation has an important but subsidiary role.

6. Departmental policy and guidelines

A number of departmental standard operating procedures (SOPs) have been developed that provide guidelines for plant conservation activities (Table 6). Wellington Conservancy also has standard regional systems for recording plant species occurrences and for listing native plants at a site.

TABLE 6. STANDARD PROCEDURES FOR PLANT CONSERVATION

NATIONAL SOPS	NATIONAL DOCUMENT REFERENCE NUMBER
Plant permits (Concessions)	NH 1167
Translocation of New Zealand's Indigenous Terrestrial Flora and Fauna	NH 1042
Guidelines for Preparation and Approval of Species Recovery Plans	NH 1043
Guide Book for the Rapid Ecological Survey of Natural Areas	NH 1339†
Application for permit or certificate to export, re-export, import or introduce specimens of animals or plants or derivatives	NH 1111
Use of Native Tropical and Native Timbers	NH 1085
Forest Act	C 1350
CONSERVANCY STANDARDS	CONSERVANCY REFERENCE
Species record sheet	See www.doc.govt.nz
Listing native plant species at a site	Sawyer 2001

GUIDELINES FOR MANAGEMENT OF THREATENED SPECIES

Translocations of indigenous terrestrial fauna and flora, where transfer is to or from land administered by the Department of Conservation, must follow standard procedures. Transfers of plants within a conservancy require the approval of the Conservator. Procedures for issuing permits to work with protected indigenous flora detail criteria and the format to be used for permits.

Guidelines for the Preparation and Approval of Species Recovery Plans detail the structure, key issues, and approval process to be followed for recovery planning. Recovery plans have been prepared for several threatened plant species in Wellington Conservancy such as *Dactylanthus taylorii* (woodrose), *Lepidium oleraceum* (Cook's scurvy grass) and *Peraxilla tetrapetala* (red mistletoe) (see Appendix 2). In these instances, national guidelines have been prepared for aspects of the work programme such as monitoring.

National guidelines have not been developed for all aspects of conservation work including survey, monitoring and *ex-situ* management. Appendices to this strategy provide preliminary guidelines for these areas of threatened plant species work.

7. *In-situ* management

In-situ habitat protection and management is a priority for all species and communities in this strategy. *In-situ* conservation can be viewed as a four part process: survey (to establish baseline information); habitat protection (legal and physical); monitoring; and recovery actions (such as translocation and restoration). The main objective of *in-situ* management is to ensure that all indigenous plant species and communities continue to exist in the wild, and remain self-sustaining, and requires causes of decline to be determined.

OPTIONS FOR MANAGEMENT

The main options for management of threatened plant populations in the wild include:

- Protection (legal and physical) and maintenance of suitable habitats
- Removal or mitigation of threats to survival of the species in the wild (e.g., weed and animal pest control)
- Enhancement of existing wild populations (e.g., through translocation of appropriately sexed plants)
- Establishment of new wild populations to restore the former geographical distribution of the species or to ensure its survival in safe areas

LEGAL PROTECTION OF LAND

Land status may have a significant bearing on the feasibility of *in-situ* management, since conservation management may conflict with landowner interests. Where plants are located on private land and a plant population is deemed to be at risk of imminent extinction and no agreement can be reached regarding *in-situ* management, then steps must be taken to salvage a representative sample of the population. Wherever possible, populations of threatened plants should be protected *in-situ*. Protection can range from legal protection of land to physical protection of plants (for example, by fencing to exclude stock).

Appropriate protection will depend on the perceived threat, the status of the plant, and landowner interests. It is often not feasible nor desirable to seek reserve status for all unprotected sites where threatened plant species occur, but it is essential that, wherever possible, agreement is reached with the landowner for the appropriate management of the habitat.

CONTROL OF BROWSERS

Most domestic browsers (cattle, sheep, horses, deer, goats, and pigs) can be excluded by fencing. The control of feral animals is more problematic, particularly in large areas of forest. However, fencing a discrete threatened plant population may be the most practical protection measure if feral stock is shown to be having a significant impact on the population, but it may not always be desirable, if for example, it results in competitive rank grass growth. In these instances some grazing may be necessary. Even where fencing is desirable, and accords some protection to the species, active management of the species may still be necessary. Greater use of enclosure plots in threatened plant communities and communities supporting threatened plants may provide valuable information about the ecological processes and any disruption that browsing is having on their structure, composition and function. Plots may also provide protection for populations of plant species vulnerable to browse such as *Raukawa edgerleyi*.

Many species may be threatened owing to browsing pressure from possums, rabbits, hares etc. (e.g., *Dactylanthus taylori* - Department of Conservation 1995). There are several options for control of these animals e.g., metal collars on trees, exclosures, localised ground control (trapping, poison bait stations) and aerial 1080 operations. Methods used will depend on objectives, priorities, feasibility and resources and, unless reinvasion can be prevented, must continue. Rodents are also implicated in habitat modification and as a threat to particular plants (e.g., *Streblus banksii*, large-leaved milk tree). Their effect can be direct (e.g., browsing seeds, seedlings, flowers and other parts of the plant) and indirect through predation upon pollinators (bats, birds, lizards and invertebrates) and fruit distributors (lizards and birds). Control rather than eradication is the more feasible option on the mainland, and the method used (trapping, bait stations, aerial operations) will depend on objectives, priorities and resources.

CONTROL OF COMPETITORS

Many species are affected by pest plants, mostly introduced invasive plants that compete with and/or exclude native species, particularly at the germination/seedling stages of the life cycle. Reducing the susceptibility of habitats may involve minimising human disturbance, particularly in larger areas of habitat rather than smaller residual habitats, since edge effects are generally inversely proportional to size. It may also involve maintaining disturbance to prevent complete replacement of habitats by pest plants or competitors particularly in those areas important for species in early seral habitats (e.g., manuka scrub orchids such as *Pterostylis puberula*). There are several options for pest plant control, depending on the weed species and extent of the problem. These include manual control (cutting, pulling, grubbing) and use of herbicides.

Cultivation of species and planting back seedlings that are large enough to compete with the pest plants is another option provided this complies with translocation guidelines. All threatened plant populations should be monitored to determine actual and potential threat of pest plants, and priorities for pest plant control revised annually. Other competitors may include native species (otherwise not regarded as

“weeds”) that locally out-compete or hybridise with plants threatened in status. For example, *Muehlenbeckia complexa* competes with and hybridises with *M. astonii* (de Lange & Silbery 1993). Actions required will depend on the individual circumstances but may include localised control or removal of the stronger species.

DISEASE MANAGEMENT

Cabbage tree decline was attributed to a virus-like organism spread by a native leaf hopper. Many trees in the Wellington region suffered but some have recovered, showing some resistance or ability to recover (see Simpson 1991). Susceptibility to disease may be reduced by minimising disturbance to habitats and plants, and by ensuring that genetic variation within populations is maintained wherever possible. In the event of any die-back of a threatened species in the wild, the cause should be determined and treatment effected if necessary or appropriate.

VISITOR MANAGEMENT

Environmental impacts are likely with any new development of recreational facilities on land administered by the Department of Conservation. In addition, visitor activity may also impact on the environment, especially native plant life (by trampling, collection or cutting). To minimise and mitigate environmental effects of new infrastructure development in areas that support, or may support, threatened plant species or communities, a standard assessment of environmental effects will be undertaken by Area staff in conjunction with Conservancy Technical Support and Community Relations staff. This process will be used in Wellington Conservancy when any development (including huts, track construction or maintenance or installation of swing bridges) may affect threatened plant habitats. The standard assessment process is called the ‘Visitor Asset Assessment of Environmental Effects’ (DME no. WGNCO-28273) and was developed by the department in 2000 for use when building or replacing huts, but will be applied to all major structures.

Visitor impact monitoring will be developed by Wellington Conservancy and applied at sites supporting threatened plant species and communities (as required) as a fulfilment of the department’s Statement of Intent (Key Step 4: Outcome 2 - ‘Visitor impacts on natural and historic heritage are minimised’).

TRANSLOCATIONS (TO ENHANCE EXISTING POPULATIONS) AND INTRODUCTIONS (TO ESTABLISH NEW POPULATIONS)

Identification of potential habitat, and translocation and introductions to establish new plant populations are complementary to the protection and management of existing wild populations. Application of translocation should not rationalise or facilitate the destruction of existing natural areas (Falk & Olwell 1992) particularly because the long-term success of introduction as a conservation tool (i.e., until a reproducing population is recorded on site) has not been well demonstrated.

National guidelines on translocations and introductions have been prepared by the Department of Conservation (see Department of Conservation 2002). Some additional planting principles are that plant species should be:

- Native to the surrounding district and, where possible, sourced from the immediate vicinity to the planting sites
- Already present in, or known to have once been present in the proposed planting area
- Planted in appropriate habitat areas

In selecting the site several additional factors must be considered:

- The causal factors thought to have resulted in the original extinction should not be operating or should have been mitigated
- Presence or absence of pest plants or animals or other factors that may influence the success of the introduction (e.g., instability of landform)
- The long-term security and management of the site
- The suitability of the habitat and management requirements of the plant species

8. *Ex-situ* management

Ex-situ management is an important tool that may be used to complement *in-situ* conservation by providing opportunities for research, advocacy and education, stocks for establishing or enhancing wild populations, and insurance stocks should wild populations be exterminated. *Ex-situ* guidelines are provided in Appendix 4.

Priorities for cultivation of threatened and uncommon plant species are shown in Table 2. Highest priorities for *ex-situ* management include species such as *Coprosma wallii*, *Leptinella nana*, *Lepidium oleraceum*, *Euphorbia glauca*, *Carex litorosa*, *Muehlenbeckia astonii* and *Olearia gardneri*.

The department is reliant on the New Zealand and Wellington Plant Conservation networks for much of this work since it has no nursery facilities of its own other than 'insurance' planting areas at Area Offices (see Section 9).

9. Conservancy-wide initiatives

NEW ZEALAND PLANT CONSERVATION NETWORK

The need for collaboration, to ensure protection for New Zealand plant life, has never been greater. The establishment of the New Zealand Plant Conservation Network in April 2003 provides one mechanism to achieve this.

The vision of the Network is that “*no indigenous plant species or community will become extinct nor be placed at risk as a result of human action or indifference*”.

Wellington Conservancy is a member of this network, and will contribute to its work with advice and assistance.

WELLIINGTON PLANT CONSERVATION NETWORK

Many agencies and people are involved in plant conservation in Wellington Conservancy and are members of the Wellington Plant Conservation Network. Membership of this network is on a voluntary basis, and includes representatives from Wellington City Council, Hutt City Council, Victoria University of Wellington, Wellington Botanical Society, Forest & Bird Protection Society, and Department of Conservation, and also includes private plant propagators, botanists and community groups.

Collaboration between agencies and individuals in the region to achieve common plant conservation objectives will continue. This strategy recognises the important role of the Wellington Plant Conservation Network. The Department of Conservation in Wellington Conservancy will facilitate regular meetings of the network and identify priorities for its work.

MONITORING THREATENED PLANT POPULATIONS

Threatened plant monitoring is the acquisition and analysis of quantitative data that document the condition of the population or plant community over time. It is undertaken to detect and document population recovery or decline. Changes in population size may be as a result of natural perturbations, environmental changes (such as climate change), or as a result of conservation management.

Reliable and up-to-date information about the range of species and the status of populations is vital for assessing the likelihood of extinction, and planning species recovery actions (Keith 2000). Monitoring guidelines are provided in Appendix 3. A national departmental review of plant monitoring is underway, and the results will be used to determine techniques and timing of plant monitoring in Wellington Conservancy. For more information about monitoring in the Conservancy, especially vegetation monitoring, see Ulrich and Brady (2003).

INFORMATION MANAGEMENT AND BIOWEB

Information about the distribution of plant species and their ecology in Wellington Conservancy has been collated by a number of people and organisations over the past 150 years, including the Forest Service, the Department of Lands and Survey, the Wildlife Service, the Department of Scientific and Industrial Research (Botany Division), members of Wellington Botanical Society and, most recently, the Department of Conservation.

More information is still required so that trends in population size of some species can be determined. Information about ecological requirements of many threatened plant species is also needed to improve management. The national plant database managed by the Department of Conservation is known as BIOWEB and access to information stored there is restricted. Members of the Wellington Plant Conservation Network may access the information provided it is used to meet conservation research objectives that will aid *in-situ* and/or *ex-situ* management. Information has been stored on the database from a variety of sources including herbaria, species checklists (Sawyer 2001) and species records by botanists. BIOWEB will continue to be maintained during the life of this strategy. A record sheet for reporting occurrences of threatened plants is provided in Appendix 6.

RESEARCH

Research institutes, tertiary institutes and members of Wellington Botanical Society can all play an active research role in plant conservation in Wellington Conservancy. Three research themes have been identified: taxonomy; autecology; and management. Examples of threatened plant research projects are shown in Box 1 (from Department of Conservation 2003).

BOX 1. EXAMPLES OF THREATENED PLANT RESEARCH PROJECTS FOR WELLINGTON CONSERVANCY

TAXONOMY
Taxonomy of <i>Hoberia</i> "Tararua", <i>Myrsine</i> aff. <i>divarciata</i> , <i>Olearia lacunosa</i> , <i>Aciphylla</i> aff. <i>squarrosa</i> , <i>Eupbrasia</i> "Mount Holdsworth".
AUTECOLOGY
Monitoring <i>Pterostylis micromega</i> —what factors affect survival of the species. Can the species be cultivated? What mycorrhizal associations are required for germination?
Life history and biogeography of <i>Aciphylla dissecta</i> , <i>Hebe evenosa</i> , <i>Eupbrasia drucei</i> - Tararua high mountain endemic plant species.
Do fungi/insect pests threaten the survival or recruitment of <i>Lepidium oleraceum</i> .
MANAGEMENT
Management of threatened turf plants (particularly <i>Amphibromus fluitans</i>) at Lake Wairarapa—effects of grazing, mechanical removal of weeds, water level fluctuation, fire.
Investigate the use of herbicides to control pest plants without threatening <i>Leptinella nana</i> (high priority)

PUBLIC AWARENESS AND ADVOCACY

The Department of Conservation is required under the Conservation Act (1987) to advocate conservation of natural and historic resources, to promote the benefits of the conservation of natural resources to present and future generations. This can be achieved via site-based interpretation, species advocacy or issue-based awareness raising.

A major goal for raising awareness of plant conservation in Wellington Conservancy is education of the Department's staff about threatened plants. This will be achieved through the Department of Conservation's intranet as well as newsletters such as *Footnotes* and *Rarebits*.

Other key groups involved in plant conservation in Wellington include:

- Wellington Botanical Society
- Forest and Bird
- Conservation Corps
- Land owners
- Restoration, Landcare and stream care groups (members of NZERN)
- Territorial local authorities
- Wellington and New Zealand Plant Conservation Networks
- General public

Communication with local botanical groups will be through the *Wellington Botanical Society Newsletter* and *Bulletin* as well as *Footnotes* and news media. The department's website will continue to be used to provide information about native plants to all users. Advocacy and public awareness materials about plant conservation will be targeted to other groups as required.

Site-based interpretation (including website)

Some sites administered by the Department of Conservation have great potential for displays to raise staff and public awareness of threatened plants. These sites will be used as required. They include:

- Threatened plant displays at Area and Conservancy offices
- Cultivation of threatened plants at or near Area Offices
- Provision of web-based threatened plant information
- Visitor centres

Species advocacy

Advocacy for threatened plant species can be achieved through:

- distribution of information that describes the location of, and how to identify threatened plants (e.g. 'Plants of Conservation Concern' and threatened plant factsheets and the website of the New Zealand Plant Conservation Network;
- regular articles written for *Rarebits* and the *Wellington Botanical Society Newsletter* and *Bulletin*;
- regular media stories about the plight of threatened plant species.

Issue-based awareness raising

Awareness of key issues affecting threatened native plants may be increased through:

- Development and dissemination of this strategy, and the annual implementation plan
- Involving staff and public in monitoring and management of threatened plant populations
- Dissemination of plant conservation literature especially related to key issues such as pest animals and weeds
- Promotion of plant conservation organisations such as the New Zealand Plant Conservation Network and Wellington Botanical Society

10. Implementation

IMPLEMENTATION PLAN

An implementation plan will be prepared annually in December for each Area in the Conservancy. Plans will identify tasks to be undertaken by Department of Conservation staff and other members of the Wellington and New Zealand Plant Conservation Networks. Tasks to be completed for each threatened plant population are shown in Box 2.

The implementation plan will be developed in conjunction with various organisations involved in plant conservation in Wellington Conservancy (members of the Wellington Plant Conservation Network) such as the botanic gardens and territorial local authorities. It will identify tasks that will be carried out by each of the organisations. The plans will focus on all plant conservation work areas including *in-situ* and *ex-situ* management, advocacy, training and education, restoration and species recovery.

Meetings will be held regularly with members of the network to determine progress and to determine priorities for work on sites, species and plant communities.

BOX 2. TASKS TO BE COMPLETED FOR EACH THREATENED PLANT POPULATION AND COMMUNITY

1. Determine land tenure of sites supporting threatened plant populations and communities.
2. Advise land owner/manager (on whose property the species/community is found) of the occurrence of the population/community and provide information.
3. Design and implement monitoring scheme for population/community: to detect changes in size or distribution; or to determine effectiveness of in-situ management.
4. Collect plant material to establish an *ex-situ* insurance population of threatened plants and of species supported by threatened plant communities to generate material for translocations and future species recovery and ecological restoration work.
5. Undertake *in-situ* management (weed control, fencing etc) to perpetuate good habitat for the plant population or community.
6. Design and implement introduction projects (follow standard operating procedures): to enhance existing wild populations using *ex-situ* material originating from that population; to establish populations at sites where the plant has been known to occur in past; to restore species to plant communities from which they have been lost.
7. Report successes and failures of population management work in *Footnotes*, *Rarebits* and *Wellington Botanical Society Newsletter* and *Bulletin* and the newsletter of the New Zealand Plant Conservation Network.

Conservancy-wide tasks such as public awareness, education, research, database management, assessing conservation status of species, development of an Important Plant Area programme, and a classification system for plant communities, and plant population monitoring will be identified by Areas and Conservancy-based staff and included in the appropriate implementation plan. The programme of species recovery actions for threatened plants and plant communities will be reviewed annually in September/October.

Appendix 1

CRITERIA FOR SELECTION OF THREATENED PLANTS

Criteria used to identify plant species of conservation concern in Wellington Conservancy are described below. They are taken from *Classifying species according to threat of extinction: A system for New Zealand* by Molloy *et al.* 2002. Threatened Species Occasional Publication 22 and modified to allow for regional assessments and rankings.

Nationally/Regionally Critical

Very small population or a very high predicted decline

A taxon is Nationally/Regionally critical when scientific evidence indicates that it meets any of the following three criteria:

1. The total National/Regional population size is <250 mature individuals
2. Human influences have resulted in <2 sub-populations *and either*
 - a. <200 mature individuals in the largest sub-population, *or*
 - b. the total National/Regional area of occupancy is <1 ha (0.01km²)
3. There is a predicted decline of >80% in the total National/Regional population in the next 10 years owing to existing threats

Nationally/Regionally Endangered

A: Small population and moderate-high recent or predicted decline

A taxon is Nationally/Regionally Endangered when scientific evidence indicates that it fits at least one Status criterion *and* one Trend criterion:

Status criteria

1. The total National/Regional population size is 250–1000 mature individuals
2. There are <5 sub-populations *and either*:
 - a. <300 mature individuals in the largest sub-population *or*
 - b. the total area of occupancy is <10 ha (0.1km²).

Trend criteria

1. There has been a decline of >30% in the total National/Regional population or habitat area in the last 100 years.
2. There is a predicted decline of >30% in the total National/Regional population in the next 10 years owing to existing threats.

B: Small-moderate population and high recent or predicted decline

A taxon is Nationally/Regionally Endangered when scientific evidence indicates that it fits at least one Status criterion *and* one Trend criterion:

Status criteria

1. The total National/Regional population size is 1,000–5,000 mature individuals.
2. There are <15 sub-populations *and either*:
 - a. 300–500 mature individuals in the largest sub-population *or*
 - b. the total area of occupancy is 10–100 ha (0.1–1km²).

Trend criteria

1. There has been a decline of >60% in the total National/Regional population or habitat area in the last 100 years.
2. There is a predicted decline of >60% in the total population in the next 10 years owing to existing threats.

Nationally/Regionally Vulnerable

Small-moderate population and moderate recent or predicted decline

A taxon is Nationally/Regionally Vulnerable when available scientific evidence indicates that it fits at least one Status criterion *and* one Trend criterion:

Status criteria

1. The total National/Regional population size is 1,000–5,000 mature individuals.
2. There are <15 sub-populations *and either*:
 - a. 300–500 mature individuals in the largest sub-population *or*
 - b. the total area of occupancy is 10–100ha (0.1–1km²).

Trend criteria

1. There has been a decline of 30–60% in the total National/Regional population or habitat area in the last 100 years and the total population or habitat area is still in decline.
2. There is a predicted decline of 30–60% in the total National/Regional population in the next 10 years owing to existing threats.

Serious National/Regional Decline

A. Moderate-large population and moderate-large predicted decline

A taxon is listed in Serious National/Regional Decline when available scientific evidence indicates that it fits at least one Status criterion *and* the Trend criterion:

Status criteria

1. The total National/Regional population size is >5,000 mature individuals.
2. There are >15 sub-populations *and either*:
 - a. >500 mature individuals in the largest sub-population, *or*
 - b. the total area of occupancy is >100ha (1km²).

Trend criterion

1. There is a predicted National/Regional decline of >30% in the total National/Regional population in the next 10 years owing to existing threats

B. Small-moderate population and small-moderate predicted decline

A taxon is listed in Serious National/Regional Decline when scientific evidence indicates that it fits at least one Status criterion *and* the Trend criterion:

Status criteria

1. The total population size is <5,000 mature individuals.
2. There are <15 sub-populations *and either*:
 - a. <500 mature individuals in the largest sub-population, *or*
 - b. the total area of occupancy is <100ha (1km²).

Trend criterion

1. There is a predicted National/Regional decline of 5–30% in the total National/Regional population in the next 10 years owing to existing threats.

Gradual National/Regional Decline

Moderate-large population and small-moderate decline

A taxon is listed in Gradual National/Regional Decline when available scientific evidence indicates that it fits at least one Status criterion *and* the Trend criterion:

Status criteria

1. The total National/Regional population size is >5,000 mature individuals.
2. There are >15 sub-populations *and either*:
 - a. >500 mature individuals in the largest sub-population, *or*
 - b. The total area of occupancy is >100ha (1km²).

Trend criterion

1. There is a predicted National/Regional decline of 5–30% in the total National/Regional population in the next 10 years due to existing threats, and the *decline is predicted to continue beyond 10 years*.

Nationally/Regionally Sparse

If the taxon does not fit the criteria for the acutely or chronically threatened categories and the taxon is naturally or unnaturally rare, with small widely scattered subpopulations.

Nationally/Regionally Range Restricted

If the taxon does not fit the criteria for the acutely or chronically threatened categories and the area of occupancy of the taxon is < 100km² for terrestrial and freshwater taxa.

National/Regional Vagrant

Vagrants are taxa that are found unexpectedly and rarely in New Zealand/Wellington Conservancy and whose presence in the region is naturally transitory. These are taxa that do not establish themselves beyond their point of arrival because of reproductive failure or for specific ecological reasons (see de Lange and Norton 1998).

National/Regional Coloniser

Colonisers are taxa that have arrived in New Zealand/Wellington Conservancy without direct or indirect help from humans and have been successfully reproducing in the wild for less than 50 years.

Data Deficient

Where information is so lacking that an assessment is not possible, the taxon is assigned to the Data deficient category and is not otherwise ranked. If a taxon is listed in a category other than Data deficient but confidence in the listing is low owing to poor quality data, the listing can be qualified with the letters DP (Data Poor).

Nationally/Regionally Extinct

A taxon is listed as Nationally/Regionally Extinct when there is no reasonable doubt, after repeated surveys in known or expected habitats at appropriate times (diurnal, seasonal and annual) and throughout the taxon's historic National/Regional range, that the last individual has died.

DEFINITIONS OF QUALIFIERS USED WITH THREAT CATEGORIES

QUALIFIER	MEANING	EXPLANATION
EW	Extinct in the Wild	Exists only in cultivation or in captivity
CD	Conservation Dependent	Likely to move to a higher threat category if current management ceases
DP	Data Poor	Confidence in the listing is low owing to the poor data available for the assessment
RC	Recovering	Total population showing a sustained recovery
ST	Stable	Total population stable
SO	Secure Overseas	Secure in other parts of its natural range outside New Zealand
HI	Human Induced	Present distribution is a result of direct or indirect human activity (applies to Range restricted and Sparse)
RF	Recruitment Failure	Recruitment failure will result in catastrophic declines in the future
EF	Extreme Fluctuation	Extreme un-natural population fluctuations, or natural fluctuations overlaying human-induced declines, that increase the threat of extinction
OL	One Location	Found at one location (geographically or ecologically distinct area) in which a single event (e.g. a predator irruption) could soon affect all individuals of the taxon
TO	Threatened Overseas	Also threatened in other parts of its natural range outside New Zealand
NRR	No Recent Records	No confirmed sightings during the previous 10 years
NTD	No Trend Data	Long term information on which reliably to assess population trends does not exist

Appendix 2

WELLINGTON CONSERVANCY PLANT PUBLICATIONS

A list of Wellington Conservancy's plant conservation publications is provided below. These are available from the Department of Conservation. See also the Department of Conservation website (www.doc.govt.nz) from which many of these publications are available.

Plant Conservation Strategy – Wellington Conservancy

This report describes the policies and framework for implementing plant conservation in Wellington Conservancy. It also includes a list of threatened plants that occur in Wellington. *Raewyn Empson & John Sawyer*. 1996.

Plants of National Conservation Concern in Wellington Conservancy.

A guide to the 49 nationally threatened plants of Wellington Conservancy including information about their distribution, ecology and conservation status. *John Sawyer, Andrew Townsend, Sarah Beadel, Peter de Lange & Willie Shaw*. 1998.

Northern rata (*Metrosideros robusta*) in Wellington Conservancy: Current status and future management.

A report on the status and management needs of northern rata in Wellington. *Kate McKessar & John Sawyer*. 1999.

The effect of possum control on the condition of northern rata in Tararua Forest Park

A report on the effect of possum control on northern rata in the Tararua Forest Park. *Philippa Crisp* 2001.

Northern rata (*Metrosideros robusta*)

A fact sheet that describes the species, its distribution and how to grow it, and at which nurseries it is being sold. Department of Conservation 1999. Free fact sheet.

Coastal foredune vegetation in Wellington Conservancy: Current status and future management

A report that describes the status of five key coastal dune plants. It identifies key dune ecosystems in the conservancy and provides data about the ecology, threats and species composition of dune systems. *Randal Milne & John Sawyer* 2003.

Coastal foredune vegetation in Wellington Conservancy

A fact sheet that describes coastal foredunes and the species that occupy them. Department of Conservation 2003. Free fact sheet.

Mistletoes in Wellington Conservancy: Current status and management requirements

A field guide and atlas to the 8 native mistletoes species in Wellington Conservancy. *John Sawyer & Aalbert Rebergen* 2001.

Mistletoes in Wellington Conservancy

A fact sheet describing the eight mistletoe species in Wellington Conservancy. Department of Conservation 2001.

Karaka (*Corynocarpus laevigatus* J.R. et G. Forst.) in Wellington Conservancy (excluding Chatham Islands)

A report that describes the distribution and conservation management needs of karaka in Wellington. *John Sawyer, Bruce McFadgen & Paul Hughes*. DOC Science Internal Series 101.

Wellington Plant Conservation Network: Members directory

Names and addresses of all members of the network of agencies and individuals involved in plant conservation in Wellington. Department of Conservation 2000. Free booklet.

Nga Taonga o te Ngahere: Treasures of the Forest.

A booklet describing plants traditionally used by Maori. *Tom Paul*. 1987.

PLANT SPECIES RECOVERY (FOR SPECIES THAT OCCUR IN WELLINGTON CONSERVANCY)

Protection and recovery of the pygmy button daisy

A recovery plan for the nationally endangered herb *Leptinella nana*. This report provides details of what actions are required for the recovery of the species. Department of Conservation 2001.

Shrubby tororaro (*Muehlenbeckia astonii* Petrie) recovery plan: 2000–2010

A species recovery plan for the nationally endangered shrub *Muehlenbeckia astonii*. Summarises the distribution and ecology of *Muehlenbeckia astonii*, and outlines priority recovery goals and objectives for the next ten years. *Peter de Lange & Cathy Jones* 2000.

Muehlenbeckia astonii

A fact sheet with information about the species distribution, cultivation and where to go to buy plants. *Department of Conservation* 2000. Free fact sheet

Coastal cresses (nau) recovery plan

A recovery plan for the nationally threatened species of coastal cress (e.g. *Lepidium oleraceum*). This report provides details of what actions are required for the recovery of those species. The aim of this plan is to restore and sustain populations of coastal cresses throughout their natural range. Ten objectives necessary to achieve this goal are outlined. *David Norton & Peter de Lange* 1999.

Loranthaceous mistletoe recovery plan

A recovery plan for the nationally endangered loranthaceous mistletoe species. This report provides details of what actions are required for the recovery of all species. *Suzan Dopson* 2001.

***Dactylanthus taylori* Species Recovery Plan.**

A recovery plan for the nationally endangered wood rose (*Dactylanthus taylori*). This report provides details of what actions are required for the recovery of the species. *Chris Ecroyd* 1995.

RESTORATION PLANS

Mana Island Ecological Restoration Plan

A plan that outlines ecological restoration work for Mana Island including threatened plant work. *Colin Miskelly* 1999.

Matiu/Somes Island – a plan for conservation management

A plan that outlines ecological restoration work for Matiu/Somes Island including threatened plant work. *Department of Conservation* 2000.

RESEARCH PAPERS (FOR SPECIES THAT OCCUR IN WELLINGTON CONSERVANCY)

de Lange, P.J.; Murray, B.G.; Gardner, R.O. 1998: *Atriplex cinerea* (Chenopodiaceae) in New Zealand. *New Zealand Journal of Botany* 36: 521-529.†

Heenan, P.B. 1998: *Mazus novaezeelandiae* (Scrophulariaceae): taxonomy, distribution, habitats, and conservation. *New Zealand Journal of Botany* 36: 407-416.

Heenan, P.B.; de Lange, P.J.; Wilton, A. 2001: A taxonomic revision of *Sophora* in New Zealand. *New Zealand Journal of Botany* 39: 17-54.

Molloy, B.P.J.; de Lange, P.J.; Clarkson, B.D. 1999: *Coprosma pedicellata* (Rubiaceae), a new species from New Zealand. *New Zealand Journal of Botany* 37: 383-397.

Norton, D. 2001. Re-establishment of the shrubby tororaro (*Muehlenbeckia astonii* Petrie), a nationally threatened plant. Science & Research Internal Report no.188. Department of Conservation, Wellington.

Simpson, P. 1991. Sudden decline in Cabbage trees (*Cordyline australis*). Science and Research Internal Report No. 107.

Appendix 3

SURVEY AND MONITORING GUIDELINES

Plant survey

Priorities for survey

Survey is identified as a required action for 59 threatened plant species (see Table 2). All listed species should be recorded whenever and wherever they are found, using a standard species record sheet (see Figure 1) or using the site recording form on the website of the New Zealand Plant Conservation Network (see www.nzpcn.org.nz). Targeted surveys will generally be undertaken by experienced personnel. Priorities for survey will be reviewed each year as part of business planning. Priority areas for survey include:

- Sites where threatened plants have been recorded but where a targeted survey has not been undertaken in the last 10 years
- Areas within the historical distribution of threatened species
- Habitats that potentially could support threatened plants that have not been surveyed in the last 30 years

Guidelines for recording plant populations

Surveys may be targeted to a particular plant species, or general site surveys to record all plant species present within a defined area. These surveys are not mutually exclusive, but may entail different methodology and outcomes. For example, survey for *Peraxilla tetrapetala* (red-flowered mistletoe) may entail aerial survey during the flowering season. This will help determine the geographical distribution of target species but not record other species that are present in the area surveyed such as the host of the mistletoe or the size of the individual plants. Monitoring plant condition at specific sites can provide important information about pressures on plant populations.

Survey objectives should be clearly defined to ensure that the methods used meet these objectives. All surveys should have landowner permission and:

- Reports should be produced on all surveys carried out, even those which result in finding no individuals of target species. These reports are to be stored on file and relevant information stored on BIOWEB.
- Survey reports should include a completed species record sheet (Appendix 6) for each locality at which the target species was found. Species record sheets should be forwarded to the conservancy office so that the information can be included in the national BIOWEB plants database.

Survey reports should include:

- Objectives of survey (e.g., target species or species list for particular site)
- Methods used (e.g., aerial survey, ground survey—random, transect, grid)
- Map and central grid reference of the area covered by the survey
- Species record sheets and/or species list
- Name(s) of the surveyor(s)
- Date(s) of the survey
- Search effort (e.g., number of people and time spent searching)

Plant population monitoring

Whether a plant population is in decline, constant or increasing, is important information to inform management decisions such as when or even whether to intervene. Monitoring programmes often entail a simple number count of individuals within a population. This may not be adequate for understanding changes in the demographics of a plant population. Combining number counts with other techniques to monitor the demographics of subsets of individuals can be a powerful tool.

Regular inspections of plant populations may require a variety of techniques, such as establishing plots, transects, photo points, number count of plants, line or point-intercept methods. The technique used will depend on the monitoring objectives, and the frequency and type of monitoring will be a function of several criteria including the plant's life form and its longevity. More information about the strategic approach to monitoring taken by the Department of Conservation in Wellington Conservancy may be found in *Monitoring terrestrial habitats in Wellington Conservancy: a strategy for 2003- 2012* (Ulrich and Brady 2003).

Priorities for monitoring

Monitoring is identified as a required action for sixty-one threatened plant species (see Table 2). Monitoring of threatened plant populations is undertaken to detect changes in population size or distribution and to determine effectiveness of management. Priorities for monitoring programmes will be reviewed each year as part of business planning. Priorities for monitoring include:

- Populations of nationally threatened plant species (e.g., *Muehlenbeckia astonii*)
- Populations of regionally threatened plant species (e.g., *Doodia squarrosa*)
- Species with only one population in the conservancy (e.g., *Atriplex buchananii*)
- Sites currently subject to active management (e.g., *Fuchsia excorticata* populations subject to possum control)
- Sites where translocations of certain species have occurred (e.g., *Pimelea* aff. *aridula* on Mana Island)
- Plant species endemic to Wellington Conservancy

Guidelines for monitoring

Demographic monitoring programmes will be developed for highest priority taxa or for taxa/sites where there is perceived to be greatest potential information gain (such as habitats under threat for which little information exists). These taxa include: *Leptinella nana*, *Lepidium oleraceum* and *Crassula peduncularis*. For some species a monitoring methodology has already been developed, and in that case the adopted methodology will be used (e.g., *Dactylanthus taylori* - Department of Conservation 1995).

Other general guidelines are that:

- Information about all monitoring projects should be stored on the national plant monitoring project database (<dmc://wgnco-41704>).
- Copies of data gathered from all monitoring programmes should be forwarded to the conservancy office for inclusion in the database and as a back-up to observer records.

SURVEY AND MONITORING: IMPLEMENTATION

Survey and monitoring may be carried out by professional and amateur botanists or researchers, from within or outside the department. Since many populations of threatened plants occur on privately owned land it is unlikely that all necessary surveys and monitoring programmes will be undertaken by departmental staff.

Other government agencies, particularly those with administrative responsibilities for land where priority species are known to occur will be encouraged to undertake the actions recommended in Table 2. Surveys of priority areas, or for particular species, by the public will be encouraged. For example, members of Wellington Botanical Society (with assistance as appropriate from Department of Conservation staff, council staff and volunteers) may undertake some surveys.

Reports of any surveys carried out by Department of Conservation staff or non-departmental personnel will be sought for inclusion on BOWEB to ensure it remains up-to-date.

Appendix 4

EX-SITU MANAGEMENT GUIDELINES

Ex situ management objectives

- Maintain in cultivation at least one population of each threatened plant taxon representative of its wild source
- Manage *ex-situ* populations according to standard guidelines to provide material for use in species recovery programmes
- Manage *ex-situ* populations as insurance population(s) as a backstop against extinction in the wild
- Facilitate cultivation of plants for advocacy or education purposes (these do not have to be managed as representative populations)
- Facilitate and encourage research into ecology, variation patterns (within *ex-situ* populations), taxonomy and horticulture of threatened plant species in the region, using cultivated stocks if possible
- Ensure samples of material from plant species and/or populations are maintained in a long-term seed storage facility

Priorities for collection

Priorities for collection for propagation are shown in Table 2. They were determined using the following criteria (listed in no particular order):

- Status (the more threatened, the higher the priority)
- Number of populations, distribution and assumed genetic distinctiveness based on natural dispersal (e.g., species with fleshy fruits, widely distributed (albeit sparsely) have lower priority than those with discrete populations and non-fleshy fruits)
- Land tenure/status (species with populations located on DOC land have lower priority than those found on unprotected land)
- The land management regime (past, present and anticipated)
- Feasibility of safeguarding the genetic integrity of the cultivated stock
- Feasibility of cultivation and potential for use in restoration projects (recognising costs of cultivating the species)

Priorities for collection will be re-evaluated annually by the Department of Conservation with advice from the Wellington Plant Conservation Network.

Standard criteria for collection

The following are general guidelines for collection of plant material.

1. All plant collection on lands administered by the Department of Conservation should comply with legislation and departmental procedures.
2. Collection from reserves cannot be authorised unless it is for conservation, scientific, educational or traditional Maori purposes. Criteria for authorisation vary according to reserve classification;
3. Collection methods should have minimal or no adverse impacts on plant populations or communities and the amount collected should be kept to a minimum at all times.

Guidelines for collection from wild populations

Wherever possible, collection for *ex-situ* cultivation should not be undertaken unless:

1. The species has been identified as a priority for cultivation
2. There is a commitment to *ex-situ* management of a population of that species
3. The collection has not already been undertaken by someone else.

More detailed guidelines are provided in Empson and Sawyer (1996) and also in the *Genetic sampling guidelines for conservation collections of endangered plants* by Center for Plant Conservation (1991) and *Sampling strategies for genetic variation in ex-situ collections of endangered plant species* (Brown & Briggs 1991). These specify the number of populations to be sampled, the number of plants to sample within each population, the sample size per plant and what material should be collected (such as whole plants, seed or cuttings).

NOTE: any population of a threatened plant taxon in imminent danger of destruction, or species thought to have been extinct but recently relocated in the wild, should be sampled as a matter of course.

Guidelines for management of ex-situ collections

Cultivated material from different populations of the same taxon should be managed separately, preferably at different sites to prevent interbreeding (and genetic pollution) between these populations. The distance required to prevent interbreeding will depend mainly on the mode of reproduction of the species and the home range of known pollinators.

The *ex-situ* population should be kept separate from the wild population (except where cultivated stocks are used to enhance the wild population) to avoid the possibility of local catastrophic disturbance eliminating both sets of material.

Ex-situ material should be managed under conditions as representative of the natural conditions as possible, particularly when seed is used for propagation, to minimise genetic selection of plants less suited to natural conditions.

Care must be taken to prevent and manage disease and pests and other environmental stresses, and to ensure security for the population from vandalism and theft. In principle, if material is to be managed outside a secure area then this should duplicate stock held elsewhere.

Detailed records of all samples collected and all plants successfully propagated should be kept so that the degree to which the *ex-situ* material is representative of the wild population is noted, and propagation techniques, population viability and character can be assessed. This should be the responsibility of each cultivator, and duplicate records should be maintained on the Department's database as a backup and to facilitate assessment of cultivation priorities.

Coordination of *ex-situ* management is necessary to ensure objectives and priorities are met. This is particularly important where species are cultivated by more than one cultivator.

Ex-situ management of taxa for which recovery plans are written (e.g., *Dactylanthus taylori*) will be in accordance with such plans, and all populations will be managed to comply with legislation and departmental procedures.

Appendix 5

NON-THREATENED PLANTS OF CONSERVATION CONCERN IN WELLINGTON CONSERVANCY

Some plant taxa are of conservation concern for reasons other than their conservation status. For example, they may play an important role in ecosystem function such as providing habitat or food that is vital for the survival of another species. A plant may also be of conservation concern because of its importance to humans. The indigenous plant list provided here includes species that are of conservation concern because they are important to the survival of other species, are iconic plants in the landscape and plant species used by people and especially Maori.

Plants important to the survival of other taxa

All taxa are believed to contribute to the overall integrity of an ecosystem. However, some appear to play a disproportionately greater role in the make-up and maintenance of the ecology of ecosystems than others. Some provide essential services that are also unique. Without these key species, the habitat would change significantly. These are known as “keystone species” and when one disappears, the plant and animal community changes dramatically. Theoretically, the loss of a keystone taxon triggers the loss of other taxa, and the connections among the remaining taxa change.

Keystone taxa of plant take many forms. Some are habitat for rare insects and fungi, others are food for certain animals, some play a role in protecting their entire plant community from disturbances, other species pollinate or distribute seed. In Wellington Conservancy is a range of keystone species that, although not threatened, are integral to the functioning of plant ecosystems (see table below).

Iconic plants in the landscape

Iconic plants are those that are recognised by people as being important elements of the landscape. They are the species that help define the local flora and are sometimes used as an emblem for a city or region. In some cases these species may be exotic (such as daffodils in Greytown). The silver fern (ponga) is an example of a native emblem used widely as a symbol of New Zealand. This strategy identifies eight iconic native plant species in Wellington Conservancy. There are likely to be additional species identified as people articulate their interests in the region’s flora (see following table).

Plants used by people, especially Maori

Through consultation in Wellington Conservancy a preliminary list of native plants of importance to local iwi and other people that require conservation management has been prepared. It is acknowledged that many other species are considered basic plants for use in making traditional herbal preparations (e.g., karamu, rangiora and titoki) but only those that require specific conservation management actions are shown in the following table.

The list includes plants of cultural importance to Maori that are of limited availability for traditional use; and nationally or regionally threatened plants that have a history of use by people. Consultation will be undertaken to determine:

1. Procedures for involving iwi in plant conservation
2. The list of species (including omissions and unnecessary inclusions);
3. Concerns over traditional use of plant material (availability, permitting, sustainability of use)

Management options for plants of significance to iwi

Iwi involvement will be encouraged in propagation and management of populations of plants of significance to them, particularly those required for harvest. This will be done:

1. To reduce the need to harvest plants on lands administered by the Department of Conservation
2. To support iwi traditions of harvest of important plants on a sustained basis
3. To involve iwi in plant conservation

Management options include:

1. Propagation and cultivation for harvest (on iwi land)
2. Propagation and cultivation for enhancing wild populations or establishing new populations (on and off lands administered by the Department of Conservation)
3. *In situ* management of existing populations
4. Survey for new populations or potential sites for transfer
5. Monitor populations and effects of management/harvest
6. Development of an ethnobotanical garden or gardens in Wellington Conservancy

Priorities, species and actions should be determined in consultation with iwi, but highest priority will be accorded to propagation on iwi land of those species most threatened with extinction and/or most often required for harvest.

LATIN NAME	COMMON NAME	IMPORTANT TO THE SURVIVAL OF OTHER SPECIES	ICONIC IN THE LANDSCAPE	PLANTS USED BY MAORI AND THEIR USES
<i>Aciphylla squarrosa</i>	speargrass, Spaniard, taramea	Yes - for the speargrass weevil.		<ul style="list-style-type: none"> • Gum from leaf was used as a perfumery
<i>Arthropodium cirratum</i>	rengarenga			<ul style="list-style-type: none"> • medicinal: base of leaves used to poultice ulcers and roots scraped, roasted, pulped and placed on unbroken tumours and abscesses (Stark & Enting 1979); • food: roots eaten after cooking (Crowe 1981).
<i>Asplenium obtusatum</i>	paretao			<ul style="list-style-type: none"> • medicinal: root used for doctoring boils and ulcers, and in vapour baths (Stark & Enting 1979).
<i>Botrychium australe</i>	parsley fern, paatootara			<ul style="list-style-type: none"> • food: the young, succulent unexpanded shoots of the fern eaten (Crowe 1981).

LATIN NAME	COMMON NAME	IMPORTANT TO THE SURVIVAL OF OTHER SPECIES	ICONIC IN THE LANDSCAPE	PLANTS USED BY MAORI AND THEIR USES
<i>Coprosma acerosa</i>	Tataraheke, sand coprosma	Yes - for the red katipo spider		<ul style="list-style-type: none"> • medicinal: liquid from steeped leaves, boiled shoots or boiled bark used medicinally (Stark & Enting 1979) • food: berries were eaten (Crowe 1981).
<i>Cordyline australis</i>	ti kouka, cabbage tree		yes	<ul style="list-style-type: none"> • food: shoots and cooked tap roots eaten (Crowe 1981) • medicinal: leaves used as dressing for wounds and leaf infusion used for diarrhoea (Stark & Enting 1979).
<i>Corynocarpus laevigatus</i>	karaka			<ul style="list-style-type: none"> • food: fruit an important food supply, sometimes cultivated (Crowe 1981) • medicinal: leaves used for wounds, boils and abscesses (Stark & Enting 1979).
<i>Desmoschoenus spiralis</i>	pingao		yes	<ul style="list-style-type: none"> • weaving: leaves used in tukutuku weaving, kit making and, occasionally cloaks (Metcalf 1993) • food: the tender shoots were eaten (Crowe 1981).
<i>Eleocharis spbacelata</i>	Kutakuta, tall spike sedge			<ul style="list-style-type: none"> • weaving: the stout culms of this plant were used for floor mats (Johnson & Brooke 1989).
<i>Euphorbia glauca</i>	waiuatua, shore spurge			<ul style="list-style-type: none"> • medicinal: the whole plant was boiled and the liquid used as a wash or bath for skin problems (Stark & Enting 1979).
<i>Freycinetia banksii</i>	kiekie			<ul style="list-style-type: none"> • food: tawhara, the fleshy bract was an important food (Stark & Enting 1979, Crowe 1981) and the fruit was also eaten (Crowe 1981) • weaving: leaves used for weaving and in tukutuku panels.
<i>Fuchsia excorticata</i>	kootukutuku			<ul style="list-style-type: none"> • food: berries (koonini) eaten (Crowe 1981) • medicinal: leaves used in vapour baths (Stark & Enting 1979).
<i>Lepidium oleraceum</i>	nau			<ul style="list-style-type: none"> • food/medicinal: leaves and florets eaten (Stark & Enting 1979, Crowe 1981).
<i>Mentha cunninghamii</i>	hioi			<ul style="list-style-type: none"> • medicinal: leaves used in infusion to induce perspiration (Macdonald 1973, Stark & Enting 1979, Metcalf 1993).
<i>Metrosideros robusta</i>	northern rata		yes	<ul style="list-style-type: none"> • food: nectar used (Crowe 1981) • medicinal: bark and juice from the vine used (Stark & Enting 1979).

LATIN NAME	COMMON NAME	IMPORTANT TO THE SURVIVAL OF OTHER SPECIES	ICONIC IN THE LANDSCAPE	PLANTS USED BY MAORI AND THEIR USES
<i>Pbormium cookianum</i>	wharariki, mountain flax			<ul style="list-style-type: none"> • medicinal: leaves used to poultice skin tumours and ulcers (Stark & Enting 1978) and gum used for diarrhoea (Crowe 1981) • food: nectar commonly used to sweeten foods and as a sweet drink (Crowe 1981) • weaving: leaf fibres used for weaving • named variants of cultural importance.
<i>Pbormium tenax</i>	harakeke, flax		yes	<ul style="list-style-type: none"> • medicinal: leaves used to dress wounds and ulcers, leaves and pulped roasted roots used as a poultice for skin tumours and ulcers, gum used for diarrhoea and gum and root juice used as healant for wounds, burns and sores (Stark & Enting 1978) • food: nectar commonly used to sweeten foods and as a sweet drink (Crowe 1981) • weaving: leaf fibres used for weaving and in tukutuku panels (Pownall 1976) • named variants of cultural importance.
<i>Pimelea arenaria</i>	Autetaranga, sand daphne			<ul style="list-style-type: none"> • food: berries (Crowe 1981)
<i>Podocarpus totara</i>	totara		yes	<ul style="list-style-type: none"> • carving: the preferred timber for carving (Pownall 1976) • baskets: the bark steeped and moulded was used to make baskets (Pownall 1976) • medicinal: liquid from boiled bark used to reduce fever, while outer bark used as splints; smoke from burning wood used to treat skin disease (Stark & Enting 1979) • food: fruit eaten (Crowe 1981).
<i>Pteridium esculentum</i>	raarahū, bracken			<ul style="list-style-type: none"> • food: aruhe (fern root) a most important source of food (Crowe 1981) • medicinal: shoots and root taken for dysentery and burns treated with ashes of burnt fronds (Stark & Enting 1978) • named variants of cultural importance.
<i>Rhabdobamnus solandri</i>	taurepo, New Zealand gloxinia			<ul style="list-style-type: none"> • medicinal: twigs and leaves used in vapour baths (Stark & Enting 1979).

LATIN NAME	COMMON NAME	IMPORTANT TO THE SURVIVAL OF OTHER SPECIES	ICONIC IN THE LANDSCAPE	PLANTS USED BY MAORI AND THEIR USES
<i>Rhopalostylis sapida</i>	nikau		yes	<ul style="list-style-type: none"> • construction: fronds were used for the thatching of whare • weaving: fronds were used for weaving mats • food: the heart (central shoot) was eaten.
<i>Rubus squarrosus</i>	taa ta raa moa			<ul style="list-style-type: none"> • food: berries eaten (Crowe 1981)
<i>Sopbora chathamica</i>	kowhai		yes	<ul style="list-style-type: none"> • medicinal: infusion of bark used as lotion for muscular pains and internally for stomach problems
<i>Sopbora microphylla</i>	kowhai		yes	<ul style="list-style-type: none"> • medicinal: infusion of bark used as lotion for muscular pains and internally for stomach problems
<i>Tupeia antarctica</i>	tapia			<ul style="list-style-type: none"> • food: berries eaten (Crowe 1981)
<i>Typha orientalis</i>	raupo			<ul style="list-style-type: none"> • food: roots and pollen used (Riley 1994) • medicinal: leaves often used to bandage cuts and bruises and pollen used for sores or wounds (Riley 1994)

Appendix 6

SPECIES RECORD SHEET

SPECIES RECORD SHEET

Completed forms should be returned to:
Department of Conservation
P.O. Box 5086
Wellington

SPECIES NAME:

OBSERVER:

NAME:

TELEPHONE NUMBER:

ADDRESS:

NEAREST MAJOR LOCALITY:

OWNER/OCCUPIER OF LAND (if known):

MAP SERIES:

MAP NUMBER:

GRID REFERENCE:

DATE OF OBSERVATION AND TIME:

LOCATION:

DESCRIPTION OF SITE (INCLUDING HABITAT):

SKETCH MAP OF SITE:

POPULATION FEATURES:

Number of individuals seen.

An indication of the scope of your survey i.e. is the population more widely spread?

An estimate of the age structure (number of adults, number of juveniles), flowering? fruiting? moulting?

Have you visited site before? If so how does it compare now?

WHAT IS THE CURRENT SITE MANAGEMENT?**ARE THERE ANY THREATS TO THE POPULATION?**

e.g. herbivores, predators, land development, recreation, pollution, other.

RECOMMENDATIONS FOR MANAGEMENT OF THE SITE OR POPULATION:

WAS A PHOTOGRAPH TAKEN? Please circle **YES** **NO**

WAS MATERIAL COLLECTED? **YES** **NO**

TYPE OF MATERIAL **SEED** **CUTTINGS** **SPECIMEN**

WHERE IS MATERIAL NOW?

References

- Botanic Gardens Conservation International. 2003: Global Strategy for Plant Conservation. Secretariat of the Convention on Biological Diversity. Montreal, Canada.
- Brown, A.H.D.; Briggs, J.D. 1991: Sampling strategies for genetic variation in *ex-situ* collections of endangered plant species In: D. Falk and K.E. Holsinger (Eds): *Genetics and Conservation of Rare Plants* pp 99-119. Oxford University Press, New York.
- Center for Plant Conservation. 1991: Genetic sampling guidelines for conservation collections of endangered plants. In: D. Falk and K.E. Holsinger (Eds): *Genetics and Conservation of Rare Plants* pp 225-238. Oxford University Press, New York.
- Coombs, R.; Dopson, S. No date: Indigenous Plant Translocations in New Zealand: A summary 1987-1999. Unpublished report by the Department of Conservation.
- Courtney, S. 2003: Indigenous vascular plants of New Zealand . Unpublished checklist held by the Department of Conservation.
- Crowe A. 1981: *A Field Guide to the Native Edible Plants of New Zealand*. Collins.
- de Lange, P.J.; Silbery, T. 1993: Saving the shrubby tororaro (*Muehlenbeckia astonii* Petrie) – an urban approach to threatened plant conservation. In “People, Plants & Conservation” edited by P. Froggatt & M. Oates. Department of Conservation (1990). Transfer guidelines for indigenous terrestrial fauna and flora. Wellington.
- de Lange, P.J.; Murray, B.G.; Gardner, R.O. 1998: *Atriplex cinerea* (Chenopodiaceae) in New Zealand. *New Zealand Journal of Botany* 36: 521-529.†
- de Lange, P.J.; Norton D.A. 1998: Revisiting rarity: a botanical perspective on the meanings of rarity and the classification of New Zealand’s uncommon plants. *Royal Society of New Zealand Miscellaneous Series* 48: 145-160.
- de Lange, P.J.; Gardner, R.O.; Champion, P.D.; Tanner, C.C. 1998: *Schoenoplectus californicus* (Cyperaceae) in New Zealand. *New Zealand Journal of Botany* 36: 319-327.
- de Lange, P.J.; Norton, D.A.; Heenan, P.B.; Courtney, S.P.; Molloy, B.P.J.; Ogle, C.C.; Rance, B.D.; Johnson, P.N.; Hitchmough, R. 2004: Threatened and uncommon plants of New Zealand. *New Zealand Journal of Botany* 42: 45-76.
- Department of Conservation, 1995. *Dactylanthus taylorii* recovery plan. Threatened Species Recovery Plan Series No. 16. Threatened Species Unit. Department of Conservation. Wellington.
- Department of Conservation. 1999. Wellington Plant Conservation Network: Members Directory. Department of Conservation, Wellington.
- Department of Conservation. 2002. Standard operating procedure for the translocation of New Zealand’s indigenous terrestrial flora and fauna. Department of Conservation, Wellington.
- Department of Conservation. 2003: Wellington Conservancy Research prospectus 2003-04. Department of Conservation, Wellington.
- Empson, R.A.; Sawyer, J.W.D. 1996: Plant Conservation Strategy: Wellington Conservancy. Department of Conservation, Wellington.
- Falk, D.A.; Olwell, P. 1992: Scientific and policy considerations in restoration and re-introductions of endangered species. *Rhodora* 94 (879): 287-315.
- Fuller, S. 1993: *Wetlands in the Wellington Region*. Wellington Regional Council.
- Gabites, I. 1993: *Wellington’s Living Cloak*. Wellington Botanical Society and Victoria University Press, Wellington.
- Heenan, P.B. 1998: *Mazus novaezeelandiae* (Scrophulariaceae): taxonomy, distribution, habitats, and conservation. *New Zealand Journal of Botany* 36: 407-416.
- Heenan, P.B.; de Lange, P.J.; Wilton, A. 2001: A taxonomic revision of *Sophora* in New Zealand. *New Zealand Journal of Botany* 39: 17-54.

- Heenan, P.B.; Mitchell, A.D.; de Lange, P.J. *In press*: *Arthropodium bifurcatum* (Asparagaceae), a new species from northern New Zealand. *New Zealand Journal of Botany* 42 (2).
- Johnson, P.A.; Brooke, P.N. 1989: *Wetland Plants in New Zealand*. DSIR Publishing. Crown Copyright. Wellington.
- Keith, D.A. 2000: Sampling designs, field techniques and analytical methods for systematic plant population surveys. *Ecological Management and Restoration* 1 (2): 125-139.
- Macdonald, C. 1973: *Medicines of the Maori*. Collins. Auckland. London.
- Metcalf, L. 1993: *The Cultivation of New Zealand Plants*. Godwit Press Ltd. New Zealand.
- Molloy, B.P.J.; de Lange, P.J.; Clarkson, B.D. 1999: *Coprosma pedicellata* (Rubiaceae), a new species from New Zealand. *New Zealand Journal of Botany* 37: 383-397.
- Norton, D. 2001: Reestablishment of the shrubby tororaro (*Muehlenbeckia astonii* Petrie), a nationally threatened plant. Science & Research Internal Report no.188. Department of Conservation, Wellington.
- Ogle, C.C. 1981: The rare indigenous plants of Wellington. Supplement to Wellington Botanical Society Newsletter, March.
- Pownall, G. 1976: *New Zealand Maori Arts and Crafts*. Sevenses Publishing Pty Ltd.
- Riley, M. 1994: Maori Healing and Herbal. New Zealand Ethnobotanical Sourcebook. Viking Sevenses NZ Ltd.
- Sawyer, J.W.D. 1997: Plant conservation outside reserves in the lower North Island, New Zealand. Proceedings of the conference "Conservation Outside Nature Reserves", Brisbane, Australia, February 1996.
- Sawyer, J.W.D. 2001: *Bibliography of plant checklists and vegetation survey data for Wellington Conservancy (excluding Chatham Islands)*. 2nd Edition. Department of Conservation. Wellington Conservancy.
- Sawyer, J.W.D.; Townsend, A.J.; Beadel, S.M.; de Lange, P.J.; Shaw, W.B. 1998: Plants of Conservation Concern in Wellington Conservancy. Department of Conservation, Wellington.
- Simpson, P. 1991: Sudden decline in cabbage trees (*Cordyline australis*). Science and Research Internal Report no. 107.
- Simpson, P. 1996: Ecological Restoration in the Wellington Conservancy. Draft report prepared for Wellington Conservancy. Department of Conservation, Wellington, NZ.
- Stark, R.; Enting, B. 1979: *Maori Herbal Remedies*. Viking Sevenses Ltd
- Townsend, A.J., Beadel, S.M.; Sawyer, J.W.D.; Shaw, W.B. 1998: Plants of Conservation Concern in Wellington Conservancy: Current status and future management. Department of Conservation, Wellington.
- Ulrich, S.; Brady, P. 2003: Monitoring terrestrial habitats in Wellington Conservancy: a strategy for 2003- 2012. Department of Conservation, Wellington.
- Walls, G. 2004. Plants of Conservation Concern in the Chatham Islands. Department of Conservation, Wellington.
- Walls, G.; Baird, A.; de Lange, P.J.; Sawyer, J.W.D. 2003: Threatened plants of the Chatham Islands. Department of Conservation, Wellington.
- Wardle, P. 1991: The vegetation of New Zealand. Cambridge, Cambridge University Press.
- Wilton, A. Breitwiesser, I. 2000: Composition of the New Zealand seed plant flora. *New Zealand Journal of Botany* 38: 537-549.

Glossary

ANPC Australian Network for Plant Conservation.

biodiversity The variety of life and the processes that maintain this variety. Short form of biological diversity.

calcicole A plant adapted to growing on limestone or alkaline soil.

CMS Conservation Management Strategy. Department of Conservation conservancy-wide strategy. In Wellington the strategy will operate for the period 1996-2006.

cryptic Secretive.

culm Aerial stem bearing inflorescence (a collection of flowers and their supporting branchlets arising from a common flowering axis) and leaves.

dicotyledon A plant whose embryo possesses two 'seed leaves'.

dioecious Have male and female flowers or organs on separate plants.

disjunct Separated.

endemic Native only to a particular area.

epiphyte A plant physically growing on another plant but not organically connected with it.

ex-situ Away from the site.

gymnosperm A plant in which the ovule (young seed) is not enclosed in an ovary

infraspecific Within species.

in-situ On site.

iwi Tribe or people.

monocotyledon A flowering plant whose embryo possesses only one 'seed leaf'.

monoecious The two sexes occur in separate flowers on the same plant.

monotypic Usually applied to a genus with only one species.

Nga Whenua Rahui Kawenata Maori reserve protected using the Nga Whenua Rahui Fund.

NZERN New Zealand Ecological Restoration Network

Pakeha A non-Maori.

parasite In plants, it is one that takes its food from another to which it is attached.

podocarp Plant species (usually trees) that belong to the Podocarpaceae family.

population A group of individuals of any one kind of organism.

provenance Place of origin.

- rongoa** Maori term for medicines that are produced from native plants in New Zealand
- tangata whenua** People of the land.
- taxon/taxa** (pl) A unit of any rank in a classification system e.g., species.
- translocation** Movement from one place to another.
- wildlife** The biota (flora and fauna) of a region that is not domesticated.