

Threatened plants of Hawke's Bay

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Preamble

This is a distillation of the knowledge of the threatened plants of Hawke's Bay I have gathered over 13 years: as DSIR Regional Botanist (1985-90) and as Department of Conservation Advisory Scientist acting also as conservancy botanist (1990-97). It has been compiled as a contract job for the new East Coast/Hawke's Bay Conservancy, in collaboration with Dave King and Chris Ward of Department of Conservation, Gisborne. The format has been chosen to merge readily with Dave King's *Threatened Plant Strategy, East Coast Conservancy* (Department of Conservation, 1995) and with Suzan Dopson and Janice Molloy's *The Conservation Requirements of New Zealand's Nationally Threatened Plants* (Department of Conservation, in preparation).

Much of the information has come to me from others, and I acknowledge the generosity of Bruce Clarkson, Ashley Cunningham, Tony Druce, Colin Ogle, Geoff Rogers, Sue Scheele, and Philip Simpson. This document is a tribute to them, to the old-time Hawke's Bay botanists William Colenso, Herbert Guthrie-Smith, and Norm Elder, and to my companions who have helped me look for these plants in the field and have helped to protect them.

1. Plants presumed extinct

The following is a list of the species that have been reliably recorded in the past in Hawke's Bay but have not been encountered there in recent times. They are presumed to now be extinct in the area because of the degree of habitat destruction or the nature of the known threats. Those for which there remains a slender thread of hope that they may still exist are covered in more detail in Sections 2 and 3.

<i>Atriplex billardierei</i> agg.	
<i>Austrofestuca littoralis</i>	Sand tussock
<i>Euphorbia glauca</i>	Shore milkweed/spurge
<i>Gratiola nana</i>	
<i>Iphigenia novae-zelandiae</i>	
<i>Lepidium oleraceum</i>	Cook's scurvy grass
<i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i>	New Zealand mousetail
<i>Myriophyllum robustum</i>	Stout water-milfoil
<i>Olearia hectorii</i> North Island	Hector's tree daisy
<i>Ophioglossum petiolatum</i>	Adders tongue
<i>Peraxilla colensoi</i>	Pirita, Piriraki, Scarlet mistletoe
<i>Pomaderris apetala</i>	Tainui
<i>Sebaea ovata</i>	
<i>Senecio sterquilinus</i>	
<i>Sicyos australis</i>	Mawhai, Native cucumber
<i>Stellaria elatinooides</i>	
<i>Streblus banksii</i>	Turepo, Large-leaved milk tree
<i>Tetrachondra hamiltonii</i>	
<i>Thismia rodwayii</i>	

2. Plants defined as threatened

These are species listed in Molloy & Davis (1994) and fall into the following categories, with their Hawke's Bay species:

Category A: Highest priority for conservation action

<i>Clianthus puniceus</i>	Kowhai ngutukaka, Kakabeak
<i>Coprosma</i> aff. <i>parviflora</i> , <i>C</i> "violacea", <i>C</i> . sp. (v)	
<i>Dactylanthus taylorii</i>	Pua reinga, Pua o to reinga, <i>Dactylanthus</i>
<i>Olearia hectorii</i> North Island	Hector's tree daisy
<i>Pterostylis micromega</i>	Swamp greenhood
<i>Sebaea ovata</i>	

Category B: Second priority for conservation action

<i>Alepis flavida</i>	Pirita, Piriraki, Yellow/Golden mistletoe
<i>lphigenia novae-zealandiae</i>	
<i>Peraxilla tetrapetala</i>	Pirirangi, Pikirangi, Pirita, Red mistletoe
<i>Pittosporum obcordatum</i>	Heart-leaved kohuhu
<i>Tupeia antarctica</i>	Taapia, Pirita, Green/Brittle mistletoe
<i>Urtica linearifolia</i>	Swamp nettle

Category C: Third priority for conservation action

<i>Mazus novaezeelandiae</i>	Dwarf musk
<i>Deschampsia caespitosa</i> var. <i>macrantha</i>	Tufted hair grass, Wavy hair grass
<i>Teucrium parvifolium</i>	

Category I: Species about which little information exists, but considered threatened

<i>Pimelea aridula</i> agg.(two entities)	Small native daphnes
<i>Pterostylis</i> aff. <i>graminea</i>	An undescribed hooded orchid species

Category O: Threatened in New Zealand but secure elsewhere

<i>Korthalsella salicornioides</i>	A dwarf mistletoe
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Detailed descriptions follow for each of these species.

The two other Molloy & Davis (1994) categories are covered in a different way:

Category X: Species which have not been sighted for some time, but may still exist. These are covered by the list of species presumed extinct in Hawke's Bay (Section 1).

Category M: Species of cultural importance to Maori that are rare or localised. These are covered in detail in Section 3.1.

2.1 CATEGORY A SPECIES

Species: *Clianthus puniceus*

Common name: Kowhai ngutukaka, Kakabeak

Ranking: Department of Conservation: A
NZ Botanical Society/IUCN. Endangered

In cultivation: Yes. Grown by Ahuriri Field Centre staff at the nursery and planted in a variety of field sites and gardens of trusted people.

Descriptor: A woody shrub or small tree, with kowhai-like leaves and beautiful kakabeak-shaped flowers (usually red, sometimes pink, rarely white).

Distribution

New Zealand: Largely restricted to hill country of the East Coast of the North Island, north of Napier. A small population grows on an island in Kaipara Harbour also.

Hawke's Bay. There are only two known wild plants. The first occurs on Heidi's Track, north-western Maungaharuru Range (NZMS 260 V19/416303). Progeny have been nursery raised and planted both on site and at the top of Shine Falls in Boundary Stream Mainland Island (V19/431264). This is where a wild pink-flowering plant grew until its sudden death in 1995. A seedling - undoubtedly an offspring from this plant - has just been discovered inside the enclosure originally erected to keep goats and deer from the parent. Cliffs in the vicinity were red with kowhai ngutukaka flowers late last century (Guthrie-Smith 1953), and local residents can recall plants being present until recent years (searches since have found no trace).

Habitat: Calcareous cliffs, bluffs, hillslopes and streamsides, subject to plenty of sun but with cool root runs.

Ecology: Rapid growing and short-lived, reliant on copious seed production, persistent seed, wind and water dispersal, and open sites. Hammered by goats, cattle and garden snails. Not apparently eaten by possums. Easy to cultivate.

Threats: Fire, forestry operations, feral goats and deer, weed competition, storm events (producing slipping, wind and snow damage, etc.), stem borers, fungal diseases.

Work undertaken to date: Survey of historical sites and likely sites, by foot and air. Propagation of material from Heidi's Track plant and planting back into the wild both there and at Shine Falls. Protection of Heidi's Track plant (fencing, weeding) and Shine Falls site (fencing). Public awareness, Hawke's Bay.

Priority sites for survey: Bluff systems of Boundary Stream, the Maungaharuru Range, Mohaka River and Te Kooti's Lookout.

Objectives and priority sites for monitoring: To ensure the establishment and continuation of populations at both Heidi's Track and Shine Falls.

Research questions: What is the taxonomic distinctiveness of the Heidi's Track and Shine Falls plants (the southernmost known wild kowhai ngutukaka)?

Management needs: Ongoing care of the wild plants and the two cultivated populations; survey of the vicinity for more.

Key contacts: Alan Lee, Department of Conservation, Ahuriri Field Centre; Steve Cranwell, Department of Conservation, Boundary Stream.

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Guthrie-Smith, H. 1953. *Tutira*. Whitcombe and Tombs.

Molloy, J.; Davis, A. 1994. Setting priorities for the conservation of New Zealand's threatened plants and animals. Department of Conservation.

Shaw, W.B.; Burns, B.R. 1997. The ecology and conservation of the endangered endemic shrub kowhai ngutukaka *Clianthus puniceus* in New Zealand. *Biological conservation* 81: 233-245.

Species: *Coprosma* aff. *parviflora*, *C. "violacea"* *C. sp.* (v)

Common name: -

Ranking:	<i>Department of Conservation:</i>	A
	<i>NZ Botanical Society/IUCN:</i>	Vulnerable

In cultivation: No.

Descriptor: A small erect tree up to 6 m tall, with small rounded pale leaves and violet fruit. Very difficult to distinguish from the suite of accompanying lookalikes. Distinguished from other coprosmas by deep orange inner bark.

Distribution

New Zealand: Eastern North Island (Gisborne, Hawke's Bay, Wairarapa); Canterbury.

Hawke's Bay: The historic Oringi Clearing (location mapped in Grant 1996), near Dannevirke (Tony Druce record, not recently reconfirmed). At least two sites near Tikokino: Mangaonuku Stream near Gwavas, c.NZMS 260 U22/092542; north bank of Waipawa River, c.U22/987479 (Tony Druce records via Peter de Lange, not recently confirmed). The only confirmed current site is on Ken Baldwin's land, Mangarouhi Stream, SE of Waipukurau - five known trees in two forest remnants identified as recommended areas for protection (RAP 15, Areas 4&6) in the Eastern Hawke's Bay PNAP Survey (Maxwell et al 1993): V23/245248 (two trees), V23/244244 (three trees).

Habitat: Valley flats of meandering flood-prone stream systems. These sites are subject to both drought and periodic water inundation and are typically in old stream elbows. They are also the sites where *Pittosporum obcordatum* grows, along with a great wealth of other divaricating and small-leaved woody species.

Ecology: Probably a fairly long-lived species, but vulnerable to climatic extremes and farming pressures. Adults not apparently attacked by possums, but they probably eat the fruit and browse seedlings. Currently with little chance of propagation via seeds in the wild because of stock grazing. No young plants seen, only a few adults at each site.

Threats: Farming, forest clearance, domestic stock browsing and trampling, possum, rabbit and hare browsing, exposure to climatic extremes.

Work undertaken to date: No proper survey yet. Negotiations with the Mangarouhi landowner (Ken Baldwin) to protect (fence and covenant) the two sites are continuing, with reasonable progress to date.

Priority sites for survey: The Tony Druce sites near Tikokino (top priority). Other forest remnants in analogous sites in the Mangarouhi, Waiwhero and Omakere stream systems and in the Huatokitoki stream system to the south; similar sites near Oringi.

Objectives and priority sites for monitoring: To ensure the persistence of the known populations in the Mangarouhi; to check on the status of any other populations that are found.

Research questions: Is the Hawke's Bay *Coprosma* aff. *parviflora* distinct genetically?

Management needs: Urgent protection (fencing, covenanting) of the forest remnants. Bait station control of possums. Survey of likely other sites, especially those near Tikokino. Cultivation to ensure survival of material and to provide young plants for planting back on site.

Should be managed in conjunction with *Pittosporum obcordatum*.

Key contacts: Ken Baldwin, Tamariki, RD1 Waipawa; Colin Ogle, Department of Conservation, Wanganui; Peter de Lange, Department of Conservation, Auckland (Peter is preparing a paper describing this species in conjunction with Bruce Clarkson, Manaaki Whenua, Hamilton and Brian Molloy, Christchurch); Pat Bonis, Department of Conservation, Ongaonga Field Centre; Geoff Walls.

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Species: *Dactylanthus taylorii*

Common name: Pua reinga, Pua o to reinga, *Dactylanthus*

Ranking:

<i>Department of Conservation:</i>	A
<i>NZ Botanical Society/IUCN.</i>	Endangered

In cultivation: No.

Descriptor: A root parasite of trees and shrubs that produces a "wood rose". Typically what is seen is a knobby lump on the ground like a pomander. The flowers are produced subterraneously and protrude above ground as brownish inflorescences clad in tan scales.

Distribution

New Zealand: Throughout most of the North Island, but centred on the central volcanic plateau; possibly still in NW Nelson.

Hawke's Bay: Known for sure from two localities, both in the Kaweka Forest Park: near Kuripapango on the Ngaruroro River (NZMS 260 U20/966987), where there are less than 10 live clumps, and two sites in the Makino Valley (approx. U20/036194), where there are 7 live clumps (Eddie Te Kahika knows the precise localities). Reported recently from a range of sites in the Tarawera area (Napier-Taupo highway), but the records have yet to be followed up. Known to have been present 20 years ago at the Gallen & Lattey QE II National Trust Covenant at the head of the Esk River (V20/358182): suspected scales from inflorescences have been very recently found in possum droppings from there. Dead plants have been found recently at Hutchinson Scenic Reserve, Puketitiri (V20/162086).

Habitat: In regenerating or secondary forest, typically forest margins on damp but well-drained ground. However, in the Kaweka sites the terrain is steepish mobile greywacke scree on which is growing forest dominated by mahoe, and the host trees are mostly kohuhu.

Ecology: As a root parasite, pua reinga is totally dependent on host availability. At the Ngaruroro site, host trees are dying in droves, through both natural causes and sika deer antler-thrashing, and the regeneration of potential hosts is impeded by browsing. Flowers are strongly scented and have the lure of copious nectar, so are highly attractive to many animals. Bats are known pollinators, and geckos and large insects probably are too. Possums and rats on the other hand are destructive, possums especially so, and in their presence few flowers survive to set seed. The seeds, tiny, hard and long-lived, are dispersed by water but possibly also by geckos and small birds.

Threats: Possums, rats, deer, human collectors, host dieback.

Work undertaken to date: At the Ngaruroro site: intensive survey, tagging and monitoring of all known plants, deer excluded from half the population, bait stations to kill possums and rats installed, individual plants caged.

At the other sites: virtually nothing.

Priority sites for survey: Makino site(s). Gallen & Lattey Covenant. Hutchinson Scenic Reserve. The most recent reliable records in the Tarawera area.

Objectives and priority sites for monitoring: To determine whether plants are surviving, what sexes are present, whether flowers are being produced, whether any seed is being set and what are the main threats. Priority sites: Ngaruroro, Makino, Gallen & Lattey.

Research questions: Are the Hawke's Bay pua reinga genetically distinctive?

Management needs: Thorough survey of Makino, Gallen & Lattey, Hutchinson Scenic Reserve, and Tarawera areas. Protection, with fine-mesh cages, of any live plants found, intensive possum and rat control. Monitoring of known populations. Hand-pollination of flowers. If any plants are found in the Tarawera area, protection, collection of seed and introduction of seed into Boundary

Objectives and priority sites for monitoring: None yet.

Research questions: Is the Percy's Reserve stock plant genetically distinct from other populations?

Management needs: Propagation from the Percy's Reserve stock and planting back into Hutchinson Scenic Reserve, in which case monitoring and protection from stock, hares and possums, and weeds will be required.

Key contact: Geoff Rogers, Department of Conservation, Dunedin.

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- Rogers, G.M. 1996. Regeneration ecology, conservation status and recovery planning for the endangered tree *Olearia hectorii*. *Science for conservation* 39. Department of Conservation.

Species: *Pterostylis micromega*

Common name: Swamp greenhood

Ranking: *Department of Conservation:* A
NZ Botanical Society/IUCN: Endangered

In cultivation: ?

Descriptor: A smallish cryptic ground-dwelling orchid.

Distribution

New Zealand: Scattered localities from Northland to Canterbury.

Hawke's Bay: Kaweka Lakes, southern Kaweka Forest Park. Reported from the margin of the western lake (NZMS 260 U20/998993 approx). Colin Ogle knows the precise location.

Habitat: Damp ground.

Ecology: Summer flowering. Needs a reliably wet substrate.

Threats: Drying of site, weed competition, trampling and browsing by deer, human collection.

Work undertaken to date: No-one has checked for its continued presence since 1984.

Priority sites for survey: Kaweka Lakes (western lake edges).

Objectives and priority sites for monitoring: Annual check on survival and status of population at Kaweka Lakes.

Research questions: What is the genetic distinctiveness of the Kaweka Lakes plants?

Management needs: Survey to see if it still exists at Kaweka Lakes. Annual monitoring. Weeding if deemed necessary.

Key contacts: Bruce Clarkson, Manaaki Whenua, Hamilton; Colin Ogle, Department of Conservation, Wanganui.

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Cameron, E.K.; de Lange, P.J.; Given, D.R.; Johnson, P.N.; Ogle, C.C. 1995. New Zealand Botanical Society threatened and local plant lists (1995 revision). *NZ Botanical Society Newsletter* 39: 15-28.

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St George, L.; Irwin, B.; Hatch, D. 1996. *Field guide to the New Zealand orchids*. New Zealand Orchid Group, Wellington.

Species: *Sebaea ovata*

Common name: -

Ranking:

<i>Department of Conservation:</i>	A
<i>NZ Botanical Society/IUCN</i>	Critical

In cultivation: No

Descriptor: A small short-lived herb related to gentians.

Distribution

New Zealand: Formerly Hokianga to Canterbury, but recent records only from Wanganui.

Hawke's Bay: Not currently known: former collections from Ahuriri, Napier (W. Colenso), "Hawke's Bay" (A. Hamilton) and Waimarama (Mr. Tryton).

Habitat: Coastal and lowland boggy and swampy ground and dune hollows. The Waimarama record is from clay cliffs!

Ecology: Ephemeral, with a life span of six months or less. Flowering January to May. Dependent on reliable moisture.

Threats: Weed competition, drying of site, damage by stock and vehicles, coastal "development".

Work undertaken to date: None.

Priority sites for survey: Ahuriri Estuary margins, Ocean Beach dune hollows, Porangahau beach and estuarine system.

Objectives and priority sites for monitoring: Annual monitoring to check survival of any populations found.

Research questions: ?

Management needs: Survey of possible sites.

Key contact: Colin Ogle, Department of Conservation, Wanganui.

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2.2 CATEGORY B SPECIES

Species: *Alepis flavida*

Common name: Pirita, Piriraki, Yellow mistletoe, Golden mistletoe

Ranking: *Department of Conservation:* B
NZ Botanical Society/IUCN.- Vulnerable

In cultivation: No, although repeated attempts have been made.

Descriptor: A shrubby hemi-parasitic mistletoe, typically hosted by beeches. With somewhat drab ovate leaves but delightful summer flowers turning from yellow to orange and yellow-orange autumn fruit.

Distribution

New Zealand: Beech forests from the central North Island to southern Fiordland. Now quite rare in the North Island.

Hawke's Bay: Boundary Stream Mainland Island (four known plants on clifftop black beech, NZMS 260 V19/395297);

Makahu Saddle (two known plants on mountain beech: Kaweka Flats track U20/039076; Ngahere Station U20/044070);

Puketitiri (numerous plants on a clump of red beech trees in a paddock, Bill Whittle's farm, V20/120074).

Habitat: Beech forest and remnant beech trees, mostly on ecological edges.

Ecology: Hemi-parasitic on beech trees; reliant on pollination by birds (tui, bellbird) and insects (native bees) and on fruit dispersal by birds (tui, bellbird, silvereye, blackbird). Requires a large fruit production, healthy host population and freedom from browsing to persist. Prone to storm damage.

Threats: Possum browse, snow and wind damage, deer and goat browse (both direct and of host seedlings), host tree death (especially in exposed sites).

Work undertaken to date: Survey of likely sites; archival research; regular monitoring of all known plants; possum, goat and deer control.

Priority sites for survey: Puketitiri red beech remnants, especially Hartree Forest Covenant; Makahu Saddle vicinity.

Objectives and priority sites for monitoring: To check regularly on the state of each population and the effectiveness of management at Boundary Stream, Puketitiri and Makahu Saddle.

Research questions: How widespread was this mistletoe once in Hawke's Bay? Does the Hawke's Bay *Alepis flavida* differ genetically from that elsewhere? Can *Alepis flavida* be readily propagated in the field?

Management needs: More comprehensive survey at each known site; continued monitoring; continued animal pest control at Boundary Stream and Puketitiri; expanded possum control at Makahu Saddle to protect the Kaweka Flats Track plant; planting of red beech seedlings at Puketitiri to provide new hosts.

Key contacts: Geoff Walls; Steve Cranwell, Department of Conservation, Boundary Stream; Eddie Te Kahika, Department of Conservation, Puketitiri Field Centre.

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- Cameron, E.K.; de Lange, P.J.; Given, D.R.; Johnson, P.N.; Ogle, C.C. 1995. New Zealand Botanical Society threatened and local plant lists (1995 revision). *NZ Botanical Society Newsletter* 39: 15-28.
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Species: *Iphigenia novae-zelandiae*

Common name: -

Ranking: *Department of Conservation:* B
NZ Botanical Society/IUCN. Vulnerable

In cultivation: No.

Descriptor: A small annual native lily that arises from a buried corm and produces a starry white flower in spring.

Distribution

New Zealand: One record in the North Island (see below); Canterbury to Southland.

Hawke's Bay: A small ephemeral tarn on the Te Waka Range (NZMS 260 V20/238124, Map 13), the only record for the North Island (Tony Druce, 1972).

Habitat: Wetland turf.

mountain beech trees, but some are on red beech. There are casual records of other plants in the Middle Hill vicinity to the north, and in other places in the Kaweka Forest Park.

In the eastern Ruahine Range are two populations recently discovered by Geoff Walls: on the No Mans Road (two plants on mountain beech, U21/907763); on the Sunrise Track (seven plants on red and mountain beech, U22/815526-832517). There are several populations now known on the western side of the range.

Habitat: Upland beech forests.

Ecology: These mistletoes are almost totally dependent on nectar-feeding birds (tui and bellbird) for pollination (the birds actually open the flowers, as do native bees to a much lesser extent). Fruit dispersal is reliant on birds. New plants establish on healthy vigorous host twiglets, which can be on seedlings, saplings or mature trees.

Threats: Possum browse in particular, but also deer browse. Host death or storm damage. Lack of pollinators and fruit dispersers.

Work undertaken to date: Survey, protective management (bait station possum control, deer control, caging, tree sheathing) and regular monitoring of all three populations. Some public awareness work.

Priority sites for survey: The vicinity of all three populations. Casual survey elsewhere in the beech forests of the Kaweka and Ruahine ranges.

Objectives and priority sites for monitoring: Regular surveillance of population health and success of management, in all three populations.

Research questions: How genetically distinct are the known populations? Can *Peraxilla tetrapetala* be cultivated or boosted in the wild?

Management needs: Intensive survey to gauge extent and status of populations; continued protective management and monitoring of each population; expanded possum control at Makahu Saddle to protect the Kaweka Flats Track population.

Key contacts: Geoff Walls; Eddie Te Kahika, Department of Conservation, Puketitiri Field Centre; Kay Griffiths, Department of Conservation, Ongaonga Field Centre.

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(one site so far, Area 11, in the Mangarouhi-Waiwhero; two sites so far, Matai Moana and Awahiwi, in the Huatokitoki).

Priority sites for survey: Similar sites yet to be visited in the Mangarouhi-Waiwhero-Omakere system, and in the Huatokitoki system.

Objectives and priority sites for monitoring: To determine whether the known populations are declining, holding their own or recovering, and whether protective management is working. The key measure of success will be the recruitment of seedlings.

Research questions: Are there significant genetic differences among the Hawke's Bay populations? Can suites of these divaricating plants be restored?

Management needs: Legal and physical protection of all known populations; annual monitoring; survey of likely nearby sites; training of Department of Conservation staff in recognition of heart-leaved kohuhu.

Key contacts: Dave Phillips (Tukituki landowner); Ken Baldwin (Mangarouhi landowner); Tim Peacock (Mangarouhi landowner); Pat Bonis, Department of Conservation, Ongaonga Field Centre; Geoff Walls; Bruce Clarkson, Manaaki Whenua, Hamilton; Colin Ogle, Department of Conservation, Wanganui.

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Species: *Tupeia antarctica*

Common name: Taapia, Pirita, Green mistletoe, Brittle mistletoe

Ranking:

<i>Department of Conservation:</i>	B
<i>NZ Botanical Society/IUCN.-</i>	Rare

In cultivation: No, despite numerous attempts.

Descriptor A leafy green hemi-parasite that forms distinct clumps on its tree hosts (typically putaputaweta or fivefinger in Hawke's Bay).

Distribution

New Zealand: In various localities throughout New Zealand.

Hawke's Bay: Known from quite a few sites. Those that have been documented are:

1. The Hanger, Tutira Station (NZMS 260 V20/450123), many plants on fivefinger.

2. White Pine Bush Scenic Reserve (V20/445055), two struggling plants on putaputaweta.
3. Balls Clearing Scenic Reserve and immediate surrounds, Puketitiri (V20/117089), at least 25 plants on fivefinger.
4. Simcox Covenant, Puketitiri (V20/144054), several plants on fivefinger and putaputaweta.
5. Hartree Forest Covenant, Puketitiri (V20/135043), numerous plants on putaputaweta.
6. Little Bush and immediate surrounds, Puketitiri (V20/147035), many plants on fivefinger and putaputaweta.
7. William Hartree Memorial Scenic Reserve (V20/186052), numerous plants on putaputaweta.
8. Norsewood (U23/842204), several large but vulnerable plants growing on tree lucerne.
9. McLean's Bush Scenic Reserve, Whangaehu (V24/148823), a couple of plants on putaputaweta.

Habitat: Lowland secondary or regenerating broadleaved forest.

Ecology: Requires a plentiful supply of youthful host trees and birds to spread the whitish succulent fruit. Was probably largely a forest margin species in the past.

Threats: Possums are the most serious browse threat. Other threats are forest deterioration and clearance, stock browsing and lack of birds.

Work undertaken to date: Survey and documentation; intensive possum control, caging and monitoring of plants on conservation land; attempts at legal protection and planting of potential hosts (both unsuccessful) at Norsewood.

Priority sites for survey: The Puketitiri area; the Maniaroa, Te Waka and Maungaharuru ranges (there are several past records).

Objectives and priority sites for monitoring: To check on the conservation status of the known populations and the needs for and effectiveness of conservation management.

Research questions: Can *Tupeia antarctica* be propagated?

Management needs: Survey; monitoring of known populations; possum control; habitat protection.

Key contacts: Alan Lee, Department of Conservation, Ahuriri Field Centre; Eddie Te Kahika, Department of Conservation, Puketitiri Field Centre; Pat Bonis, Department of Conservation, Ongaonga Field Centre; Rob Whittle, Little Bush, Puketitiri; Robert McLean, Whangaehu.

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Species: *Urtica linearifolia*

Common name: Swamp nettle

Ranking: *Department of Conservation:* B
 NZ Botanical Society/IUCN:: Vulnerable

In cultivation: No.

Descriptor: A semi-woody herbaceous nettle with a weak climbing ability and narrow leaves with stinging hairs.

Distribution

New Zealand: Scattered lowland swamp sites from Bay of Plenty to Otago.

Hawke's Bay: Four recorded sites:

1. Eastern shore of Oingo Lake, SW of Napier (NZMS 260 V21/325756).
2. Willow Swamp (Otane Government Purpose Reserve), N of Otane (V22/222434).
3. Western shore of Hatuma Lake, Waipukurau (V23/103256).
4. Awahiwi, E of Dannevirke (V23/216073).

Habitat: All are wet alluvial sites. Three are wetlands dominated by willows, whilst the Awahiwi site is a poorly-drained terrace with podocarp forest.

Ecology: Needs reliably high moisture levels.

Threats: Habitat loss, weed competition, grazing and browsing, physical damage (recreationists, stock) and lack of legal protection.

Work undertaken to date: Limited survey. Incidental protection of the Awahiwi site via PNAP. Exclusion of stock from Lake Hatuma.

Priority sites for survey: Each of the recorded sites (to ascertain the status of their populations); other lowland wetlands in Hawke's Bay.

Objectives and priority sites for monitoring: To check on the degree of health and conservation needs of each of the known populations.

Research questions: What are the habitat requirements and conservation management needs of *Urtica linearifolia*?

Management needs: Survey and monitoring.

Key contacts: Alan Lee and Hans Rook, Department of Conservation, Ahuriri Field Centre; Pat Bonis, Department of Conservation, Ongaonga Field Centre.

References

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2.3 CATEGORY C SPECIES

Species: *Mazus novaezeelandiae*

Common name: Dwarf musk

Ranking: *Department of Conservation:* C
NZ Botanical Society/IUCN. Vulnerable

In cultivation: ? Not difficult to transplant or grow from seed.

Descriptor: A cryptic creeping herb forming rosettes of leaves from which arise inflorescences of white flowers.

Distribution

New Zealand: Scattered throughout New Zealand from North Cape to Central Otago.

Hawke's Bay: Two recorded sites, both of which have *Pittosporum obcordatum*:

1. Matai Moana (V23/196085).
2. Awahiwi (V23/216073).

Habitat: Alluvial forest floor (in Hawke's Bay).

Ecology: A rhizomatous perennial herb that can grow on a shady forest floor or in open turf-community sites. May rely on disturbance such as periodic flooding.

Threats: Habitat loss and deterioration, trampling by stock, vehicle damage, weed competition.

Work undertaken to date: Casual survey only; incidental protection of known sites via protection on behalf of *Pittosporum obcordatum*.

Priority sites for survey: All known *Pittosporum obcordatum* sites; other alluvial forest remnants in the vicinity.

Objectives and priority sites for monitoring: To check on the condition and conservation needs of the known populations.

Research questions: What are the management requirements of *Mazus novaezeelandiae*?

Management needs: Survey and monitoring. Cultivation to ensure some stock persist in a safe place and for advocacy.

Key contact: Dave King, Department of Conservation, Gisborne.

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Species: *Deschampsia caespitosa* var. *macrantha*

Common name: Tufted hair grass, Wavy hair grass

Ranking: Department of Conservation: C
NZ Botanical Society/IUCN.- Vulnerable

In cultivation: ?

Descriptor: A grass, forming a stiff tussock with flower heads up to a metre high.

Distribution

New Zealand: A few wet places in the main islands, Stewart Island and the Chathams.

Hawke's Bay: Only one recorded site: the western of the two Kaweka Lakes (NZMS 260 U20/997992). Collected by Colin Ogle in 1974; described in Clarkson & Druce 1984.

Habitat: Manuka scrub on lake edge gravel, partial shade.

Ecology: Requires wettish fairly open sites near lakes, rivers and swamps.

Threats: Drying of lake edge, shading by regenerating low forest, competition from woody plants, rushes, exotic grasses and sedges, heavy browsing by deer, hares or rabbits.

Work undertaken to date: None: no-one has checked since 1984 to see if it is still at the Kaweka Lakes.

Priority sites for survey: Kaweka Lakes.

Objectives and priority sites for monitoring: Kaweka Lakes: to check on its condition if still there.

Research questions: What are the management and habitat requirements of this grass? How genetically distinct from overseas plants is it?

Management needs: Urgent survey.

Key contacts: Bruce Clarkson, Manaaki Whenua, Hamilton; Colin Ogle, Department of Conservation, Wanganui.

Management needs: Survey for new populations; monitoring of existing populations; cultivation for backup, advocacy and training purposes.

Key contacts: Geoff Walls; Dave King, Department of Conservation, Gisborne; Pat Bonis, Department of Conservation, Ongaonga Field Centre.

References

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2.4 CATEGORY I SPECIES

Species: *Pimelea aridula* agg. (two entities)

Common name: Small native daphnes

Ranking:	<i>Department of Conservation:</i>	I
	<i>NZ Botanical Society/IUCN.-</i>	Insufficiently known

In cultivation: Yes, at Percy's Reserve, Petone

Descriptor: Small low-growing shrubs with grey-green leaves covered in silvery hairs and pinkish-cream flowers.

Distribution

New Zealand: North and South Islands from Maungaharuru Range south. *Pimelea aridula* s.s. is confined to Central Otago.

Hawke's Bay: There are two geographically and genetically distinct entities that are confined to Hawke's Bay:

1. A small population known only from Te Mata Peak (NZMS 260 V22/449597). First described by Elder (1953); collected by Druce (1967). By 1997 has become very rare on site (Geoff Walls found only 5 plants).
2. A much stronger population on the crests of the Maungaharuru and Te Waka Ranges, northern Hawke's Bay. This entity is distinctly hairier than the Te Mata Peak one.

Habitat: Limestone bluffs above 300 m asl at Te Mata Peak. Bluffs and grazed grasslands above 900 m asl on the crests of the Maungaharuru and Te Waka Ranges, where it forms clumps and extensive patches.

Ecology: Formerly probably confined to bluffs, where competition from other bigger plants was not intense. Able to grow in grazed grasslands where the grazing pressure is fairly low.

Threats: Weed competition, goats, forestry.

Work undertaken to date: Survey.

Priority sites for survey: Te Mata Peak first and foremost. Other limestone bluffs nearby, e.g. Maraetotara Plateau, Kahuranaki.

Objectives and priority sites for monitoring: Condition and trend of population at Te Mata Peak. Watching brief on Maungaharuru and Te Waka Ranges.

Research questions: What is the taxonomic status of these two entities? What are their management requirements?

Management needs: Intensive survey and monitoring at Te Mata Peak. Casual monitoring at Maungaharuru and Te Waka Ranges.

Key contacts: Geoff Walls; Geoff Rogers, Department of Conservation, Dunedin; Colin Ogle, Department of Conservation, Wanganui.

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- Cameron, E.K.; de Lange, P.J.; Given, D.R.; Johnson, P.N.; Ogle, C.C. 1995. New Zealand Botanical Society threatened and local plant lists (1995 revision). *NZ Botanical Society Newsletter* 39: 15-28.
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- Druce, A.P. 1967. Te Mata Peak, Havelock North, supplementary notes. *Bulletin of Wellington Botanical Society* 34: 25-28.
- Elder, N.L. 1953. Te Mata Peak, Havelock North. *Bulletin of Wellington Botanical Society* 26: 9-10.
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Species: *Pterostylis* aff. *graminea*

Common name: A hooded orchid species, as yet undescribed formally.

Ranking:	<i>Department of Conservation:</i>	1
	<i>NZ Botanical Society/IUCN</i>	Insufficiently known

In cultivation: No.

Descriptor: A slender green hood with a pinkish tint.

Distribution

New Zealand: Hawke's Bay and Nelson-Marlborough.

Hawke's Bay: Reputed to have been found in Elsthorpe Scenic Reserve, but the exact locality isn't clear.

Habitat: Forest floor. Possibly also epiphytic on tree fern trunks.

Ecology: Probably once more common, but now very rare because of habitat loss and the impact of introduced mammals.

Threats: Habitat deterioration, collectors.

Work undertaken to date: None.

Priority sites for survey: Any recorded sites: a national herbarium check would be necessary.

Objectives and priority sites for monitoring: To ascertain its continued presence in any known site, should it be found.

Research questions: What is the taxonomic status of this orchid? The question is being worked on by Manaaki Whenua.

Management needs: Survey.

Key contacts: Peter de Lange, Department of Conservation, Auckland; New Zealand Orchid Group, Wellington.

References

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2.5 CATEGORY O SPECIES

Species: *Korthalsella salicornioides*

Common name: Dwarf mistletoe (one of three species in New Zealand)

Ranking: *Department of Conservation:* O
NZ Botanical Society/IUCN. Insufficiently known

In cultivation: No.

Descriptor: A tufted parasitic plant 3-10 cm long and with jointed stems like glasswort.

Distribution

New Zealand: North Cape to Stewart Island.

Hawke's Bay: Not currently known.

Habitat: Parasitic on manuka and kanuka.

Ecology: Probably dependent on large tracts of manuka and kanuka.

Threats: Habitat destruction.

Work undertaken to date: None: searches throughout the district whilst on other business, but no finds.

Priority sites for survey: Large tracts of manuka and kanuka.

Objectives and priority sites for monitoring: To check on continued presence if discovered.

Research questions: What are the threats and conservation needs of this mistletoe?

Management needs: Survey; habitat protection.

Key contact: Colin Ogle, Department of Conservation, Wanganui.

References

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3. Other significant plants

3.1 PLANTS HAVING HIGH CULTURAL VALUE TO MAORI

The following plants have well-documented traditional uses and are sought to varying degrees by artists, craftspeople and practitioners in Hawke's Bay. Requests are handled by a Hawke's Bay Cultural Materials Committee, of which Department of Conservation is a part. Most of the species are listed in Molloy & Davis (1994) as Category M species: "those of cultural importance to Maori that are rare or localised". Only Tainui is listed as threatened (Cameron et al. 1995). Relevant references are listed at the end of this section. The plants are:

Aruhe, Bracken	<i>Pteridium esculentum</i> (local cultivars)
Harakeke, Lowland flax	<i>Phormium tenax</i> (local cultivars)
Karaka	<i>Corynocarpus laevigatus</i>
Kawakawa	<i>Macropiper excelsum</i>
Kiekie	<i>Freycinetia baueriana</i> subsp. <i>banksii</i>
Kutakuta, Bamboo spike-sedge	<i>Eleocharis sphacelata</i>
Pingao, Golden sand sedge, Nga tukemata o Tane	<i>Desmoschoenus spiralis</i>
Tainui	<i>Pomaderris apetala</i> Vulnerable
Ti kouka, Cabbage tree	<i>Cordyline australis</i>
Totara	<i>Podocarpus totara</i>
Wharariki, Coastal flax, Mountain flax	<i>Phormium cookianum</i> (named cultivars)

Aruhe, Bracken *Pteridium esculentum* (local cultivars)

A common fern of open disturbed sites. Formerly widely relied on for food (the rhizomes were cooked and eaten). There were many named varieties or cultivars. Particular areas in Hawke's Bay, such as the slopes north of Lake Tutira, were known for their good rhizomes and were gardened using regular burning to ensure reliable supply. The only management recommended is ethnobotanical/historic research into aruhe use, and collection of samples for cultivation and for the record if any named cultivars are found. Contact people: Elizabeth Pishief and Whetu Tipiwai, Department of Conservation, Napier.

Harakeke, Lowland flax *Phormium tenax* (local cultivars)

This is arguably the most well-known and significant plant for people in New Zealand, being much used in the past for clothing, footwear, matting, kete (baskets), cordage, rongoa (medicine), flotation, territorial demarkation, ornamentation, dyes and food (nectar). Many of these uses persist or are being revived, and there are new ones such as paper-making and sculpture. There are four named Hawke's Bay cultivars in existence (Scheele & Walls 1994):

Kauhanga, a tall decorative flax with a distinctive red leaf margin, fairly weak fibre and strong korari (flower stalks) used to make rafts.

Takaiapu, a good all-purpose flax with strong leaves and fibre, especially for whariki (mats) and fishing lines.

Tapoto, one of the favourites of Hawke's Bay Maori. Once prevalent where Havelock North now stands. Recognised for its beautiful glossy fibre, and used for making kaitaka (fine cloaks), whariki, piupiu and kete. Some of this flax was used to manufacture high-quality garments in France last century.

Te Mata, a very tall ornamental flax with rather coarse fibre. May be good for whariki because of its length.

These cultivars are in two plantations in Hawke's Bay: at the National Flax Collection run by Manaaki Whenua at Havelock North; on conservation land at the rear of Ahuriri Estuary (Onehunga Road). It is recommended that Department of Conservation staff visit the Manaaki Whenua plantation and maintain and celebrate the Onehunga Road plantation, using divisions as koha on appropriate occasions. Contact people: Alan Lee, Department of Conservation, Ahuriri Field Centre; Sue Scheele, Manaaki Whenua, Havelock North; Geoff Walls.

Karaka *Corynocarpus laevigatus*

A large lowland broadleaved tree, one of the best food plants of New Zealand. Cultivated in groves (orchards) in the past for its big edible fruit, the kernel of which is highly poisonous until well cooked and steeped in water. The species was probably originally a Northland endemic, but was carried and grown by Maori southwards to Canterbury and on the Chathams. Big birds such as kereru have spread it about until it is hard to detect the old plantations. The obvious places to begin research in Hawke's Bay are the coastal flats and valley mouths, such as Waipatiki, Ocean Beach, Kairakau, Porangahau, and Herbertville. It could turn out that some of these sites are highly significant for their karaka groves. Contact people: Elizabeth Pishief and Whetu Tipiwai, Department of Conservation, Napier.

Kawakawa *Macropiper excelsum*

A lowland small tree with large heart-shaped leaves. Closely related to the kava plant of the tropical Pacific. Widely used in the past for rongoa, and still sought for such use in a big way. Has an edible fruit, spread by birds. Quite common in coastal forest and scrub, but these ecosystems are now rare in Hawke's Bay. Requests are diverted to land not set aside for conservation, although illicit harvesting from scenic reserves still occurs regularly. Kawakawa can recover from harvesting and browsing quickly, but it is suggested that sites in White Pine Bush, Tangoio, and Waipatiki Scenic Reserves be selected and monitored

using photographs and small plots. Contact people: Alan Lee and Whetu Tipiwai, Department of Conservation, Napier.

Kiekie *Freycinetia baueriana* subsp. *banksii*

A scrambler with long narrow leaves, usually found in lowland forest. A member of the screwpine family that includes pandanus, a highly useful plant of the tropics. The leaves are prized for fine weaving. The fruit and flower bracts are regarded as one of the most delectable foods of the forest, but are now eaten by rats and possums as soon as they appear. Kiekie is rare in Hawke's Bay, virtually confined to Tangoio, White Pine Bush, and Waipatiki Scenic Reserves. It is recommended that Department of Conservation improve the regimes of possum and goat control in these reserves and monitor the kiekie annually using plots and photographs. Contact people: Alan Lee and Whetu Tipiwai, Department of Conservation, Napier.

Kutakuta, Bamboo spike-sedge *Eleocharis sphacelata*

A tall sedge that grows in fresh water at the margins of lowland swamps, lakes and lagoons throughout the country. The stems, flattened and dried, were much used in the past for plaiting pliable mats, a practice that still endures in some places. With the assault on lowland wetlands through draining, grazing and weed invasion over the last century or more, the habitat for kutakuta has radically diminished. In Hawke's Bay kutakuta is now quite rare, and nowhere are supplies sufficient to sustain much of a harvest. It is suggested that Department of Conservation advocate that lowland wetlands in Hawke's Bay that have the best potential to grow kutakuta - such as Pekapeka Swamp, Lake Poukawa, Hatuma Lake, Lake Tutira, Oingo Lake, and Runanga Lake - have grazing animals largely excluded. It is further suggested that Department of Conservation set up a series of monitoring plots and photopoints at these wetlands to follow the progress of the kutakuta. Contact people: Hans Rook and Whetu Tipiwai, Department of Conservation, Napier.

Pingao, Golden sand sedge, Nga tukemata o Tane *Desmoschoenus spiralis*

Our most remarkable sand-dune specialist plant, an endemic giant sedge with long golden leaves and rope-like runners that flow with the moving sand. Grows on living dunes nearest the sea. Prized by artists and craftspeople for its rich golden leaves, much used in plaiting, weaving, tukutuku panelling and sculpture. Formerly far more abundant, but depleted by habitat loss, farming, forestry, coastal settlement, fire, off-road vehicle use, weed competition (mainly marram grass), goats and rabbits (who nibble off the seedlings). In Hawke's Bay, pingao still persists in a few places: Punakarau (Tait's or McKay's Beach), Rangaika, Ocean Beach, Porangahau, Cape Turnagain, and south of Herbertville. Nowhere is it safe. The best population on the East Coast is at Ocean Beach, but even there it is fading fast (as Geoff Walls' research shows). What is needed is legal protection of the dunes (identified as a RAP in Maxwell et al. 1993), marram control, rabbit control and proper fencing and signage to keep out stock and off-road vehicles. Department of Conservation has custodianship of the seaward strip of the dune system, so should be able to make this a priority. A partnership between Department of Conservation, Haupouri Station and the Maori users would be ideal, but Haupouri seems very resistant so far. Pingao has been raised from Bay of Plenty stock (particularly good for weaving) and planted

out at the beach between Black Reef and Cape Kidnappers in the last few years. Contact people: Alan Lee, Whetu Tipiwai and John Adams, Department of Conservation, Napier; Geoff Walls; Jody Stent, Otatara Roopu Raranga.

Tainui *Pomaderris apetala* Vulnerable

A small erect tree with rugose leaves and sprays of small tawny flowers. Grows naturally in isolated sites from Kawhia to Mokau, but no longer secure. Said to be named for the Tainui canoe, and there is a tradition that the tree sprang from the green timber of which the canoe was made (Riley 1994). Cultivated as a garden ornamental. Naturalised at Geraldine (Canterbury) and recorded from the Chathams (though no longer there). There is a historical record from Puketapu in Hawke's Bay, and although there is no recent evidence of its continued existence there, it should be checked out. Contact people: Dave King, Department of Conservation, Gisborne; Elizabeth Pishief, Department of Conservation, Napier.

Ti kouka, Cabbage tree *Cordyline australis*

Probably the most symbolically evocative and significant tree in the New Zealand landscape. Perhaps even more so in Hawke's Bay, where it is the only reminder of the former forests in vast tracts of the lowlands. Ti kouka isn't rare, but it is certainly at risk in Hawke's Bay: from disease, exposure to the elements, stock damage, fire, forestry and sheer neglect. Numerous traditional uses of ti kouka have been documented (Riley 1994), including for food (growing shoots and baked stems), plaiting, weaving and net-making (leaves), and medicine. Trees were used as markers, sometimes for the interment of skeleton and often the whenua or placenta was buried beneath a tree. Some trees were considered to be bewitched and to move around. Individual ti kouka trees thus had great importance, and some of these have been recorded in Hawke's Bay (Guthrie-Smith 1953 and the writings of William Colenso). Philip Simpson (Department of Conservation, Wellington) has checked some of these out and is the authority on ti kouka nationally. Further local work should be done though, and for this purpose the contact people are: Elizabeth Pishief and Whetu Tipiwai, Department of Conservation, Napier. Should such trees be located still alive, they should at the very least be registered and protected from stock.

Totara *Podocarpus totara*

One of the biggest trees of the New Zealand lowlands, once widespread but now radically depleted. Has small red fruit sought after by birds. Highly prized in the past for its timber, excellent for building, durability in the ground, carving and waka construction. Also for its strong bark that was stripped for making containers, roofing and decorations. Virtually the sole host for the mistletoe *Illeostylus micranthus* in Hawke's Bay (the Ongaonga vicinity), and protected there for that reason. Totara is now found mostly as scattered treelands and forest remnants in central and northern Hawke's Bay. The most massive specimens, like gigantic broccoli, are within the Gallen & Lattey Covenant (QE II National Trust) at the SE foot of the Maungaharuru Range. Little else has formal protection. Several areas dominated by totara are identified as RAPs (Lee 1994, Townsend 1996), and Department of Conservation should work on protection of these. Monitoring of samples of totara treeland is also recommended. Contact people: Alan Lee and John Adams, Department of

Conservation, Napier; Eddie Te Kahika, Department of Conservation, Puketitiri; Pat Bonis, Department of Conservation, Ongaonga.

Wharariki, Coastal flax, Mountain flax *Phormium cookianum*
(named cultivars)

Smaller than harakeke and not so strong in the fibre, so consequently less traditionally useful. However, several cultivars have been deliberately selected and cultivated for their particular qualities over the centuries. At least three from the East Coast are growing at the plantations at Havelock North and Onehunga Road (*see Harakeke*), and several others clearly contain wharariki genes. There are no apparent records of any specific to Hawke's Bay, although historic and ethnobotanical research could turn some up. Contact people: Alan Lee, Department of Conservation, Ahuriri Field Centre; Sue Scheele, Manaaki Whenua, Havelock North; Geoff Walls.

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3.2 PLANTS AT DISTRIBUTION LIMITS OR ANOMALIES, OR OF REGIONAL SIGNIFICANCE

The following are plants that in Hawke's Bay are at geographical extremes or anomalies, or are significant in the region because they are rare, unusual, possibly extinct or possibly present though as yet undetected. Those that are listed by Department of Conservation (Molloy & Davis 1994) and NZ Botanical

Society (Cameron et al. 1995) as threatened are given their categorisation. The species are:

<i>Adiantum formosum</i>		Rare
<i>Austrofestuca littoralis</i>	Sand tussock	Rare
<i>Bulbophyllum tuberculatum</i>		
<i>Coprosma wallii</i>		B/Vulnerable
<i>Discaria toumatou</i>	Matagouri	
<i>Dracophyllum latifolium</i>	Neinei	
<i>Dysoxylum spectabile</i>	Kohekohe	
<i>Hebe colensoi</i> (two varieties: <i>colensoi</i> and <i>hillii</i>)		
<i>Helichrysum depressum</i>		
<i>Ileostylus micranthus</i>	Common mistletoe	Local
<i>Ixerba brexioides</i>	Tawari	
<i>Lepidium oleraceum</i>	Cook's scurry grass	B Endangered
<i>Metrosideros robusta</i>	Northern rata	
<i>Muehlenbeckia astonii</i>	Shrubby torararo	A/Endangered
<i>Muehlenbeckia ephedroides</i>		Local
<i>Myosotis petiolata</i> s.s.		I/Insufficiently known
<i>Myosotis saxosa</i>		
<i>Myriophyllum robustum</i>	Stout water-milfoil	B/Rare
<i>Pimelea arenaria</i>	Sand daphne	Rare
<i>Pleurosorus rutifolius</i>		Local
<i>Pseudopanax ferox</i>	Fierce lancewood	Local
<i>Senecio sterquilinus</i>		

Adiantum formosum Rare

A large maidenhair fern, restricted in distribution. Locally abundant in the forest at the eastern end of Manawatu Gorge Scenic Reserve.

Austrofestuca littoralis , Sand tussock Rare

Recorded from Porangahau Beach by Tony Druce. Recent surveys have failed to find it.

Bulbophyllum tuberculatum

A small orchid epiphytic in the canopies of tall lowland forest trees. Known in Hawke's Bay only from White Pine Bush. Also at Morere Springs Scenic Reserve.

Coprosma wallii B/Vulnerable

A small small-leaved tree of alluvial forests. Not recorded from Hawke's Bay but could be in the systems containing *C "violacea"* and *Pittosporum obcordatum*.

Discaria toumatou , Matagouri

A spiny shrub, common in the South Island but virtually unknown in the North Island. Recorded in the past from as far north as Mahia Peninsula. Known from two current Hawke's Bay sites: the coastal flats behind Porangahau Beach; a sand-blow on the coast south of Herbertville.

Dracophyllum latifolium, Neinei

An elegant "grass tree" with rugose bark, common in the damp forests of the Urewera country and further north. Reaches its southern limit in Boundary Stream Mainland Island, where there is a single tree.

Dysoxylum spectabile, Kohekohe

A broadleaved tree of tropical origins, found in parts of New Zealand free of frosts, cold and severe droughts. Not found in Hawke's Bay at all: there is a gap in its distribution from the Mohaka River in the north to the southern Wairarapa in the south.

Hebe colensoi (two varieties: *colensoi* and *hillii*)

Low-growing shrubs with glaucous leaves and white flowers. Named after Hawke's Bay's most illustrious explorer botanist, William Colenso. Both varieties are restricted to the area from the northern Ruahine Range to the north-eastern Kaweka Range, almost exclusively on the rock faces of the big rivers.

Helichrysum depressum

A dead-looking small shrub with tiny appressed leaves and insignificant flowers. Common in greywacke riverbeds in the South Island. Found in the North Island in only two sites, both in Hawke's Bay: in the gravel on the true left of the Ngaruroro River about 4 km upriver from Kuripapango (NZMS 260 U20/967984); in the lower Donald River on flood-prone flats (U20/060985).

Ileostylus micranthus, common mistletoe

Local

A large-leaved hemi-parasite found throughout the country on a range of hosts. Rare in Hawke's Bay, recorded only from Little Bush (NZMS 260 V20/150034) and Te Wairere (V20/155061) in the Puketitiri vicinity (hosted on horopito, *Coprosma rigida* and pear!) and from near Ongaonga, hosted on totara.

Ixerba brexioides, Tawari

A small tree of montane forests, with large white flowers that make delicious honey. Common in the Urewera country and further north. At its southern limit in Boundary Stream Mainland Island.

Lepidium oleraceum, Cook's scurvy grass

B/Endangered

A semi-woody herb in the brassica family. Once abundant around the coasts of New Zealand and its islands, especially at or near seabird colonies. Now virtually extinct on the mainland but persisting on outlying mammal-free islands. The only record from Hawke's Bay is from Black Reef near Cape Kidnappers. Most likely extinct there now. A good candidate for reintroduction to Motu-o-Kura (Bare Island) which is now rodent-free.

Metrosideros robusta, Northern rata

A forest tree with Christmas-red flowers, often beginning life as an epiphyte. Once undoubtedly widespread in the Hawke's Bay lowlands, but now virtually absent because of forest clearance and browsing by stock and possums. A few trees remain on streamsides in the SE Ruahine Range foothills, and at least one occurs in McLean's Bush Scenic Reserve, Whangaehu. Also in Mahia Peninsula Scenic Reserve.

Muehlenbeckia astonii, Shrubby torararo

A/Endangered

A small tangled bush of exposed coasts. Not recorded from Hawke's Bay, but could occur on the southern coast.

Muehlenbeckia ephedroides

Local

A wiry prostrate shrub with few leaves and grooved grey stems that look like discarded No. 8 wire. Once widespread in dry gravelly sites, but no longer common in New Zealand. Known only at one Hawke's Bay site: Te Awanga shore (NZMS 260 W21/677508), designated as a RAP (Lee 1994) but threatened with weed competition and physical damage.

***Myosotis petiolata* s.s.**

I/Insufficiently known

A small rosette-forming native forget-me-not associated with lowland limestone. Past distribution: Auckland to Nelson, including Hawke's Bay. No recent North Island collections, despite searches, and may now be extinct. Priority sites for survey are "historical sites on the East Coast..." (Dopson & Molloy, in prep.).

Myosotis saxosa

Another small rosette-forming native forget-me-not. Leaves clad in silvery hairs. Found in the mountains of the Kaweka, Te Waka, and Maungaharuru ranges, but nowhere common. Formerly thought to be a distinct Hawke's Bay entity solely confined to the Titiokura area (Allan 1961), and until recently listed by NZ Botanical Society as threatened. The population on the summit of Ahuateatua in the Maungaharuru Range (NZMS 260 V19/328217) is worth monitoring.

Myriophyllum robustum, Stout water-milfoil

B/Rare

A feather-leaved water plant found in scattered wetland sites from Kaitaia to Fiordland, but now very reduced in abundance. Formerly recorded from Horseshoe Lake, Patangata, Hawke's Bay, but now extinct there.

Pimelea arenaria, Sand daphne

Rare

A handsome small shrub, having leaves clad in silver hairs and pinkish flowers, adapted to grow on sand dunes. Found in Hawke's Bay only in the deep south: in the dunes at Cape Turnagain and on a sand blow south of Herbertville. Apparently thriving there at present, but worth monitoring in the light of the increased concern being shown this plant by the threatened plant botanists.

Pleurosorus rutifolius

Local

A small inconspicuous fern with furry leaves. Found on rock outcrops in very dry sites (Brownsey & Smith-Dodsworth 1989; Given, 1981). Rare in the North Island and known only from two populations in Hawke's Bay: at Bay View, Napier, on private land owned by Ashley Cunningham (a Hawke's Bay forester of renown), NZMS 260 V20/427914; the Ikawatea Valley, northern Ruahine Range (Tony Druce record). The Bay View population is of about 30 plants on limestone boulders within an exotic pine plantation. It would be easy to liaise with Ash for monitoring purposes.

Pseudopanax ferox, Fierce lancewood

Local

A smallish tree allied to *P. crassifolius* but distinguished by the hooked teeth on the leaves and the large fruit. The juveniles resemble small resting helicopters. This is a species scattered from Northland to Southland in small localised populations. It has yet to be authoritatively recorded from Hawke's Bay but could be present in the foothills of the ranges or in scrubby gullies in the south-east.

Senecio sterquilinus

An erect short-lived perennial herb with lush green leaves and masses of yellow spring flowers. Typically associated with seabird colonies. Known only from the type locality (Ahuriri Estuary, Hawke's Bay), Cook Strait islands, and Punakaiki, West Coast (Webb et al. 1988). Probably long extinct at the type locality, but worth bearing in mind.

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