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8. Appendices

8.1 FIELD SURVEY FORM

DEPARTMENT OF CONSERVATION
PROTECTED NATURAL AREAS PROGRAMME

NAME OF HABITAT: ..... **DATE:**.....
GRID REF.: ..... **SSBI NO.:** ..... **PNA NO.:** .....
HABITAT TYPE(S): .....
.....
GEOMORPHOLOGICAL TYPE(S): .....
.....
.....
.....
.....
VEGETATION TYPE(S):

Vegetation Type	% of Total Habitat	Percentage of Cover Value (canopy)			
		Abundant (50-100)	Common (20-50)	Uncommon (5-20)	Rare (0-5)

Vegetation Type	% of Total Habitat	Percentage of Cover Value (canopy)			
		Abundant (50-100)	Common (20-50)	Uncommon (5-20)	Rare (0-5)

Department of Conservation
Te Papa Atawhai

Dear Landowner,

Department of Conservation officers are currently surveying significant natural areas, e.g. bush, wetlands, gumland etc within the Far North District. This has involved mapping natural areas from roadsides or (with the permission of landowners) from other viewpoints, and recording information on their type and condition.

You may well have already talked to staff working in your area. If not, at a later stage departmental staff may ask for permission to enter your land and gather more detailed information on your properties natural areas.

Why are we doing this survey? Northland's natural areas, especially bush pockets, contribute significantly to the character and quality of the region. Many of these areas are habitat for some of our increasingly rare native wildlife.

The Resource Management Act 1991 requires District Councils to consider the natural areas they administer when preparing the District Plan. The information compiled from this survey will be given to the Far North District Council to provide them with a "snapshot" of the distribution and condition of natural areas in the various parts of Northland at a single point in time. The information will be valuable as a reference point for assessing habitat changes over time.

Perhaps the principal value of this survey will be to provide you, the landowners, with information on the significance and makeup of the natural areas that you have preserved on your property so you can better plan the way you wish to manage these areas.

If you have any questions or concerns about the survey process, please contact your local Department of Conservation Field Centre or ring **Peter Anderson, Fraser Moors or John Beachman** at our Whangarei Office, telephone **(09) 438 0299, fax (09) 438 9886.**

If you wish to contact the Far North District Council about this aspect of the District Plan, please phone Peggy Kilberg at the Kaikohe office, telephone **(09) 401 2101.**

Gerry Rowan
REGIONAL CONSERVATOR

Flora—New Zealand threatened and uncommon vascular plants

In this report categories of threat are taken from *Threatened and uncommon plants of New Zealand* (de Lange et al. 1999), which is a revision of Cameron et al. (1995) by the New Zealand Threatened Plant Committee. The revised categories of threat are as proposed by de Lange & Norton (1998). These categories are:

Presumed Extinct

Taxa that are no longer known to exist in the wild both within New Zealand and (if applicable) their overseas range, or in cultivation after repeated searches of known or likely localities.

Critically Endangered

Taxa whose extinction is considered inevitable within a stated time period (10 years) unless there is direct conservation intervention, or which persist as individuals or populations reduced to sufficiently critically low levels that extinction through stochastic events is a distinct possibility. Some critical taxa are now only known from cultivation.

Endangered

Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Vulnerable

Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating. Included are taxa of which most or all populations are decreasing because of over-exploitation, extensive destruction of habitat, or other environmental disturbance; and taxa with populations that continue to be seriously depleted and whose ultimate security is not yet assured.

Declining

Taxa that are numerically abundant but which are either under threat from serious adverse factors throughout their range, or occur as widely scattered, typically small populations which are undergoing declines through loss of reproductive ability, recruitment failure, predation, or through other processes of often subtle habitat change. Declining taxa are listed to highlight their plight, for without some level of management they are destined to become the future threatened plants of New Zealand.

Recovering

Taxa whose populations are either: (1) naturally restricted to susceptible habitats (e.g. offshore islands), where their survival is utterly dependent on continual rigid conservation measures (e.g. rodent control), or (2) taxa whose populations were once under serious threat and, as a result of past conservation

intervention (e.g. goat eradication), have shown the capacity to recover naturally without further management measures.

(1) Conservation Dependent

Taxa whose survival is now dependent on the continuation of existing conservation measures.

(2) Natural Population Recovery

Taxa whose populations were once reduced to precariously low levels and still occur as small populations. As a result of past conservation intervention, the candidate taxa have demonstrated the ability to recover their former range through natural means, to such an extent that further conservation assistance is no longer required.

Naturally uncommon

Taxa that are not considered under immediate or obvious threat but which, for varying reasons, have the potential to become threatened. Three subheadings are recognised to accommodate the different situations whereby taxa can be naturally uncommon.

Sparse

Taxa that, for largely undetermined reasons, occur within typically small and widely scattered populations. This distribution appears wholly natural and is not considered the result of past or recent anthropogenic disturbance. However, as the candidate taxa usually occur in small numbers at any given site, they are naturally susceptible to extirpations within parts of their range.

Vagrant

Taxa whose presence within the New Zealand botanical region is naturally transitory. These are invariable taxa that have failed to establish themselves significantly beyond their point of introduction through reproductive failure or for quite specific ecological reasons. Many vagrants are able to reproduce only by vegetative means and, in such instance, when in suitable habitats, they can form extensive clonal populations.

Range Restricted

Taxa whose distribution is naturally confined to specific substrates (e.g. ultramafic rock), habitats (e.g. high alpine fell field), or geographic areas (e.g. subantarctic islands). Typically Range Restricted taxa are under no obvious or immediate anthropogenic threat.

Insufficiently Known

Taxa that are suspected but not definitely known to belong to any of the above categories because of a lack of information. It is hoped that listing a taxon as 'Insufficiently Known' will stimulate studies to find out its true category of threat.

Taxonomically Indeterminate Taxa

This category includes described taxa about which there is doubt regarding taxonomic status and which require further investigation, and those recently discovered taxa whose taxonomic status has yet to be determined. In both instances, available information suggests that candidate taxa could be under some level of threat. A total of 92 taxa are included.

Fauna—Molloy & Davis (1994) Categories of Threat

The Molloy & Davis categories were developed to identify species which should be assessed for conservation action. It includes taxonomic groups such as bryophytes and invertebrates that are not ranked under IUCN categories.

The Categories are:

Category A	Highest priority threatened species (score > 47 out of a possible 83).
Category B	Second priority threatened species (score 39–47 inclusive).
Category C	Third priority threatened species (score 30–38 inclusive).
Category X	Species which have not been sighted for a number of years but which may still exist.
Category I	Species about which little information exists, but based on existing evidence, are considered to be threatened.
Category O	Species which are threatened in New Zealand, but which are known to be secure in other parts of their range outside New Zealand.
Category M	Species that are rare or localised, and of cultural importance to Maori.

8.4 CATEGORIES OF IMPORTANCE FOR GEOLOGICAL AND SOIL SITES

Ranking criteria for New Zealand soil sites of international, national, and regional significance, from Arand et al. (1993).

Geological sites

Sites are listed under three levels of importance:

(a) International – site of international scientific importance.

(b) National – site of national scientific, educational or aesthetic importance.

(c) Regional – site of regional scientific, educational or aesthetic importance.

Soil sites

Soil sites are listed under three levels of importance:

(a) International

- Contains the best example of a soil (generally a soil group) or soil-vegetation or soil-landform association that is unique to New Zealand (or these latitudes),
- contains a soil that is naturally uncommon or greatly reduced in extent in other parts of the world,
- contains a wide range of extensive with a relatively unmodified vegetation cover, or
- has been studied in detail and is known internationally.

(b) National

- Contains the best or a 'classic' example of a soil (either a soil group or a mapping unit) or a soil-vegetation or a soil-landform association in New Zealand,
- contains a soil or soil-vegetation or a soil-landform association that is nationally uncommon or reduced in extent,
- contains a moderate range of extensive soils with a relatively unmodified vegetation cover, or
- has been studied in detail and is known nationally.

(c) Regional

- Contains the best regional example of a soil (generally a mapping unit) or a soil or soil-vegetation or a soil-landform association, or
- contains a limited range of soils under vegetation that is relatively unmodified.

8.5 FAUNA

Checklist of birds of Northland recorded in the Maungataniwha Ecological District

Nomenclature follows Turbott (1990) and Heather & Robertson (2000). This checklist was compiled by R. Pierce in 2002.

X = recorded in the Maungataniwha Ecological District.

Excludes vagrants; * = introduced.

COMMON NAME	OTHER NAME	SCIENTIFIC NAME	
NI brown kiwi	Kiwi	*Apteryx australis mantelli*	X
Little-spotted kiwi	Kiwi-pukupuku	*A. owenii*	
NZ dabchick	Weweia	*Poliocephalus rufopectus*	
Australian little grebe		*Tachybaptus n. novaehollandiae*	
Buller's mollymawk		*Diomedea bulleri*	
Yellow-nosed mollymawk		*D. chlororhynchos*	
Flesh-footed shearwater	Toanui	*Puffinus carneipes*	
Buller's shearwater		*P. bulleri*	
Sooty shearwater	Titi	*P. griseus*	
Fluttering shearwater	Pakaha	*P. gavia*	
NI little shearwater		*P. assimilis haurakiensis*	
Common diving petrel	Kuaka	*Pelecanoides u. urinatrix*	
Black petrel	Taiko	*Procellaria parkinsoni*	
Cape pigeon	Pintado petrel	*Daption capense*	
Southern giant petrel		*Macronectes giganteus*	
Fairy prion	Titi wainui	*Pachyptila turtur*	
Pycroft's petrel		*Pterodroma pycrofti*	
Black-winged petrel		*P. nigripennis*	
Grey-faced petrel	Oi	*P. macroptera gouldi*	
White-faced storm petrel	Takahikare-moana	*P. marina*	
Blue penguin	Korora, little blue penguin	*Eudyptula minor*	X
Australasian gannet	Takapu	*Morus s. serrator*	X
Black shag	Kawau	*Phalacrocorax carbo novaehollandiae*	X
Pied shag	Karuhiruhi	*P. v. varius*	X
Little black shag		*P. sulcirostris*	X
Little shag	Kawaupaka	*P. melanoleucos brevirostris*	X
White-faced heron	Matuku-moana	*Ardea novaehollandiae*	X
White heron	Kotuku	*Egretta alba modesta*	
Reef heron	Matuku moana	*E. s. sacra*	X
Cattle egret		*Bubulcus ibis coromandus*	X
Australasian bittern	Matuku	*Botaurus poiciloptilus*	X
Royal spoonbill	Kotuku-ngutea	*Platalea regia*	
Black swan*		*Cygnus atratus*	
Canada goose*		*Branta canadensis*	
Feral goose*		*Anser anser*	
Paradise shelduck	Putangitangi	*Tadorna variegata*	X
Mallard*		*Anas platyrhynchos*	X
Grey duck	Parera, karakahia	*A. s. superciliosa*	X
Grey teal	Tete	*A. gracilis*	
Brown teal	Pateke	*A. aucklandica chlorotis*	
NZ shoveler	Kuruwhengi	*A. rhynchotis variegata*	X
NZ scaup	Papango	*Aythya novaeseelandiae*	
Australasian harrier	Kahu	*Circus approximans*	X
NZ falcon	Karearea	*Falco novaeseelandiae*	
California quail*		*Callipepla californica*	X

COMMON NAME	OTHER NAME	SCIENTIFIC NAME	
Brown quail*		*Synoicus ypsilophorus*	X
Ring-necked pheasant*		*Phasianus colchicus*	X
Peafowl*		*Pavo cristatus*	
Wild turkey*		*Meleagris gallopavo*	X
Tufted guineafowl*		*Numida meleagris*	
Banded rail	Moho-pereru	*Rallus philippensis assimilis*	X
NI weka	Woodhen	*Gallirallus australis greyi*	
Spotless crake	Puweto	*Porzana tabuensis plumbea*	X
Marsh Crake	Koitareke	*P. pusilla affinis*	
Pukeko	Purple swamphen	*Porphyrio porphyrio melanotus*	X
Australian coot		*Fulica atra australis*	
Pied oystercatcher	Torea	*Haematopus ostralegus finschi*	
Variable oystercatcher	Torea	*H. unicolor*	X
Pied stilt	Poaka	*Himantopus himantopus leucocephalus*	X
Northern NZ dotterel	Tuturiwhatu	*Charadrius obscurus aquilonius*	X
Banded dotterel	Tuturiwhatu	*C. b. bicinctus*	X
Wrybill	Ngutuparore	*Anarhynchus frontalis*	
Pacific golden plover	Eastern golden plover	*Pluvialis fulva*	
Spur-winged plover	Masked lapwing	*Vanellus miles novaehollandiae*	X
Turnstone	Ruddy turnstone	*Arenaria interpres*	
Lesser knot	Huahou	*Calidris canutus rogersi*	
Curlew sandpiper		*C. ferruginea*	
Sharp-tailed sandpiper		*C. accuminata*	
Red-necked stint		*C. ruficollis*	
Eastern curlew		*Numenius madagascariensis*	
Asiatic whimbrel		*N. phaeopus variegata*	
Bar-tailed godwit	Kuaka	*Limosa lapponica*	X
Siberian tattler	Grey-tailed tattler	*Tringa brevipes*	
Terek sandpiper		*T. terek*	
Arctic skua		*Stercoarius parasiticus*	
Pomarine skua		*S. pomarinus*	
Southern black-backed gull	Karoro	*Larus dominicanus*	X
Red-billed gull	Tarapunga	*L. novaehollandiae scopulinus*	X
Caspian tern	Taranui	*Sterna caspia*	X
White-fronted tern	Tara	*S. striata*	X
NZ fairy tern		*S. nereis*	
Eastern little tern		*S. albifrons sinensis*	
Grey ternlet		*Procelsterna cerulea*	
NZ pigeon	Kukupa, kereru	*Hemiphaga novaeseelandiae*	X
Rock pigeon*		*Columba livia*	
Barbary dove*		*Streptopelia roseogrisea*	
NI kaka		*Nestor meridionalis septentrionalis*	X
Eastern rosella*		*Platycercus eximius*	X
Red-crowned parakeet	Kararíki	*Cyanoramphus novaeseelandiae*	X
Shining cuckoo	Pipiwharauroa	*Chrysococcyx lucidus*	X
Long-tailed cuckoo	Koekoea	*Eudynamis taitensis*	X
Morepork	Ruru	*Ninox n. novaeseelandiae*	X
Kookaburra*		*Dacelo novaeguinae*	
NZ kingfisher	Kotare	*Halcyon sancta vagans*	X
NI rifleman	Titipounamu	*Acanthisitta chloris granti*	
Skylark*		*Alauda arvensis*	X
Welcome swallow		*Hirundo tahiti neoxena*	X
NZ pipit	Pihoihoi	*Anthus n. novaeseelandiae*	X
Dunnock*	Hedge sparrow	*Prunella modularis*	X
Blackbird*		*Turdus merula*	X
Song thrush*	Piopio	*T. philomelos*	X
NI fernbird	Matata	*Bowdleria punctata vealeae*	X
Grey warbler	Riroriro	*Gerygone igata*	X
NI fantail	Piwakawaka	*Rhipidura fulignosa placabilis*	X

COMMON NAME	OTHER NAME	SCIENTIFIC NAME	
NI tomtit	Miromiro, pied tit	*Petroica macrocephala toitoi*	X
NI robin	Toutouwai, pitoitoi	*P. australis longipes*	
Silvereye	Tauhou, whiteye	*Zosterops l. lateralis*	X
Bellbird	Makomako, korimako	*Anthornis melanura melanura*	
Three Kings bellbird		*A. melanura obscura*	
Tui		*Prosthemadera n. novaeseelandiae*	X
Yellowhammer*		*Emberiza citrinella*	X
Cirl bunting*		*E. cirlus*	
Chaffinch*		*Fringilla coelebs*	X
Greenfinch*		*Carduelis chloris*	X
Goldfinch*		*C. carduelis*	X
Redpoll*		*C. flammea*	X
House sparrow*		*Passer domesticus*	X
Starling*		*Sturnus vulgaris*	X
Common myna*		*Acridotheres tristis*	X
NI kokako	Blue-wattled crow	*Callaeas cinerea wilsoni*	X
NI saddleback	Tieke	*Philesturnus carunculatus rufusater*	
Australian magpie*		*Gymnohina tibicen*	X

Other fauna recorded in the Maungataniwha Ecological District

COMMON NAME	SCIENTIFIC NAME	COMMENTS
Indigenous mammals		
NZ long-tailed bat	*Chalinolobus tuberculatus* and/or	
Lesser short-tailed bat	*Mystacina tuberculata*	
Invertebrates		
Kauri snail	*Paryphanta busbyi*	
Tusked weta	*Hemiandra monstrosus*	
Lizards/Geckos		
Northland green gecko	*Naultinus grayi*	Northland endemic. Recorded from shrubland at Paranui and Kaingaroa and likely to be present in other shrubland areas.
Forest gecko	*Hoplodactylus granulatus*	Widespread.
Pacific gecko	*H. pacificus*	Uncommon.
Copper skink	*Cyclodina aenea*	Widespread in Northland.
Ornate skink	*C. ornata*	Uncommon.
Fish		
Short-finned eel	*Anguilla australis*	
Long-finned eel	*A. dieffenbachii*	
Torrentfish	*Cheimarrichthys fosteri*	
Short-jawed kokopu	*Galaxias postvectis*	
Koaro	*G. brevipinnis*	
Banded kokopu	*G. fasciatus*	
Inanga	*G. maculatus*	
Common smelt	*Retropinna retropinna*	
Red-finned bully	*Gobiomorphus huttoni*	
Blue-gilled bully	*G. hubbsi*	Stony stream.
Cran's bully	*G. basalis*	Okahu Stream, below reservoir.
Common bully	*G. cotidianus*	
Giant bully	*G. gobioides*	

COMMON NAME	SCIENTIFIC NAME	COMMENTS
Freshwater invertebrates		
Freshwater crayfish	*Parenephrops planifrons*	
Freshwater shrimp	*Paratya curvirostrus*	
Freshwater mussel	*Hyridella menziesii*	
Introduced fish		
Mosquito fish	*Gambusia affinis*	
Rainbow trout	*Oncorhynchus mykiss*	Victoria River
Introduced mammals		
House mouse	*Mus musculus*	
Ship rat	*Rattus rattus*	
Norway rat	*R. norvegicus*	
Common weasel	*Mustela nivalis*	
Stoat	*M. erminea*	
Ferret	*M. furo*	
Feral cat	*Felis catus*	
Feral dog	*Canis familiaris*	
Feral cattle	*Bos taurus*	
Feral goat	*Capra hircus*	
Brushtail possum	*Trichosurus vulpecula*	
Feral pig	*Sus scrofa*	
European hedgehog	*Erinaceus europaeus*	
European rabbit	*Orytolagus cuniculus*	
Brown hare	*Lepus europaeus*	

8.6 COMMON AND SCIENTIFIC PLANT NAMES

This is not a definitive list of common names used for plants from the Ecological District. Rather it is a guide to the reader as to exactly which species is referred to where the common name is used in the text.

Indigenous

akepiro	*Olearia furfuracea*
bracken	*Pteridium esculentum*
bush lawyer	*Rubus australis*
bush rice grass	*Microlaena avenacea*
cabbage tree	*Cordyline australis*
carmine rata	*Metrosideros carminea*
cassytha	*Cassytha paniculata*
coastal astelia	*Astelia banksii*
coral lichen	*Cladonia* sp.
comb fern	*Schizaea fistulosa*
Crown fern	*Blechnum discolor*
cutty grass	*Gahnia setifolia*
fan fern	*Schizaea dichotoma*
five-finger	*Pseudopanax arboreus*
flax	*Phormium tenax*
floating pond weed	*Potomogeton* sp.
forest cabbage tree	*Cordyline banksii*
fuchsia	*Fuchsia excorticata*
giant umbrella sedge	*Cyperus ustulatus*
gully fern	*Pneumatopteris pennigera*
haekaro	*Pittosporum umbellatum*
Hall's totara	*Podocarpus hallii*
hangehange	*Geniostoma rupestre* var *ligustrifolium*
heketara	*Olearia rani* var *rani*
hinau	*Elaeocarpus dentatus*
hook sedge	*Uncinia uncinata*
hopeless menace grass	*Oplismenus imbecilis*
houpara	*Pseudopanax lessonii*
kahikatea	*Dacrycarpus dacrydioides*
kaikomako	*Pennantia corymbosa*
kanono	*Coprosma grandifolia*
kanuka	*Kunzea ericoides*
karaka	*Corynocarpus laevigatus*
karamu	*Coprosma robusta*
karo	*Pittosporum crassifolium*
kauri	*Agathis australis*
kawaka	*Libocedrus plumosa*
kawakawa	*Macropiper excelsum*
kidney fern	*Trichomanes reniforme*
kiekie	*Freycinettia banksii*
king fern	*Marattia salicina*
kiokio	*Blechnum novae-zelandiae*
Kirk's tree daisy[1]	*Brachyglottis kirkii*
kohekohe	*Dysoxylum spectabile*
kohuhu	*Pittosporum tenuifolium*
koromiko	*Hebe stricta*
kowhai	*Sophora microphylla*
kumarahou	*Pomaderris kumeraho*
lacebark	*Hoheria populnea*
lady fern	*Deparia petersenii*
lancewood	*Pseudopanax crassifolius*

[1] Data considered in this report do not distinguish whether the species referred is *Brachyglottis kirkii* var. *kirkii* or *B. kirkii* var. *angustior*. The vernacular 'Kirk's tree daisy' may refer to one or both of these varieties.

large-leaved mahoe	*Melicytus macrophylla*
lowland ribbonwood	*Plagianthus regius*
mahoe	*M. ramiflorus*
maidenhair fern	*Adiantum fulvum, A. hispidulum*
mamaku	*Cyathea medullaris*
mamangi	*Coprosma arborea*
mangeao	*Litsea calicaris*
manuka	*Leptospermum scoparium*
mangrove	*Avicennia marina* var. *resinifera*
mapou	*Myrsine australis*
matai	*Prumnopitys taxifolia*
mingimingi	*Leucopogon fasciculatus*
miro	*Prumnopitys ferruginea*
mountain flax	*Phormium cookianum*
narrow-leaved maire	*Nestegis montana*
neinei	*Dracophyllum latifolium*
ngaio	*Myoporum laetum*
nikau	*Rhopalostylis sapida*
northern rata	*Metrosideros robusta*
oioi	*Apodasmia similis*
parataniwha	*Elatostema rugosum*
pate	*Schefflera digitata*
pigeonwood	*Hedycarya arborea*
pohuehue	*Muehlenbeckia australis*
pohutukawa	*Metrosideros excelsa*
pondweed	*Lemna minor*
ponga	*Cyathea dealbata*
prickly shield fern	*Polystichum vestitum*
pukatea	*Laurelia novae-zelandiae*
puriri	*Vitex lucens*
putaputaweta	*Carpodetus serratus*
rangiora	*Brachyglottis repanda*
rasp fern	*Doodia australis*
raupo	*Typha orientalis*
renga lily	*Arthropodium cirratum*
rewarewa	*Knightia excelsa*
rimu	*Dacrydium cupressinum*
ring fern	*Paesia scaberula*
salt marsh ribbonwood	*Plagianthus divaricatus*
sea rush	*Juncus krausii*
shield fern	*Lastreopsis* sp.
silver pine	*Manoao colensoi*
small-leaved mahoe	*Melicytus micranthus*
small-leaved milk tree	*Streblus heterophyllus*
Smith's tree fern	*Cyathea smithii*
sundew	*Drosera* sp.
supplejack	*Ripogonum scandens*
swamp maire	*Syzygium maire*
tanekaha	*Phyllocladus trichomanoides*
taraire	*Beilschmiedia tarairi*
taupata	*Coprosma repens*
tawa	*Beilschmiedia tawa*
tawapou	*Pouteria costata*
thread fern	*Blechnum filiforme*
titoki	*Alectryon excelsus*
toatoa	*Phyllocladus glaucus*
toro	*Myrsine salicina*
toru	*Toronia toru*
totara	*Podocarpus totara*
towai	*Weinmannia silvicola*
tree fern	*Cyathea dealbata, C. medullaris* or *Dicksonia squarrosa*
tutu	*Coriaria arborea*
water fern	*Histiopteris incisa*

wharangi	*Melicope ternata*
wheki	*Dicksonia squarrosa*
white maire	*Nestegis lanceolata*
white rata vine	*Metrosideros perforata*

Adventives

African club moss	*Selaginella kraussiana*
Ageratina	*Ageratina adenophora* or *A. riparia*
Arum lily	*Zantedeschia aethiopica*
blackberry	*Rubus fruticosus*
blue pine	*Psoralea pinnata*
boneseed	*Chrysanthemoides monilifera*
Chinese privet	*Ligustrum sinense*
eucalyptus	*Eucalyptus* sp.
gorse	*Ulex europaeus*
hakea, *Hakea*	*Hakea sericea*
Japanese cedar	*Cryptomeria japonica*
Japanese honeysuckle	*Lonicera japonica*
kahili ginger	*Hedychium gardnerianum*
kikuyu	*Pennisetum clandestinum*
macrocarpa	*Cupressus macrocarpa*
Mexican daisy	*Erigeron karvinskianus*
Mexican devilweed	*Ageratina adenophora*
mistweed	*A. riparia*
oak	*Quercus robur*
pampas	*Cortaderia selloana*
pine, wilding pine	*Pinus radiata*
Ponderosa pine	*P. ponderosa*
poplar	*Populus* sp.
prickly hakea	*Hakea sericea*
privet	*Ligustrum lucidum*
soft rush	*Juncus effusus*
Sydney golden wattle	*Racosperma longifolium*
tobacco weed	*Solanum mauritianum*
tutsan	*Hypericum androsaemum*
wattle	*Racosperma mearnsii*
willow	*Salix babylonica* or *S. fragilis*

8.7 GLOSSARY

Allochthonous
Geologic units that have been transported to their present position.

Biodiversity
The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (IUCN 1993).

Bog
Infertile/acid wetland. Usually characterised by a peat substrate, sedges, manuka and *Gleichenia* fern. Water arrives via rainfall rather than by streams and other run-off.

Buffer
A zone surrounding a natural area which reduces the effects of external influences on the natural area. For example shrubland, scrub and exotic trees around native forested areas provide a gradation of habitats from fully modified to a natural state. This effect also applies to waterways – riparian vegetation and wetlands protect both water quality and habitat from influences arising from the surrounding land.

Community
An association of populations of plants and animals which occur naturally together in a common environment.

Diversity and Pattern
Diversity is the variety and range of species of biological communities, ecosystems and landforms. Pattern refers to changes in species composition, communities and ecosystems along environmental gradients.

Ecological District
A local part of New Zealand where geological, topographical, climatic and biological features and processes, including the broad cultural pattern, interrelate to produce a characteristic landscape and range of biological communities.

Ecological Region
A group of adjacent Ecological Districts which have diverse but closely related characteristics, or in some cases a single very distinctive Ecological District.

Ecological unit
Vegetation type occurring on a particular landform or soil or rock type.

Ecosystem
Any inter-related and functioning assemblage of plants, animals and substrates (including air, water and soil) on any scale including the processes of energy flow and productivity (Myers et al. 1987).

Endemic
Occurring naturally in, and restricted to, a particular country, region or locality.

Exotic
Introduced from outside New Zealand.

Fernland
Dominated by ferns such as *Gleichenia*, bracken, tree ferns, with occasional woody plants.

Forest
A tall, predominantly closed canopy consisting mainly of tree species (a tree being a woody plant which attains a 10 cm diameter at breast height – Atkinson 1985).

Much of Northland's forest consists of or includes secondary growth which has developed following disturbance or destruction of the original forest. This may include secondary manuka/kanuka forest where those species have reached tree size and may contain other canopy species.

Habitat
The part of the environment where a plant or animal lives. It includes both the living and non-living features of the area.

Indigenous
Native to and occurring naturally within the New Zealand Biogeographic region.

Landform
A part of the land's surface with distinctive naturally formed physical characteristics, e.g. a hill, valley, etc.

Linkages/Corridors
Vegetated or aquatic areas (can be forest, shrubland, wetland, streams, beach or exotic vegetation such as pine) that link up two or more habitats. With a link between habitats the gene pool for a species is greater, which enhances the viability of that population. The corridor does not have to be continuous for many species to utilise it. Small remnants can act as stepping stones between two larger habitats so that birds such as kiwi can move from remnant to remnant up to 500 m apart.

Natural Area
A tract of land which supports natural landforms and predominantly native vegetation or provides habitat for indigenous species; identified as a unit for evaluation of ecological quality and representativeness and has potential to be ecologically significant.

Naturalness
The degree to which a habitat is modified and disturbed by human activity or introduced plants and animals and what natural values are retained despite these factors, i.e. to what extent native species are functioning according to natural processes.

Ophiolitic
Sequence of rock units consisting of deep sea sediments and basaltic pillow lavas.

Podsol
A soil often formed in a wet temperate climate under forest. Characterised by very strong leaching, the development of a whitish-grey E horizon, usually underlain by B horizons enriched in iron, aluminum and organic matter.

Protected
Having formal, legal, statutory protection, e.g. by way of covenant, reserve under the Reserves Act, or similar protection under the Conservation Act or other Acts.

Rarity
This is a measure of commonness and may apply to entire ecosystems through to single species. It may refer to the threatened status of a species (see Appendix 8.3 and 8.4) or habitat type in any one of the following ways: formerly common but now rare; rare elsewhere but common in the district; rare in the district but common elsewhere; confined to a limited geographic area; at the limit of its range; or with a contracting or fragmented range.

For example, old-growth alluvial swamp forests are an extremely rare ecosystem type in Northland, and indeed nationally, even though they contain no species which are regarded as rare in themselves.

Reedland
A swampy area dominated by reeds such as raupo.

Refuge
Native bush enclaves in production pine forest become a refuge for some native species during the logging phase. For example, they allow bird species, such as kiwi, a retreat from logged areas.

Representativeness
The extent to which an area represents or exemplifies the components of the natural diversity of the Ecological District. This implies consideration of the full range of natural ecosystems and landscapes that were originally found in the Ecological District, how well they are represented in today's environment, and the extent to which they are included in the protected areas network.

Riparian functions
Riparian vegetation performs important functions such as providing corridors linking habitats and providing shading to streams. This is important in Northland, as many streams have small catchments and the water temperature can rise depleting the available oxygen, leading to the death of aquatic life. Litter debris enters the nutrient cycle and supports invertebrates such as mayfly, caddisfly and stonefly feeding on it. Riparian vegetation also acts as a buffer for non-point water discharges.

Rush/Sedgeland

Swampy areas dominated by rushes, sedges, or rush-like sedges, e.g. *Juncus* (rush), *Carex*, *Schoenus, Isolepis, Bolboschoenus*.

Scrub

Refers to seral communities, often dominated by or with a large component of exotic species such as gorse, *Hakea,* tobacco weed, etc., and/or commonly lacking a closed canopy and in which an understorey is either absent or composed primarily of exotic species.

Secondary Vegetation

Native vegetation established after destruction or disturbance of the previous vegetation and which is essentially different from the original vegetation (see Succession, below).

Seral

Describes a plant community in the process of succession.

Shrubland

Vegetation in which the canopy is dominated by woody plants less than 10 cm diameter at breast height.

There are 2 main types:

(i) Successional vegetation dominated by seral species such as manuka, kanuka, mahoe etc or shrubs such as hangehange, bracken, or kumarahou.

As used in this report it implies a closed canopy and in more advanced stages contains an understorey of indigenous species.

(ii)Seral vegetation where the rate of further succession is extremely slow, being limited by abiotic factors such as soil structure and fertility, wind shear, etc., e.g. gumland manuka shrubland, *Muehlenbeckia* shrubland on dunes.

Site

An area of habitat identified during the rapid field inventory phase of the PNAP.

Its boundaries may be defined by the edge of the habitat (where discrete), catchment or other geographical feature, e.g. river, vegetation type or legal title.

Some small habitats occurring in close geographical proximity, with similar characteristics and functions, have been grouped and addressed as one site e.g small broadleaf remnants.

Some large contiguous habitats have been subdivided into separate sites on the basis of catchment or vegetation type, for convenience of administration.

Succession

The process of change in the appearance, composition and structure of a community, usually over a period of time. Change may be due to natural or human-induced factors, or both. For example the colonisation of bare rock, or soil by algae and lichens ending with a stable climax community in equilibrium with the environment. Secondary succession occurs where the original vegetation has been destroyed, e.g. by fire.

Survey No.
The identifier number given to each site. The first three figures refer to the NZMS 260 topographical map sheet that the habitat is on.

Sustainability
The longterm ecological viability of a natural area. This is related to the size and shape of the area as well as to threats from introduced pests.

Swamp
Fertile or eutrophic wetland, usually dominated by raupo, *Carex*, *Baumea articulata*, flax, and cabbage tree.

Swamp forest
A forest type containing water-tolerant trees and swamp species such as kahikatea, swamp maire, and pukatea. It may occur on alluvial valley areas but also occurs on poorly drained, semi-level sites within forests at higher altitudes.

Swamp shrubland
A transitional type with woody co-dominants like *Coprosma propinqua*-manuka-*Cordyline* with putaputaweta, *Coprosma tenuicaulis*, and other divaricating shrubs.

Toeslope
The area at the base of a slope where debris and topsoil has accumulated and may be more fertile than higher up the slope.

Treeland
Vegetation in which the cover of trees in the canopy is 20–80%, with tree cover exceeding that of any other growth form, and in which the trees form a discontinuous canopy above a lower canopy or predominantly non-woody vegetation or bare ground (Atkinson 1985). In this report, treeland is applied not so much as a description of a naturally occurring structural class of vegetation, but more as a description of the current structural state, where the original forest structure may have all but disappeared. In the majority of cases, the lower canopy consists of grass or bare ground. This type of vegetation is mainly found along stream and river banks and along the coastal strip. In some instances, it occurs on pastoral land adjacent to forest. In other words, it comprises a highly modified form of forest.

Vegetation type
Defined by the dominant canopy species and the structure of the vegetation, e.g taraire forest, manuka shrubland.

Viability
The ability of an area's natural communities to maintain themselves in the long-term in the absence of particular management efforts to achieve this. Regeneration and vigour of species within these communities and stability of communities and processes contribute to viability.

Wetland

An area of land that is permanently or intermittently waterlogged and supports flora and fauna adapted to wet conditions. Wetland is used as a broad definition for several types of aquatic systems, e.g. swamps, bogs and ephemerals.

9. Index of sites