

# 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)

## 8.2 LETTER TO RATEPAYERS/NEWS MEDIA ITEM



### 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.

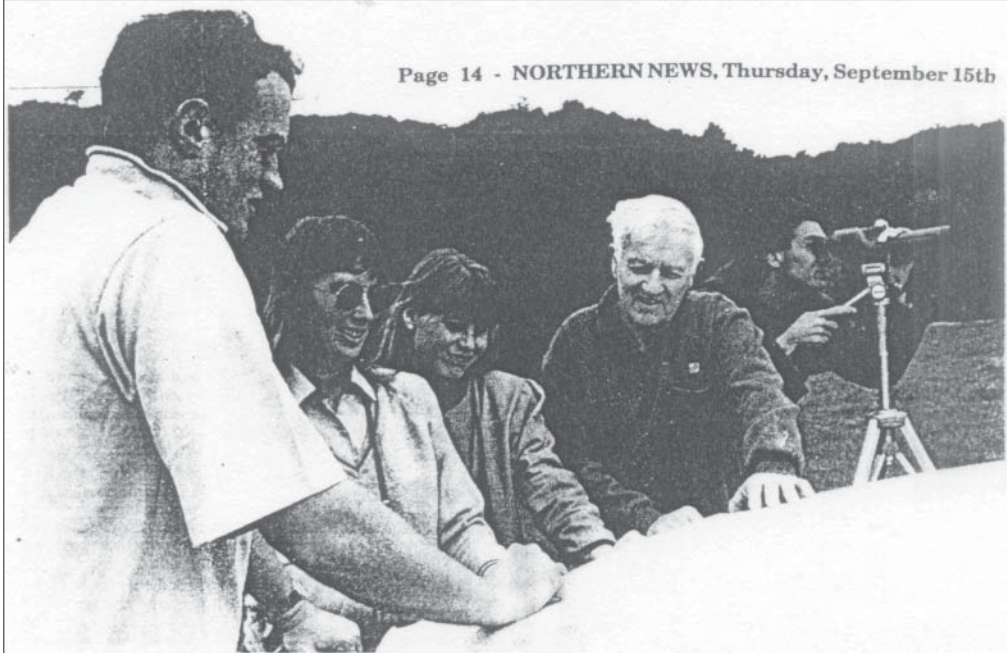
Perhaps the principal value of this survey will be to provide you, the landowners, with information on the significance and makeup of the natural areas that you have preserved on your property so you can better plan the way you wish to manage these areas.

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.

A handwritten signature in black ink, appearing to read 'Gerry Rowan'.

Gerry Rowan  
**REGIONAL CONSERVATOR**



Discussing natural habitats on Geoff Wightman's property at Waimate North are, from left, Department of Conservation officers Fraser Moors and Linda Winch, Far North District Council resource planner Kaylee Wilson, Mr Wightman and DOC officer Nigel Miller.

## Natural sites studied in the Far North

Northland's most important natural habitats are being identified in a joint Department of Conservation and Far North District Council project.

Conservation officers have started working on the year-long project, which aims to identify significant habitat areas outside the department's protected land area.

The study is being done for a number of reasons, including the fact that many lowland forests, gumlands, dunelands, wetlands and sea coasts are under-represented in the existing reserve system.

There is also insufficient information about the location and extent of remnant

areas of native bush, wetlands, dune systems and other areas.

Conservation officers Nigel Miller, Fraser Moors and Linda Winch have begun gathering information by checking DOC's database and then looking at areas from the roadside.

### Identification

Once the team has broadly noted the natural features and habitat types which exist in the district, the more important sites will be identified and permission asked from landowners to complete a more indepth survey.

This will provide valuable information for the FNDC's district plan, which is required under the 1991 Re-

source Management Act to consider the environmental values of any proposed activity, and for DOC to advise and assist landowners to voluntarily manage and protect key sites.

It is the first time a Protected Natural Areas programme survey has been done in Northland. The last major Northland survey by the Wildlife Service in 1977-79 did not include observations of vegetation and landform types.

DOC officer Peter Anderson said that five years later it was found 40 per cent of all surveyed wildlife habitats had been modified in some way or totally lost through land development.

## 8.3 CATEGORIES OF THREAT

### **New Zealand Threatened Plant List**

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. These categories are:

#### **Appendix 1** New Zealand threatened and uncommon vascular plant list

#### ***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.

#### ***Threatened***

Taxa whose classification places them within Critically Endangered, Endangered, or Vulnerable categories. These are taxa whose survival is now a matter of conservation priority. Their classification within the three subheadings of threat provides a measure of the degree of risk associated with each taxon.

#### ***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 of 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.

### ***Conservation Dependent***

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

### ***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***

This appendix 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.

### **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 not ranked under IUCN categories such as bryophytes and invertebrates.

The Categories are as follows:

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.

### **Arand et al. (1993) Categories of Importance**

#### ***Importance***

Importance of the site is ranked in three categories:

1. International
  - contains the best example of a soil (generally soil group) or soil-vegetation or soil-landform association that is unique to New Zealand (or these latitudes)
  - contains a soil that is naturally uncommon or greatly reduced in extent in other parts of the world
  - contains a wide range of extensive soils with a relatively unmodified vegetation cover
  - has been studied in detail and is known internationally.
2. National
  - contains the best or a 'classic' example of a soil (either a soil group or a mapping unit) or a soil-vegetation or soil-landform association in New Zealand
  - contains a soil or soil-vegetation or soil-landform association that is nationally uncommon or reduced in extent

- contains a moderate range of extensive soils with a relatively unmodified vegetation cover
- has been studied in detail and is known nationally.

3. Regional

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

**Kenny & Hayward (1996) Categories of Importance**

Sites are listed in this inventory under three levels (A-C) of significance. The importance assessment given to each site has been made by those informants familiar with the site:

- 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.



## 8.4 FAUNA

### A. Checklist of birds of the Aupouri Ecological District

Species recorded in the Aupouri Ecological District, including the Parengarenga, Houhora and Rangaunu Harbours [Data from Pierce (unpublished) 1991, Bellingham & Davis 1983 (unpublished), OSNZ classified summarised notes, and Sites of Special Biological Interest database].

Nomenclature follows Turbott (1990) and Heather & Robertson (2000).

#### Key

PL = Present in large numbers (> 100); P = Present in small numbers (< 100); R = Recorded (< 10); Ex = Presumed extinct locally - not seen since 1980s (brown teal), 1890s (weka)

\* Breeding confirmed; \*\* Introduced

Species	Other name	Scientific name	Parengarenga	Houhora	Rangaunu	Mainland	Offshore (+ islands)
NZ dabchick	Weweia	<i>Polyocephalus rufopectus</i>				P*	
Hoary-headed grebe		<i>P. polyocephalus</i>				R	
Australasian little grebe		<i>Tachybaptus n. novaehollandiae</i>					P*
Southern giant petrel		<i>Macronectes giganteus</i>					R
Grey-faced petrel	Oi	<i>Pterodroma macroptera gouldi</i>					P*
Black-winged petrel		<i>P. nigripennis</i>					P*
Buller's shearwater		<i>Puffinus bulleri</i>					P
Fluttering shearwater	Pakaha	<i>P. gavia</i>					P*
NI little shearwater		<i>P. assimilis haurakiensis</i>					P*
Blue penguin	Korora	<i>Eudyptula minor</i>	P	P	P		P*
White-faced storm petrel	Takahikare-moana	<i>Pelagodroma marina</i>					P*
Common diving petrel	Kuaka	<i>Pelecanoides u. urinatrix</i>					P*
Red-tailed tropic bird	Amokura	<i>Phaethon rubricauda</i>	R				R
Australasian gannet	Takapu	<i>Morus s. serrator</i>	P	P	P		P
Brown booby		<i>Sula leucogaster plotus</i>		R			
Black shag	Kawau	<i>Phalacrocorax carbo novaehollandiae</i>	P	P	P*	P*	
Pied shag	Karuhiruhi	<i>P. v. varius</i>	P*	P	P*	P*	P
Little black shag		<i>P. sulcirostris</i>	P	P	P	P*	
Little shag		<i>P. melanoleucos brevirostris</i>	P*	P	P*	P	
Darter		<i>Anbinga melanogaster rufa</i>					R
White-faced heron		<i>Ardea novaehollandiae</i>	PL*	PL*	PL*	PL*	
White-necked heron		<i>A. pacifica</i>					R
White heron	Kotuku	<i>Egretta alba modesta</i>	R	R			R
Little egret		<i>E. garzetta nigripes</i>	R				R
Reef heron	Matuku-moana	<i>E. s. sacra</i>	R	R	R	R	P*
Cattle egret		<i>Bubulcus ibis coromandus</i>	P		P	P	
Australasian bittern	Matuku	<i>Botaurus poiciloptilus</i>	P	P	P	P	
Glossy ibis		<i>Plegadis falcinellus</i>	R				R
White ibis		<i>Tbreskiornis molucca strictipennis</i>					R
Royal spoonbill	Kotuku-ngutupapa	<i>Platalea regia</i>	P*		P	P	
Yellow-billed spoonbill		<i>P. flavipes</i>			R	R	
**Black swan		<i>Cygnus atratus</i>	PL*	PL*	PL*	PL*	
**Canada goose		<i>Branta canadensis</i>		P		P	

Species	Other name	Scientific name	Parengarenga	Houhora	Rangaunu	Mainland	Offshore (+ islands)
Paradise shelduck	Putangi-tangi	<i>Tadorna variegata</i>	PL*	P*	PL*	PL*	
Chestnut-breasted shelduck		<i>T. tadornoides</i>					R
**Mallard		<i>Anas platyrhynchos</i>	PL*	P*	PL*	PL*	
Grey duck	Parera	<i>A. s. superciliosa</i>	P*	P*	P*	PL*?	
Grey teal	Tete	<i>A. gracilis</i>					P
Brown teal	Pateke	<i>A. aucklandica chlorotis</i>					Ex
NZ shoveler	Kuru whengi	<i>A. rhynchotis variegata</i>	P				P
NZ scaup	Papango	<i>Aythya novaeseelandiae</i>					P*
Australasian harrier	Kahu	<i>Circus approximans</i>	P*	P*	P*	P*	P
Nankeen kestrel		<i>Falco cenchroides</i>					R
**California quail		<i>Callipepla californica</i>					P*
**Brown quail		<i>Synoicus ypsilophorus</i>					P*
**Ring-necked pheasant		<i>Phasianus colchicus</i>					P*
Banded rail	Moho-pereru	<i>Rallus philippensis assimilis</i>	PL*	P*	PL*		P
NI weka	Woodhen	<i>Gallirallus australis greyi</i>					Ex
Marsh crake	Koitareke	<i>Porzana pusilla affinis</i>					P*
Spotless crake	Puwhe-to	<i>P. tabuensis plumbea</i>	P	P	P		P
Pukeko	Purple swamphen	<i>Porphyrio porphyrio melanotus</i>		P*	P*		P* P
Pied oystercatcher	Torea	<i>Haematopus ostralegus finschi</i>	P	P	P		P
Variable oystercatcher	Torea	<i>H. unicolor</i>	P*	P*	P*		P* P
Pied stilt	Poaka	<i>Himantopus himantopus leucocephalus</i>	PL*	PL*	PL*		P*
Northern NZ dotterel	Tuturi-whatu	<i>Charadrius obscurus aquilonius</i>	P*	P*	P*		P*
Banded dotterel	Tuturi-whatu	<i>C. b. bicinctus</i>	PL*	PL	PL*		P*
Black-fronted dotterel		<i>C. melanops</i>				R	R
Large sand dotterel		<i>C. l. leschenaultii</i>	R			R	
Mongolian dotterel		<i>C. mongolus</i>	R				
Oriental dotterel		<i>C. veredus</i>	R			R	
Wrybill	Ngutu-parore	<i>Anarhynchus frontalis</i>	PL	P	P		P
Pacific golden plover	Eastern golden plover	<i>Pluvialis fulva</i>	PL	PL	PL		P
American golden plover		<i>P. dominica</i>				R	
Grey plover		<i>P. squatarola</i>	R	R		R	
Spur-winged plover	Masked lapwing	<i>Vanellus miles novaebollandiae</i>	PL*	P*	P*		PL*
Turnstone	Ruddy turnstone	<i>Arenaria interpres</i>	PL	PL	PL		P
Lesser knot	Huahou	<i>Calidris canutus rogersi</i>	PL	PL	PL		P
Great knot		<i>C. tenuirostris</i>					R
Sanderling		<i>C. alba</i>	R			R	
Curlew sandpiper		<i>C. ferruginea</i>	P			P	P
Sharp-tailed sandpiper		<i>C. accuminata</i>	P			P	P
Pectoral sandpiper		<i>C. melanotos</i>	R			R	R
White-rumped sandpiper		<i>C. fuscicollis</i>	R				
Red-necked stint		<i>C. ruficollis</i>	P	R		P	P
Western sandpiper		<i>C. mauri</i>	R			R	

Species	Other name	Scientific name	Parenga-renga	Houhora	Rangaunu	Mainland	Offshore (+ islands)
Broad-billed sandpiper		<i>Limicola falcinellus</i>	R				
Eastern curlew		<i>Numenius madagascariensis</i>	R	R	R		
Asiatic whimbrel		<i>N. pbaeopus variegata</i>	P	P	P		
American whimbrel		<i>N. pbaeopus budsonicus</i>	R		R		
Little whimbrel		<i>N. minutus</i>	R				
Bar-tailed godwit	Kuaka	<i>Limosa l. lapponica</i>	PL	PL	PL	P	
Asiatic black-tailed godwit		<i>L. limosa melanuroides</i>	R		R	R	
Hudsonian godwit		<i>L. baemastica</i>	R		R	R	
Wandering tattler		<i>Tringa incana</i>	R		R		
Siberian tattler		<i>T. brevipes</i>	R		R		
Common sandpiper		<i>T. hypoleucos</i>			R		
Greenshank		<i>T. nebularia</i>	R	R		R	
Marsh sandpiper		<i>T. stagnatilis</i>	R		R	R	
Terek sandpiper		<i>T. terek</i>	R		R		
Arctic skua		<i>Stercorarius parasiticus</i>	P	P	P	P	P
Pomarine skua		<i>S. pomarinus</i>	P				P
Black-backed gull	Karoro	<i>Larus dominicanus</i>	PL*	PL*	PL*	PL	PL
Red-billed gull	Tarapunga	<i>L. novaehollandiae scopulinus</i>	PL	PL	PL*	PL	PL
White-winged black tern		<i>Cblidonias leucopterus</i>				R	
Black-fronted tern		<i>Sterna albobriata</i>				R	R
Caspian tern	Taranui	<i>S. caspia</i>	P*	P*	PL*	P	P
White-fronted tern	Tara	<i>S. striata</i>	PL	PL	PL*	P	PL
Eastern little tern		<i>S. albifrons sinensis</i>	R	R	P		
White-capped noddy		<i>Anous tenuirostris</i>		R		R	
Kukupa	NZ pigeon, kereru	<i>Hemiphaga novaeseelandiae</i>				R	
**Eastern rosella		<i>Platycercus eximius</i>				P	
Oriental cuckoo		<i>Cuculus saturatus</i>				R	
Fan-tailed cuckoo		<i>Cacomantis flabelliformis</i>				R	
Shining cuckoo	Pipi-wharauoa	<i>Chrysococcyx lucidus</i>				P	
Long-tailed cuckoo	Koekoea	<i>Eudynamis taitensis</i>				R	
Channel-billed cuckoo		<i>Scythrops novaehollandiae</i>				R	
Morepork	Ruru	<i>Ninox n. novaeseelandiae</i>				P	
NZ kingfisher	Kotare	<i>Halcyon sancta vagans</i>	PL*	P*	PL*	PL*	
Dollarbird	Eastern broad-billed roller	<i>Eurystomus orientalis</i>				R	
**Skylark		<i>Alauda arvensis</i>				PL	
Welcome swallow		<i>Hirundo tabitica neoxena</i>	PL*	PL*	PL*	PL*	
**Dunnock	Hedge sparrow	<i>Prunella modularis</i>				PL	
NZ pipit	Pihoihoi	<i>Anthus novaeseelandiae</i>	P	P	P	P	
**Blackbird		<i>Turdus merula</i>				PL*	
**Song thrush		<i>T. philomelos</i>				PL*	
NI fernbird	Matata	<i>Bowdleria punctata vealeae</i>	P*	P*	P*	PL*	
NI fantail	Piwaka-waka	<i>Rhipidura fuliginosa placabilis</i>				PL	
Grey warbler	Riroriro	<i>Gerygone igata</i>				PL	
Silvereye	Tahou, whiteye	<i>Zosterops l. lateralis</i>				PL	
Tui		<i>Prosthemadera n. novaeseelandiae</i>					P
**Yellowhammer		<i>Emberiza citrinella</i>				PL	
**Chaffinch		<i>Fringilla coelebs</i>				PL	

Species	Other name	Scientific name	Parenga- renga	Houhora	Rangaunu Mainland	Offshore (+ islands)
**Greenfinch		<i>Carduelis chloris</i>				PL
**Goldfinch		<i>C. carduelis</i>				PL
**Redpoll		<i>C. flammea</i>				PL
**House sparrow		<i>Passer domesticus</i>				PL*
**Starling		<i>Sturnus vulgaris</i>				PL*
**Common myna		<i>Acridotheres tristis</i>				PL*
**Australasian magpie		<i>Cymnorhina tibicen</i>				PL
**Rook		<i>Corvus frugilegus</i>				R

## B. Other fauna in the Aupouri Ecological District

### *Aquatic fauna*

<b>Fish</b>		
long-finned eel	<i>Anguilla dieffenbachii</i>	
short-finned eel	<i>A. australis</i>	
inanga	<i>Galaxias maculatus</i>	
banded kokopu	<i>G. fasciatus</i>	
koaro	<i>G. brevipennis</i>	
common bully	<i>Gobiomorphus cotidianus</i>	
giant bully	<i>G. gobioides</i>	
red-finned bully	<i>G. huttoni</i>	
common smelt	<i>Retropinna retropinna</i>	
grey mullet	<i>Mugil cephalus</i>	
black mudfish	<i>Neochanna diversus</i>	
cockabully	<i>Tripterygion nigripenne</i>	
<b>Introduced fish</b>		
goldfish	<i>Carassius auratus</i>	
mosquito fish	<i>Gambusia affinis</i>	
rudd	<i>Scardinius erythrophthalmus</i>	
rainbow trout	<i>Oncorhynchus mykiss</i>	
<b>Freshwater crustacea</b>		
mussel	<i>Hydriella menziesii</i>	
shrimp	<i>Paratya curvirostris</i>	
<b>Lizards</b>		
Northland green gecko	<i>Naultinus grayi</i>	Restricted to Northland
Pacific gecko	<i>Hoplodactylus pacificus</i>	Northland Island only
shore skink	<i>Oligosoma smithi</i>	East Coast to Te Pahi in Northland
Suter's skink	<i>O. suteri</i>	Few mainland sites in North Island, more widespread on islands
robust skink	<i>Cyclodina alani</i>	Restricted to islands
copper skink	<i>C. aenea</i>	Widespread
ornate skink	<i>C. ornata</i>	Fairly widespread
	<i>Hoplodactylus</i> "Matapia Island"	Matapia Island and also Motuopao Island (Te Pahi ED)

<b>Snails</b>		
Archey's dune snail	<i>Succinea archeyi</i> <i>Allodiscus fallax</i>	Cape Maria van Diemen to Bay of Plenty Known from a single population on Karikari Peninsula
	<i>Allodiscus</i> sp. "Houhora"	Apparently endemic to Mt Camel
	<i>Climocella reinga</i>	Endemic to northern Aupouri Peninsula
	<i>Cytora</i> sp. "whangatupere"	Single population at Whangatupere Bay
	<i>Egestula pandora</i>	Endemic to northern Aupouri Peninsula
	<i>Onychophoran</i>	
	<i>Serpbo matthewsii</i>	Endemic to northern Aupouri Peninsula
<b>Spiders</b>		
Black katipo	<i>Latrodectus atritus</i>	Native occurring in both North and South Islands
<b>Frogs</b>		
green frog	<i>Litoria aurea</i>	Introduction from Australia to New Zealand
<b>Marine reptiles</b>		
leathery turtle	<i>Dermochelys coriacea</i>	
loggerhead turtle	<i>Caretta caretta</i>	
yellow-bellied sea snake	<i>Pelamis platurus</i>	
hawksbill turtle	<i>Eretmochelys imbricata</i>	
green turtle	<i>Chelonia mydas</i>	
<b>Marine mammals</b>		
NZ fur seal	<i>Arctocephalus forsteri</i>	
<b>Introduced mammals</b>		
house mouse	<i>Mus musculus</i>	
ship rat	<i>Rattus rattus rattus</i>	
Norway rat	<i>R. norvegicus</i>	
weasel	<i>Mustela nivalis</i>	
stoat	<i>M. erminea</i>	
ferret	<i>M. furo</i>	Extending its range into the ED
house cat	<i>Felis catus</i>	
house dog	<i>Canis familiaris</i>	
cattle	<i>Bos taurus</i>	
goat	<i>Capra hircus</i>	
brushtail possum	<i>Trichosurus vulpecula</i>	
pig	<i>Sus scrofa</i>	
hedgehog	<i>Erinaceus europeus occidentalis</i>	

## 8.5A 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 when the common name is used in the text.

<b>Indigenous plants</b>	
akeake	<i>Dodonaea viscosa</i>
black maire	<i>Nestegis cunninghamii</i>
bracken	<i>Pteridium esculentum</i>
brake fern	<i>Pteris tremula</i>
<i>Cassytha</i>	<i>Cassytha paniculata</i>
common maidenhair	<i>Adiantum cunninghamii</i>
common shield fern	<i>Polystichum richardii</i>
Cook's scurvy grass	<i>Lepidium oleraceum</i>
eelgrass	<i>Zostera capricorni, Z. novaezelandica</i>
five-finger	<i>Pseudopanax arboreus</i>
giant umbrella sedge	<i>Cyperus ustulatus</i>
glasswort	<i>Sarcocornia quinqueflora</i>
hangehange	<i>Geniostoma rupestre</i>
harakeke, flax	<i>Phormium tenax</i>
<i>Hebe</i>	<i>Hebe</i> sp.
hook grass	<i>Uncinia uncinata</i>
hound's tongue	<i>Microsorium pustulatum</i>
houhere, lacebark	<i>Hoheria populnea</i>
houpara	<i>Pseudopanax lessonii</i>
kahikatea	<i>Dacrydium dacrydioides</i>
kanono	<i>Coprosma grandifolia</i>
kanuka	<i>Kunzea ericoides</i>
karaka	<i>Corynocarpus laevigatus</i>
karamu	<i>Coprosma robusta</i>
karo	<i>Pittosporum crassifolium</i>
kauri	<i>Agathis australis</i>
kawakawa	<i>Macropiper excelsum</i>
kiokio	<i>Blechnum novae-zelandiae</i>
knobby clubbrush	<i>Isolepis nodosa</i>
kohekohe	<i>Dysoxylum spectabile</i>
kowhai	<i>Sophora microphylla</i>
kowharawhara	<i>Astelia banksii</i>
kumarahou	<i>Pomaderris kumerabo</i>
kuta	<i>Schoenoplectus tabernaemontani</i>
leather-leaf fern	<i>Pyrrosia eleagnifolia</i>
mahoe	<i>Melicytus ramiflorus</i>
maire tawake	<i>Syzygium maire</i>
mamaku	<i>Cyathea medullaris</i>
mangrove	<i>Avicennia marina</i>
manuka	<i>Leptospermum scoparium</i>
mapou	<i>Myrsine australis</i>
matai	<i>Prumnopitys taxifolia</i>
Mercury Bay weed	<i>Dicbondra repens</i>
mingimingi	<i>Leucopogon fasciculatus</i>
miro	<i>Prumnopitys ferruginea</i>

## Indigenous plants

native broom	<i>Carmichaelia australis</i>
native iceplant	<i>Disphyma australe</i>
ngaio	<i>Myoporum laetum</i>
nikau	<i>Rhopalostylis sapida</i>
NZ spinach	<i>Tetragonia</i> sp.
oioi	<i>Apodasmia similis</i>
pingao	<i>Desmoschoenus spiralis</i>
pohuehue	<i>Muehlenbeckia complexa</i>
pohutukawa	<i>Metrosideros excelsa</i>
Pondweed	<i>Potamogeton</i> sp.
ponga	<i>Cyathea dealbata</i>
poroporo	<i>Solanum aviculare</i>
pokaka	<i>Elaeocarpus bookerianus</i>
puriri	<i>Vitex lucens</i>
rangiora	<i>Brachyglottis repanda</i>
rasp fern	<i>Doodia australis</i>
raupo	<i>Typha orientalis</i>
rengarenga lily	<i>Arthropodium cirratum</i>
rewarewa	<i>Knightsia excelsa</i>
ring fern	<i>Paesia scaberula</i>
rosy maidenhair	<i>Adiantum bispidulum</i>
saltmarsh ribbonwood	<i>Plagianthus divaricatus</i>
sea primrose	<i>Samolus repens</i>
sea rush	<i>Juncus kraussii</i>
sea spurrey	<i>Spergularia media</i>
shaking brake	<i>Pteris tremula</i>
shining spleenwort	<i>Asplenium oblongifolium</i>
shore bindweed	<i>Calystegia soldanella</i>
silver pine	<i>Manoao colensoi</i>
<i>Spinifex</i>	<i>Spinifex sericeus</i>
sundew	<i>Drosera</i> sp.
swamp millet	<i>Isachne globosa</i>
taraire	<i>Beilschmiedia tarairi</i>
tauhinu	<i>Ozothamnus leptophyllus</i>
taupata	<i>Coprosma repens</i>
tawa	<i>Beilschmiedia tawa</i>
tawapou	<i>Pouteria costata</i>
ti kouka, cabbage tree	<i>Cordyline australis</i>
titoki	<i>Alectryon excelsus</i>
toetoe	<i>Cortaderia splendens</i>
totara	<i>Podocarpus totara</i>
towai	<i>Weinmannia silvicola</i>
turepo	<i>Rhabdotheramnus solandri</i>
turutu	<i>Dianella nigra</i>
tutu	<i>Coriaria arborea</i>
umbrella fern	<i>Gleichenia</i> sp.
water fern	<i>Histiopteris incisa</i>
wharangi	<i>Melicope ternata</i>
wheki	<i>Dicksonia squarrosa</i>
willow weed	<i>Polygonum</i> sp. (native or introduced)
wire rush	<i>Empodisma minus</i>

## Adventive plants

apple of Sodom	<i>Solanum linnaeanum</i>
balsam	<i>Impatiens sodenii</i>
blackberry	<i>Rubus fruticosus</i>
black wattle	<i>Racosperma mearnsii</i>
blue pine	<i>Psoralea pinnata</i>
boneseed	<i>Chrysanthemoides monilifera</i>
bottlebrush	<i>Callistemon rigidus</i>
broom	<i>Cytisus scoparius</i>
brush wattle	<i>Paraserianthes lophantha</i>
buffalo grass	<i>Stenotaphrum secundatum</i>
Cape honey flower	<i>Meliantbus major</i>
dandelion	<i>Taraxacum officinale</i>
downy hakea	<i>Hakea gibbosa</i>
<i>Eucalyptus</i>	<i>Eucalyptus</i> sp.
flame tree	<i>Erythrina x sykesii</i>
fleabane	<i>Pulicaria dysenterica</i>
gorse	<i>Ulex europaeus</i>
hakea	<i>Hakea</i> sp.
haretail	<i>Lagarus ovatus</i>
inkweed	<i>Phytolacca octandra</i>
jointed rush	<i>Juncus articulatus</i>
kikuyu	<i>Pennisetum clandestinum</i>
lupin	<i>Lupinus arboreus</i>
macrocarpa	<i>Cupressus macrocarpa</i>
marram	<i>Ammophila arenaria</i>
Mexican devilweed	<i>Ageratina adenophora</i>
Norfolk pine	<i>Araucaria heterophylla</i>
papyrus	<i>Cyperus papyrus</i>
pampas	<i>Cortaderia selloana</i>
pine	<i>Pinus radiata</i>
prickly hakea	<i>Hakea sericea</i>
prickly mooses	<i>Racosperma verticillatum</i>
poplar	<i>Populus</i> sp.
purple pampas	<i>Cortaderia jubata</i>
sand wind grass	<i>Lachnagrostis billardierei</i>
sea rocket	<i>Cakile edentula</i>
shore groundsel	<i>Senecio lautus</i>
<i>Spartina</i>	<i>Spartina alterniflora</i> , <i>S. anglica</i> , <i>S x townsendii</i>
Sydney golden wattle	<i>Racosperma longifolia</i>
thistle	<i>Carduus</i> sp.
tobacco weed	<i>Solanum mauritianum</i>
wattle	<i>Racosperma</i> sp.
watercress	<i>Rorippa nasturtium-aquaticum</i>
water lily	<i>Nymphaea</i> sp.
wild gladiolus	<i>Gladiolus undulatus</i>
willow weed	<i>Polygonum</i> sp. (Note: there is one native <i>Polygonum</i> )



8.5B ORCHID SPECIES RECORDED WITHIN THE  
AUPOURI ECOLOGICAL DISTRICT

From St George (1999) (as editor for New Zealand Native Orchid Group from records post-1972) and information gained from several sources in the writing of this report. (\* = historical records.)

<i>Acianthus sinclairii</i>	<i>Microtis unifolia</i> agg.
<i>Adelopetalum tuberculatum</i>	<i>Orboceras novae-zeelandiae</i>
<i>Caleana minor</i> *	<i>Petalochilus alatus</i>
<i>C. bartlettii</i>	<i>Prasophyllum colensoi</i>
<i>Calochilus</i> aff. <i>herbaceus</i>	<i>Pterostylis micromega</i> *
<i>C. paludosus</i>	<i>P. nutans</i> *
<i>Chiloglottis formicifera</i> *	<i>P. tasmanica</i>
<i>Corybas carsei</i> *	<i>P. trullifolia</i>
<i>C. oblongus</i>	<i>Spiranthes sinensis</i>
<i>C. rotundifolius</i>	<i>S. aff. novae-zeelandiae</i>
<i>C. trilobus</i> agg.	<i>Thelymitra aemula</i>
<i>Cryptostylis subulata</i>	<i>T. carnea</i>
<i>C. oblonga</i>	<i>T. "darkie"</i> AK 231761
<i>C. reniformis</i>	<i>T. malvina</i>
<i>Earina mucronata</i>	<i>T. matthewsii</i>
<i>Gastrodia minor</i>	<i>T. pauciflora</i>
<i>Genoplesium pumilum</i>	<i>T. pulchella</i>
<i>Ichthyostomum pygmaeum</i>	<i>T. "rough leaf"</i> AK 229531
<i>Microtis arenaria</i>	<i>T. sanscritia</i>
<i>M. parviflora</i>	

## 8.6 GLOSSARY

### ***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 umbrella 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.

### ***Dune complex***

An association of mobile and consolidated sand dunes, which may include small interdune lakes, wetlands and shrubland communities.

### ***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 umbrella fern, bracken, tree ferns, with occasional woody plants.

***Foredune***

Mobile and fixed transverse dunes along coastal margins.

***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.

***Hemi-parasitic***

A plant which is attached to another living plant where it derives part of its nourishment. In this Ecological District, *Cassytha paniculata* is a relatively common hemi-parasitic plant.

***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.

### ***Oligotrophic***

Wetlands with low fertility that are either fed by rainwater alone or are open water wetlands in stable catchments that receive high rainfall.

### ***Podsol***

A soil type formed under some types of forest and characterised by very strong leaching and the development of whitish-grey clay sub-soils.

### ***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) 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***

Vegetation in which the cover of reeds in the canopy is 20-100% and in which the reed cover exceeds that of any other growth form or open water. Reeds are herbaceous plants growing in standing or slowly running water that have tall, slender, erect, unbranched leaves or culms that are either hollow or have a very spongy pith. Examples include: *Typha*, *Bolboschoenus*, *Scirpus lacustris* [*Schoenoplectus tabernaemontani*], *Eleocharis sphacelata*, and *Baumea articulata* (Atkinson 1985).

### ***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.

### ***Rusbland***

Vegetation in which the cover of rushes in the canopy is 20-100% and in which the rush cover exceeds that of any other growth form or bare ground. Included in the rush growth form are some species of *Juncus* and all species of *Sporadanthus*, *Leptocarpus* [*Apodasmia*], and *Empodisma*. Tussock-rushes are excluded (Atkinson 1985).

### ***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).

### ***Sedgeland***

Vegetation in which the cover of sedges in the canopy is 20-100% and in which the rush cover exceeds that of any other growth form or bare ground. Included in the sedge growth form are many species of *Carex*, *Uncinia*, and *Scirpus* [*Isolepis*]. Tussock-sedges and reed-forming sedges (cf. ***Reedland***) are excluded (Atkinson 1985).

### ***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 two main types:

- (i) Successional vegetation dominated by seral species such as manuka, kanuka, mahoe etc or shrubs such as hangehange, bracken, 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, e.g. gumland manuka shrubland, pohuehue 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.

**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 identity number given to each site. The first three figures refer to the NZMS 260 topographical map sheet that the habitat is on.

**Sustainability**

The long-term 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* sp., *Baumea articulata*, harakeke and ti kouka.

**Swamp shrubland**

A transitional type of wetland with woody co-dominants, primarily manuka, but including kanuka, *Coprosma propinqua*, ti kouka, *Coprosma tenuicaulis*, and other shrubs, as well as rushes, sedges or reeds.

**Tombolo**

A spit or bar joining an island to the mainland or to another island.

**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.



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Pukekura Stream Wetlands	1	N03/004	92
Puriri-Karaka Remnant	1	N03/027	112
Rangaunu Harbour	1	O04/233	257
Rangiputa Rd Shrublands	2	O03/007	293
Rarawa Beach	1	N03/023	114
Rotokawau Lakes & Puwheke Beach	1	O03/002	212
S Ulrich Rd Wetland	1	O03/008	226
Salt Lake	1	N03/046	149
Salt Rd Shrubland	1	N03/011	278
Salvation Rd Swamp	1	N03/043	146
Sandhills Rd Swamp	1	N04/016	174
Sandhills Rd Wetland No 1	1	N04/021	181
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Te Kao Shrublands	2	N03/001	270
Te Kao South Swamp	1	N03/018	104
Te Kao Trig Shrubland	2	N03/007	274
Te Karaka Point & Ngakarapu Stream Shrubland	2	N02/049	266
Te Keena Rd Shrublands	2	N03/005	272
Te Paki Dunes	1	N02/013	50
Te Paki Stream	1	N02/014	52
Te Pua Point Pohutukawa Remnant	1	N02/053	67
Te Raite Wetland	1	N03/030	125
Te Ramanuka Lakes & Shrubland	1	N03/019	106
Tetehakehake Stream Shrubland	2	N02/045	261
Te Wakatehaua (The Bluff) Island	1	N03/050	151
Tokerau Beach	1	O04/232	255
Turks Lake & Wetland	1	N04/026	191
Upper Karatia Swamp	1	N02/068	82
Wagener's Swamps	1	N03/024	116
Waikanae Stream Wetland	1	N02/043	58
Waikokopu Shrubland	1	N03/041	145
Waimango Swamp	1	O03/001	210
Waimanoni Creek Shrubland	1	O04/217	234
Waimimiha Lakes	1	N04/034	204
Waipapakauri Beach Coastal Shrubland	1	N04/015	173
Waipara & Dead Lakes	1	N02/065	79
Waiparera Creek Wetland	1	O04/221	237
Wairahi Swamp & Lake Taeore	1	N03/022	112
Walker Island	1	O04/235	259
West Coast Rd Lake	1	N04/011	171
West Coast Rd Shrubland	1	O04/223	241
Whakatereohao Stream Swamp	1	N02/057	71
Whangatupere Bay	1	O03/006	223
Whawhakou Channel Shrublands	2	N02/059	268
Wild Horse Wetland	1	N03/003	90
Woolshed Swamp	1	N04 037	207

