Vegetation Description of the Manganui–o–te–Ao River margins downstream of Erua Conservation Area

Background

The Manganui–o–te–Ao River flows from the western side of Mt Ruapehu through Tongariro National Park and Erua Conservation Area, to its confluence with the Whanganui River. Most of the river downstream of S.H.4 through Erua Conservation Area is either an entrenched gorge or with very steep sides rising up to 150m above the river. From the lower boundary of Erua Conservation Area the river runs through a narrow gorge to approximately the junction of the Mangaturuturu River. Here the river is bordered by steep cliffs and hill slopes, approximately 50m in height to the higher river terrace level where private pasture land is present. Within this gorge indigenous vegetation is present. Below the Mangaturturu River junction the width of the river and adjoining river terraces widens and larger river terraces that would on occasion be flooded occur. Here the majority of the the remaining indigenous vegetation is forest apart from areas of steep river cliff and the zone that is requently flooded. Many remnant forest areas are present that adjoin the river some public conservation land and other private land.

The survey methodology used was to record all plant and animal species present, subjective assess their abundance and describe vegetation types generally associated with landforms. A vegetation map was not made as often the vegetation could not bee seen because of access difficulties getting into the river gorge. Survey was undertaken from cliff edges, vantages points and walk through surveys targeted the variety of landforms and vegetation types. Often it is was difficult to accutely determine which pieces of riparian vegetation was owned by Fahey's or was road reserve, as a 20m strip of road reserve is present next to either side of the river.

Vegetation Composition associated with landform

The vegetation composition of the river margin and cliffs is largely determined by slope, aspect, water availability and deficit and the effects of flooding. These factors determine how much sunlight, water and disturbance the site recieves and the site soil fertility and topsoil depth.

Forest trees (although often stunted) appear to be able to survive on very steep slopes clinging to the underlying beds of papa that the river has eroded through. The slope angle almost needs to be close to 80–90° before cliff vegetation predominants. Most of the river cliffs are shaded and many have wet seepages flowing down them creating near verticle wetland habitats. The most common species found here include tutu (*Coriaria arborea*) and kiokio (*Blechnum novae-zelandiae*) with occasional kamahi (*Weinmannia racemosa*), kohuhu (*Pittosporum tenuifolium* var. *colensoi*), kotukutuku (*Fuchsia excorticata*) and other smaller shrubs, hangehange (*Geniostoma rupestre*) and larger leafed coprosma species. Where the cliffs are saturated all year round with wet seepages or next to small streams flowing down them, *Machaerina sinclarii* and wetland herbs such as ever–lasting daisy (*Anaphalioides trinervis*), *Gunnera dentata*, *Nertera depressa* are abundant along with patches of *Corybas* orchids and an abundance of other ferns,

moss and liverworts. Closer to the rivers edge is a zone influenced by regular flooding where prostrate rheophytic herbs and mosses are present including species of willow herb (*Epilobium brunnescens*) and *Nertera depressa*.

On sunnier and drier cliff sites the vegetation composition is completely different with species dominating that are able to withstand periods with a high water deficit. The dominant species here include *Dracophyllum strictum, Gaultheria paniculata, G. antipoda, Anaphalioides subrigida, Earina mucronata, Astelia solandri, Poa anceps* and sun orchids. A grey lichen is also common in this area.

Areas of forest above the confluence of the Mangaturuturu River are dominated by tawa (*Beilschmiedia tawa*), rewarewa (*Knightia excelsa*), titoki (*Alectryon excelsus*), kamahi (*Weinmannia racemosa*), hinau (*Elaeocarpus dentatus*), mahoe (*Melicytus ramiflorus* subsp. *ramiflorus*), lemonwood (*Pittosporum eugenioides*) and other common forest broadleaf trees and treeferns. Much of the forest is secondary being modified from historic land clearance fires and is dominated by broadleaf trees and treeferns, often with young podocarps or tawa present. The forest margin here is often thin and only between 5 – 20m from the higher river cliff edge. A few areas of red and black beech are present on riparian margins and steep ridges. Kahikatea, rimu, miro and rata are occasional emergents where they have not been logged. The forest understory here is largely intact where as goats, deer and sheep are absent or in very low numbers. The understory is dominated by palatable species including *Alseuosmia macrophylla*, pikopiko (*Asplenium bulbiferum subsp. Bulbiferum*), hangehange (*Geniostoma rupestre*) and large–leafed *Coprosma* species. Below the confluence of the Mangaturuturu River the forest composition is fairly similar however silver wattle is present and is common in some areas, specifically on steep ridges and on terraces adjacent to the river that would occasionally be flooded. On the higher river terrace level are a few small areas of ox–bow wetland vegetation and swamp forest dominated by kahikatea.

There are several small areas of forest in excellent condition present on the Fahey's land. One of these is separated from the river (block 3) and is presently grazed and the understory has been modified as a result. Two others (blocks 5 and 7) are not grazed by sheep and goats are also absent and as such have intact understory vegetation.

Pests, Weeds and Fencing

The impacts of pests and weeds within the farmland section of the Manganui–o–te–Ao River is relatively minor with possums currently controlled to very low levels by the animal health board (to control bovine TB in cattle and deer). Goats are present at a few places and at low densities on the southern side of the river while higher densities on the northern side. Deer are relatively rare except on the boundary of Erua Conservation Area, where moderate numbers are present. The Department of Conservation has a current mustelid trapping programme to protect and enhance the blue duck population present on the river.

The most common and widespread weed is silver wattle which is present from the Mangaturuturu confluence downstream. This generally is present along the thin riparian

strip or on steeper ridges where native forest is absent or has been modified. The next most common environmental weed is Himalyan honeysuckle (*Leycesteria formosa*) Other environmental weeds include common barberry which is most common near the Mangaturuturu confluence.

Ecological Significance and Special features

The vegetation adjacent to the Manganui–o–te–Ao River provides an almost continous corridor of indigenous vegetation connecting Erua Conservation Area/Tongariro National Park with Whanganui National Park. From Tongariro National Park there are continuous links of indigenous vegetation through the Kaimanawa, Urewera and Raukumura Ranges to the top of the East Cape. However between Whanganui National Park and Erua Conseravtion Area, although there are many individual reserves and private natural areas (often separated by farmland) there is no continous area of indigenous vegetation connecting these large conservation areas. The narrow strip of river margin provides the only connection between these two conservation areas and many of the in–between scenic reserves and private natural areas. This corridor allows forest plants and animals to small forest birds to disperse between areas.

The Manganui–o–te–Ao contains one of the most significant whio or blue duck populations in New Zealand. Whio is dependent upon having intact vegetated river margins which is also dependent upon a

The cliff vegetation of the Manganui–o–te–Ao especially up stream of the Mangaturuturu confluence is highly natural being in a near pristine condition. Below this confluence silver wattle is present on some steeper ridges and riparian margins. Several very intact riparian forest and steeper cliff areas occur down stream (blocks 5/7).

A small population of one threatened plant was found growing on a cliff above the road. The large leafed five finger (*Pseudopanax laetus*) has a threat classification of gradual decline because of its high palatability to possums and ungulates.

Manganui–O–te–Ao River River Plant Species List

Description: This plant species list has been gathered from remnant areas of forest, scrub and river margin vegetation from the southern boundary of Erua forest to the river bridge near the Ruatiti domain. The information collected was from visits made on and 27/28th October 2004 by Nicholas Singers.

Abundance scores

r = rare
u = uncommon
o = occasional
l = local
c = common and lc = locally common
a = abundant and la = locally abundant

* = adventive

Gymnosperm trees

Dacrycarpus dacrydioides	kahikatea	o
Dacrydium cupressinum	rimu	o
Podocarpus hallii	Halls totara	u
Prumnopitys ferruginea	miro	o
Prumnopitys taxifolia	matai	u

Monocot trees and shrubs

Cordyline banksii	forest cabbage tree	lc

Dicot trees

**Acacia dealbata*	silver wattle	la
Alectryon excelsus	titoki	o
Alseuosmia macrophylla		l
Aristotelia serrata	wineberry, makomako	c
Beilschmiedia tawa	tawa	a
**Berberis glaucocarpa*	barberry	l
Carmichaelia australis	N.Z. broom	u
Carpodetus serratus	putaputaweta	a
Coprosma colensoi		
Coprosma grandifolia	kanono	o
Coprosma lucida	shiny leaved karamu	lc
Coprosma rhamnoides		l
Coprosma robusta	karamu	u
Coprosma rotundifolia		l
Coprosma sp. t: "taylorae" (Eagle, 1982)		o
Coprosma tenuifolia		

Coriaria arborea	tutu	la
Cyathodes juniperina	prickly mingimingi	l
**Cytisus scoparius*	broom	o
Brachyglottis repanda	rangiora	u
Dracophyllum strictum		la
Elaeocarpus dentatus	hinau	o
Elaeocarpus hookerianus	pokaka	
Fuchsia excorticata	kotukutuku	o
Gaultheria antipoda	snowberry	u
Gaultheria paniculata		lc
Geniostoma rupestre	hangehange	u
Griselinia littoralis	broadleaf	o
Hebe stricta var. stricta	koromiko	o
Hedycarya arborea	porokaiwhiri	
Helichrysum lanceolatum		
Hoheria populnea var. *lanceolata*	hoheria	o
Kunzea ericoides	kanuka	u
Leptospermum scoparium	manuka	la
Leucopogon fasciculatus	mingimingi	lc
**Leycesteria formosa*	Himalayan honeysuckle	lc
Melicope simplex		o
Melicytus ramiflorus subsp. *ramiflorus*	mahoe	a
Metrosideros robusta	rata	r
Myrsine australis	maupo	
Nestegis cunninghamii	black maire	u
Nestegis lanceolata	white maire	u
Nothofagus fusca	red beech	l
Nothofagus solandri var. *solandri*	black beech	lc
Olearia rani	heketara	
Pennantia corymbosa	kaikomako	o
Pittosporum tenuifolium var. colensoi		
Pittosporum eugenioides	lemonwood	c
Pseudopanax arboreus	fivefinger	
Pseudopanax crassifolius		
Pseudopanax laetus		
**Salix fragilis*	crack willow	u
Schefflera digitata	pate	
Sophora microphylla	kowhai	lc
Streblus heterophyllus	small-leave milk tree	o
Weinmannia racemosa	kamahi	a

Dicot liannes

Clematis paniculata	white clematis	o
Clematis foetida		c
Clematis forsteri		u

Metrosideros colensoi		o
Metrosideros diffusa	climbing rata	c
Metrosideros perforata	climbing rata	
Muehlenbeckia australis	pohuehue	o
Parsonsia capsularis	native jasmine	o
Parsonsia heterophylla		u
Passiflora tetrandra	kohia, N.Z. passionfruit	
Ripogonum scandens	supple-jack	c
Rubus australis		u
Rubus cissoides	bush lawyer	c
Rubus sp. (*R. fruticosus* agg.)	blackberry	o
Rubus schmideloides	bush lawyer	u

Lycopods and fern allies

Lycopodium volubile	clubmoss	lc
Lycopodium varium	clubmoss	l
Tmesipteris elongata	tmesipteris	o

Mosses

Dawsonia superba

Ferns

Adiantum cunninghamii	maiden-hair fern	u
Asplenium bulbiferum subsp. *bulbiferum*	hen and chicken fern	lc
Asplenium flaccidum	hanging spleenwort	lc
Asplenium hookerianum		
Asplenium polyodon	sickle leaved spleenwort	lc
Blechnum chambersii		
Blechnum colensoi		lc
Blechnum discolor	crown fern	
Blechnum fluviatile		
Blechnum minus	swamp kiokio	
Blechnum novae-zelandiae		
Blechnum pennamarina		
Blechnum procerum		
Blechnum vulcanicum		
Ctnenopteris heterophylla		
Cyathea dealbata	silver fern, ponga	
Cyathea medullaris	mamaku	
Cyathea smithii	katote	
Dicksonia fibrosa	wheki-ponga	
Dicksonia squarrosa	wheki	
Grammitis billardierii		

Histiopteris incisa	waterfern	
Hymenophyllum demissum	irirangi	
Hymenophyllum dilatatum	filmy fern	o
Hymenophyllum flabellatum	filmy fern	o
Hymenophyllum flexuosum	filmy fern	
Hymenophyllum rarum	filmy fern	
Hymenophyllum revolutum	filmy fern	
Hymenophyllum scabrum	filmy fern	o
Hypolepis ambigua		
Lastreopsis glabella		c
Leptopteris hymenophylloides		c
Lindsaea trichomanoides		
Microsorum pustulatus	hound's tongue	lc
Microsorum scandens	hound's tongue	lc
Paesia scaberula	lacefern	u
Microsorum pustulatus	hounds tongue	lc
Microsorum scandens		
Pellaea rotundifolia	button fern	
Pneumatopteris pennigera		o
Polystichum vestitum	prickly shield fern	
Polystichum wawaranum	shield fern	
Pteridium esculentum	bracken	a
Pyrrosia eleagnifolia	leather leaf fern	c
Trichomanes reniforme	kidney fern	l
Trichomanes venosum	veined bristle fern	
Sticherus cunninghamii		

Orchids

Corybas trilobus		
Corybas spp.		
Earina autumnalis		la
Earina mucronata		la
Pterostylis banksii	green-hooded orchid	
Thelymitra longifolia		l
Winika cunninghamii		

Grasses

**Agrostis stolonifera*	creeping bent	
**Anthoxanthum odoratum*	sweet vernal	
Cortaderia fulvida	toetoe	
Deyeuxia avenacea		
Dichelachne crinata	plume grass	
**Holcus lanatus*	brown top	
Microlaena avenacea	bush rice grass	

Microlaena stipoides		
Poa anceps	broad leaved poa	

Rushes and sedges

**Carex demissa*		
Carex secta		
Eleocharis acuta		
**Juncus articulatus*		
**Juncus effusus*		
Juncus gregiflorus		
Juncus planifolius		
Luzula picta		
Machaerina sinclarii		la
Schoenus maschalinus		
Uncinia uncinata		

Monocot herbs

Astelia fragrans	bush lily	
Astelia grandis	bush lily	
Astelia solandri	bush lily	
Collospermum microspermum		
**Crocosmia* X *crocosmiiflora*	montbretia	
Dianella nigra	turutu	
Phormium cookianum	harakeke	
Typha orientalis	raupo	

Composite herbs

Anaphalioides trinervis	ever-lasting daisy	lc
Anaphalioides subrigida	ever-lasting daisy	l
**Crepis capillaris*		
**Cirsium arvense*	Californian thistle	
**Cirsium palustre*	marsh thistle	l
**Cirsium vulgare*	Scotch thistle	
Gnaphalium audax	cudweed	
Helichrysum bellidioides	hells bells	
Hydrocotyle moschata	hydrocotyle	
Hydrocotyle novae-zelandiae	hydrocotyle	
**Mycelis muralis*	wall lettuce	o
Pseudognaphalium luteoalbum	jersey cudweed	u
Senecio glomeratus		
**Senecio jacobaea*	ragwort	
Senecio minimus	fireweed	o
Senecio sylvaticus		

Dicot herbs

Acaena anserinifolia	bidibi	
Acaena novae-zelandiae	bidibi	
Cardamine debilis agg.		
**Digitalis purpurea*	foxglove	lc
Epilobium brunnescens subsp. *Mi*	willowherb	
Epilobium brunnescens	willowherb	
Epilobium rotundifolium	willow herb	o
Geranium robertianum		
Gonocarpus micranthus		
Gunnera dentata	gunnera	l
Haloragis erecta		
Jovellana repens		l
Lemna spp.	duck weed	
Lotus pedunculatus	lotus	
Mimulus guttatus		
Nertera depressa		l
Oxalis magellanica	oxalis	
Pratia angulata	pratia	l
**Prunella vulgaris*	selfheal	lc
Ranunculus acris	giant buttercup	u
Ranunculus reflexus	bush buttercup	u
**Ranunculus repens*	buttercup	o
Rorippa nasturtium-aquaticum	water cress	
Solanum nigrum	black nightshade	
Stellaria parviflora	native chickweed	
Urtica incisa	bush nettle	

Figure 1

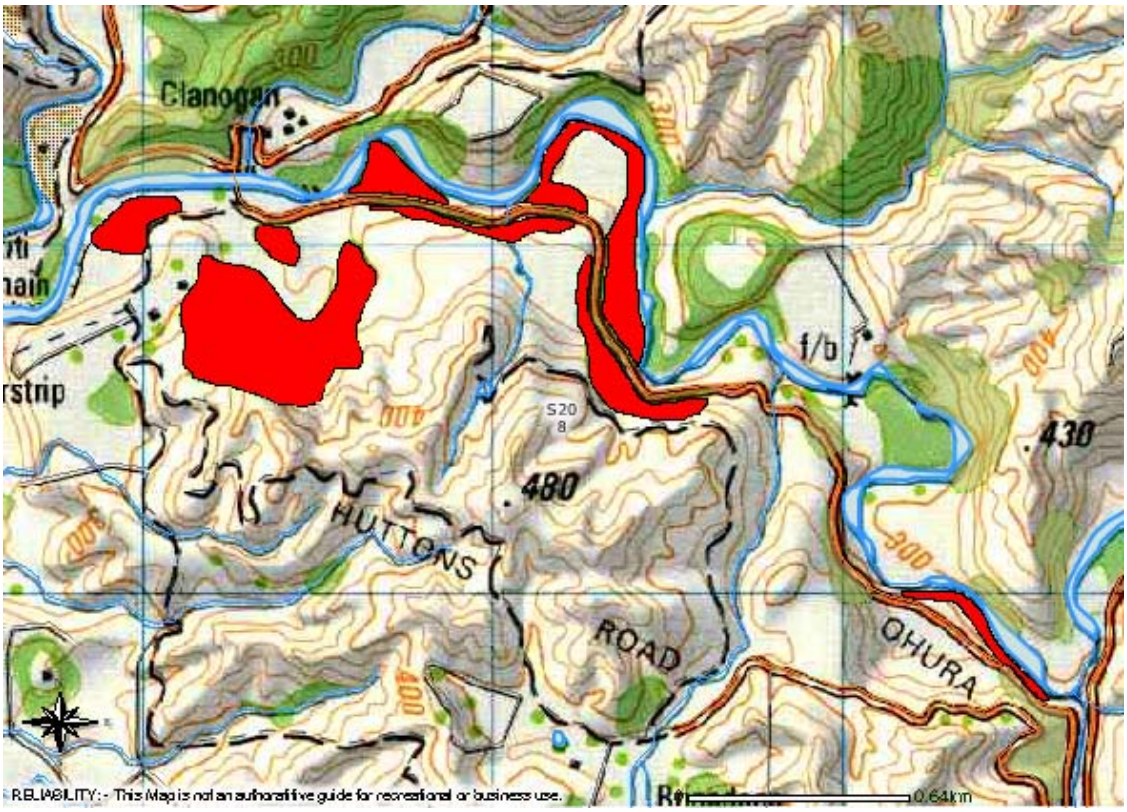
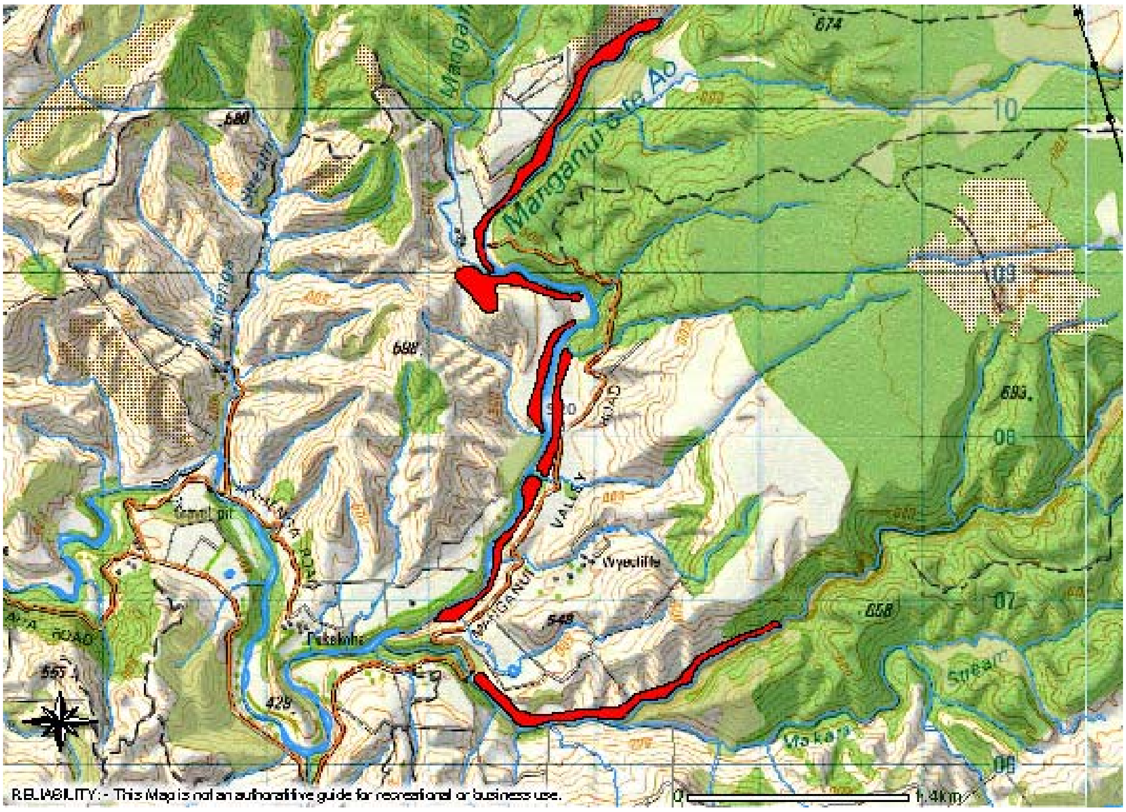


Figure 2


Manganui o te Ao
MANGANUI VALLEY ROAD
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