

# **Glen Rock Nature Conservation Assessment**

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**For more information contact:**

**Forest Planning and Sustainable Use Unit**

**Vegetation Management and Use**

**Department of Natural Resources**

PO BOX 2454

4<sup>th</sup> Floor, Charlotte Chambers

35 Charlotte Street

BRISBANE ALBERT STREET QLD 4001

Ph: 07 3234 0146

Fx: 07 3239 3849

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## ABBREVIATIONS/GLOSSARY

*DNR* – Department of Natural Resources

*Ecosystem*: the aggregate of plants, animals and other organisms, and the non-living parts of the environment with which these organisms interact.

*Endangered species*: a species of plant or animal prescribed as such under the Nature Conservation Act 1992. A species is considered to be in danger of extinction if its number has been reduced to a critical level, or its habitat has been so drastically reduced that it may be in immediate danger of extinction, or it has not been sighted in the wild for a period critical to its life cycle.

*Endemic species*: a species that is confined in its natural distribution to a particular geographic region. A narrow endemic would be a species with a narrow geographic range.

*NatCAM*: Nature Conservation Assessment Model

*PUID*: Planning Unit Identity Descriptor

*Rare species*: a species of plant or animal prescribed as such under the Nature Conservation Act 1992. A species is considered to be rare if its population is relatively large but restricted in its range, or is smaller and thinly spread over a wider range.

*RE*: Regional Ecosystems as identified by Sattler & Williams (1999)

*Vulnerable species*: a species of plant or animal prescribed as such under the Nature Conservation Act 1992. A species is considered to be vulnerable if its population has been seriously depleted and its protection is not secured, or its population, while abundant, is at risk because of threatening processes; or its population is low or localised, or dependant on limited habitat that is at risk because of threatening processes.



## SUMMARY

The Resource Assessment Team met on several occasions to

- review the components of the model to be used in evaluating nature conservation values at Glen Rock,
- check data inputs, and
- validate the results of applying the model to the information compiled.

The model used was that derived from previous workshops involving DNR and QPWS staff. It is based on the Inventory (or 'Book') value of Regional Ecosystem types (RE) modified to take into account their current condition. Plant and animal species (concentrating on Endangered, Vulnerable or Rare species) were also assessed for their conservation significance and both sets of values combined to arrive at an overall value for the current condition of each PUID

Regional Ecosystem (RE) data were derived from the QPWS system using the distribution of vegetation units taken from recent Gattton Shire (1:25,000) mapping. Ten REs were identified for the property, equating to 13 vegetation types, along with a number of heterogeneous RE polygons. The present values for the REs in each PUID were assessed from estimates of the current condition of the RE. Direct and indirect measures of disturbance and viability were used to estimate condition. The assessors used their experience and general knowledge in applying a number of agreed rules.

Species data for Glen Rock and its surrounds were obtained from several sources including the Herbarium, the Museum, Wildnet, DNR and QPWS. The most recent fauna records were obtained from surveys conducted on Glen Rock and the adjacent National Park. Ninety one significant species were then assessed for their nature conservation value. Confirmed records in each PUID were used in most cases, supplemented by probability mapping supplied by qualified assessment team members.

Regional Ecosystem and species values were combined to assign a total nature conservation value ranging between 1 and 10 to each planning unit (PUID).

The results show that of the 77 PUIDs assessed, 8 were rated as very high, 34 as high, 24 as medium and 11 as low ( for current condition ).

Interactions between Nature Conservation and other Open Space Values were explored as a means of informing the decision-making process.

General effects were described between the nature conservation values and potential uses such as various forms of outdoor recreation (horse riding, rogaining, etc), grazing, timber production and so on.

Species' specific interactions were also assessed for those significant species of fauna and flora where adequate information was found.

# 1. INTRODUCTION AND METHODOLOGY

## 1.1 INTRODUCTION

The Glen Rock property of 6,300 hectares lies adjacent to the Main Range National Park, an area recognised internationally as World Heritage. It essentially comprises the headwaters of two streams, Blackfellow Creek and Black Duck Creek. Elevations range between 350 metres and 1000 metres. Cookes Tableland and a smaller plateau near Mt Machar occupy much of the higher elevations where rainfall tends to be higher, probably in excess of 1000 mm annually. The valleys tend to receive lower rainfall, probably due to a rain shadow effect.

Most landscapes have been formed on basalt with some areas of sandstone occupying the northern section of Blackfellow Creek at the main entrance to the property. The main stream sections are flanked by narrow alluvial flats. Vegetation displays a high diversity because of the wide environmental gradients, ranging from pockets of cool subtropical rainforest through grassy open forests to heathy open woodlands on dry rocky slopes. Faunal diversity reflects the variety of habitats on the property and also the contrast between the adjacent tracts of subtropical rainforest to the east and dry open forests inland of the Great Divide.

The combinations of vegetation, fauna, geology, landform and climate have been described in terms of Regional Ecosystems (REs). Of the ten REs on the property, 6 have been recognised as being significant. They comprise a riparian community, associated forests on alluvial flats, a dry rainforest type on basalt, a woodland type on sandstone and two open forest types on basalt, which tend to occupy lower slopes and upper slopes respectively (see Table 2). Some ecosystems have become quite degraded while others are in a relatively undisturbed condition.

Despite a long history of forest grazing much of the overstorey vegetation remains intact or minimally disturbed. Generally speaking the lower landscapes have been modified through clearing of forests on alluvial flats and thinning of trees on lower slopes. Weeds, chiefly lantana, are established along the creek flats and lower slopes. Riparian vegetation has been disturbed and fragmented in many of the lower sections of streams. However, the bird populations here are rich in species including satin bowerbirds, lorikeets, parrots, rosellas, cockatoos and waterbirds. Populations of aquatic fauna, including several species of native fish and crustaceans, appear healthy although green algae (indicating eutrophication) are evident in the lower sections of Blackfellow Creek.

Surveys conducted on the property established the presence of a number of significant animal and plant species. These include the endangered Regent Honeyeater and Red Goshawk, the vulnerable Glossy Black-cockatoo and Brush-tailed Rock-wallaby, and the rare Grey Goshawk, Red-browed Treecreeper and Sooty Owl. The Koala, a culturally significant species, also occurs here. Other arboreal mammals comprise two species of possum and three glider species.

Small native terrestrial mammals include the Bush rat, Fawn-footed Melomys, Yellow-footed Antechinus, and Common Dunnart. The notable New Holland Mouse was discovered a short distance away from the property along Blackfellow Creek. Macropod numbers and species' diversity are low, despite what appears to be suitable habitat. High numbers of Whiptail

Wallabies, Red-necked Wallabies and Eastern Grey Kangaroos would normally be expected here.

Amphibian and reptile species are well represented on the property. A number of endangered or rare frogs and reptiles were recorded in the adjacent National Park.

Plant species diversity is high and includes the rare Bailey's Cypress (*Callitris baileyi*). White-topped Box (*Eucalyptus quadrangulata*), a species with a restricted distribution, found here towards the edge of its range, was largely clear felled for timber extraction several years ago. Very little appears to be regenerating.

Lists of significant species and all species recorded for Glen Rock are given in Appendices 1 and 2.

Analysis of the nature conservation data was undertaken by a Resource Assessment Team comprising staff of the Queensland Parks and Wildlife Service and the Department of Natural Resources. Using a model and methodology described in section 1.2, the team ascribed nature conservation values to each of the planning units.

## 1.2 METHODOLOGY

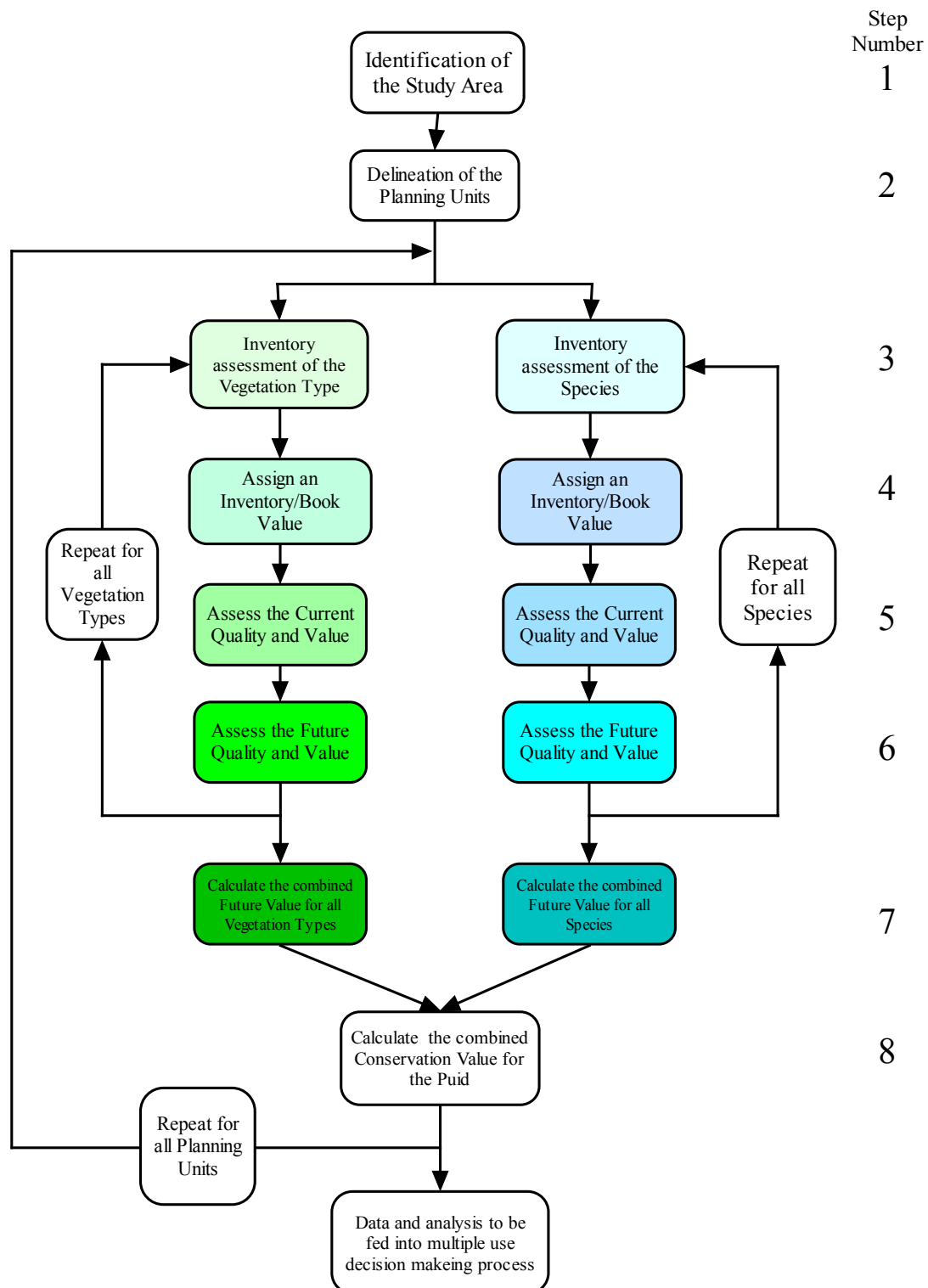
Glen Rock was divided into 77 planning units for the purpose of assessing the open space values, including nature conservation, contained within each. Map1 shows the general study area and Map 2 shows the planning units.

The method of assessment was based on a model (NatCAM) that is designed to:

- address the conservation of biodiversity
- recognise the principles of ecological sustainability
- provide sufficiently reliable and accurate information relevant to land use and management decision-making
- be based on sound science
- be objective such that different assessors will produce repeatable and consistent results based on the same data
- provide a rating methodology which incorporates the key elements of natural values and their conservation
- enable data already collected to be used readily
- allow easy recalculation of results based on changing data

The assessment was based on a model principally designed for land use and land management purposes. The details of the model used are available as a separate manual (contact Steven Howell ). Broadly speaking, the model is based on evaluating Regional Ecosystems (REs) and species of plants and animals for their 'Inventory' or 'Book' value. Each Planning Unit (PUID) is inventoried and then assessed for its 'Current' value based on the existing condition of the REs and species in the PUID. Assessment of current condition was based on disturbance and viability measures made either directly or indirectly. Future condition can also be assessed. However, this was not done for the Glen Rock assessment. The process is illustrated by the flow chart in Figure 1.

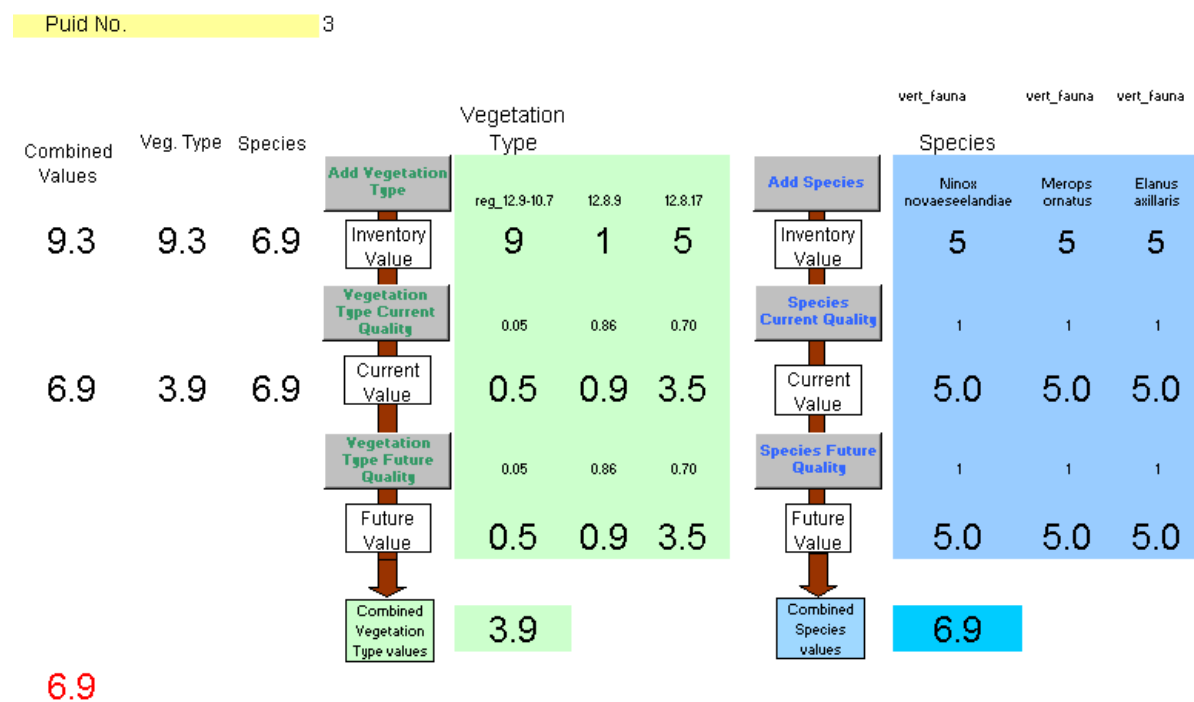
**Figure 1 NatCAM Assessment Flowchart**



The conservation value for each Planning Unit can be calculated from the Vegetation and Species Inventory and Current Condition information (see example shown in Figure 2). Note that for Glen Rock the Future Condition was not used.

**Figure 2 Example of NatCAM Assessment for PUID 3**

### Nature Conservation Assessment



The data required to apply the model were drawn from various sources. Some data were collected from fauna and flora surveys conducted specifically for the planning exercise and other data were obtained from more general data bases (see Table 1 for a summary and Appendix 3 for details).

**Table 1 Summary of Primary Data Sources**

<b>Data Title</b>	<b>Origin/ Source</b>	<b>Contact/Author &amp; details</b>	<b>Date of Report/DB</b>	<b>What received</b>
Frog survey	Glen Rock Frog Survey	Harry Hines, QPWS, Moggill	30/10/2000	species list and summary info, paper maps with species distributions marked
Threatened species	Survey Summary – Glen Rock Regional Park and Adjacent Land	Ian Gynther, QPWS, Moggill	31/10/2000	species list and summary info, xls with species locations
Species list		Harry Hines & Ian Gynther, QPWS, Moggill	30/10/2000	species list
Species list		George Krieger, QPWS, Moggill	31/10/2000	species list
Site locations and species for vertebrate fauna survey	Survey of Vertebrate Fauna at Glen Rock in the Gatton Shire	George Krieger & Peter Lehmann, QPWS, Moggill	March, 2000	combination of spreadsheets and data taken directly from an electronic copy of the report
Flora species sites and data	Draft Gatton Shire Remnant Vegetation Mapping – Gatton Shire	Paul Grimshaw, EPA, Moggill	11/08/2000	received as a point shape file
Vegetation Map	Draft Gatton Shire Remnant Vegetation Mapping – Gatton Shire	Paul Grimshaw, EPA, Moggill	11/08/2000	polygon shape file, subset of full Gatton Shire veg data

Key data used include remnant vegetation mapping at a scale of 1:25,000 (which was referenced to Regional Ecosystems) and locations of significant fauna and flora. Data bases acquired from the Queensland Museum, Queensland Herbarium, Environmental Protection Agency and other sources were used to compile species lists for a study area drawn around the northern extent of the Scenic Rim and for each PUID within Glen Rock.

The raw data from the recent QPWS surveys are available from the authors.

A total of around 12,000 records covering 1,268 species was derived for the study area, of which approximately 1,400 records and 530 species fell within Glen Rock. Appendix 2 lists all the species for the study area and Maps 3, 4 and 5 display their locations.

Application of the model to this data generated a series of values within a scale of 1 to 10 for each PUID.

To assist in decision making in relation to considering various land use and management options, a literature search was made to compile information on the likely responses of Regional Ecosystems, vegetation types, and significant species to the introduction of various planning options. Species Management Profiles were an important component for this exercise. The relevant species and RE information can be found in Appendix 4A, B & C.

The assessments for each PUID should therefore prove useful in ensuring that nature conservation values are adequately taken into account in the planning process.

## 2. REGIONAL ECOSYSTEMS

### 2.1 REGIONAL ECOSYSTEMS

Ten Regional Ecosystems were mapped using recent Gatton Shire vegetation mapping at 1:25 000, geology maps and EPA descriptions of REs as a basis.

Of the ten REs identified, seven were located on basalt, two were located on alluvial flats, and another on sedimentary sandstone (see Table 2 and Maps 6 and 7). The most extensive type of non-regrowth area comprises mixed moist open eucalypt forest on basalt (30% of Glen Rock) followed by drier ironbark open forest (23%), also on basalt. Rainforest types on basalt comprise the smallest extent (0.4%). Table 2 also provides data on the significance of these ecosystems as discussed in section 2.2 below.

Appendix 4c provides more information on the Regional Ecosystems found at Glen Rock.

**Table 2 Regional Ecosystems found at Glen Rock**

RE	Glen Rock Veg Code	NatCAM Status	VM Status	S&W Status	Area within GR (ha)	% of GR Area	Forest Type	Description
12.3.3	3c	8	E	O	38.3	0.6	eucalypt open forest	Eucalyptus tereticornis open forest to woodland on Cainozoic alluvial plains including older floodplain complexes. Eucalyptus crebra and E. moluccana are sometimes present and may be relatively abundant in places, especially on edges of plains. Corymbia intermedia is commonly associated with Eucalyptus tereticornis in moister areas. Other species that may be present as scattered individuals or clumps include Angophora subvelutina or A. floribunda, Corymbia clarksoniana, C. tessellaris, Eucalyptus siderophloia, E. melanophloia and Lophostemon suaveolens.
12.3.7	3a	6	N	N	96.6	1.6	riparian	Narrow fringing community of Eucalyptus tereticornis, Callistemon viminalis, Allocasuarina cunninghamiana +- Waterhousea floribunda on Cainozoic alluvial plains along watercourses. Lomandra hystris often present in stream beds.
12.8.4	8n	1	N	N	6.6	0.1	rainforest	Complex notophyll rainforest with scattered Araucaria bidwillii or A. cunninghamii on Cainozoic igneous rocks especially basalt and lateritised basalt. Characteristic species include Argrodendron actinophyllum, Baloghia inophloia, Brachychiton acerifolius, Dendrocnide excelsa, Elaeocarpus kirtonii, Diospyros pentamera, Dysoxylum fraserianum, Toona australis, Orites excelsa and Sloanea woollsii.
12.8.9	8e	1	O	N	916.5	13.4	eucalypt closed forest	Lophostemon confertus tall open forest to open forest often with rainforest understorey ('wet sclerophyll') on Cainozoic igneous rocks. Tends to occur mostly in gullies and on exposed ridges.
12.8.14	8a, 8b, 8h, 8i	1	N	N	1856.8	30.5	eucalypt open forest	Eucalyptus eugenioides, E. tereticornis, E. melliodora, E. biturbinata, Allocasuarina torulosa +- E. moluccana grassy open forest on Cainozoic igneous rocks, especially basalt.
12.8.16	8k	7	N	N	223.1	3.7	eucalypt open forest	Eucalyptus crebra, generally with E. melliodora, E. tereticornis, E. albens grassy woodland on Cainozoic igneous rocks, especially basalt. Dry hill slopes in south-west of bioregion.
12.8.17	8d	5	N	O	1419.3	23.3	eucalypt open forest	Eucalyptus crebra, E. melanophloia +- E. erythrophloia, Corymbia tessellaris, C. clarksoniana, E. tereticornis, E. melliodora grassy woodland on Cainozoic igneous rocks, especially basalt.
12.8.19	8j	1	O	N	39.7	0.7	heath	Montane heath and rock pavement with scattered shrubs or open woodland on Cainozoic igneous rocks especially rhyolite and trachyte.
12.8.21	8m	10	E	O	15.7	0.3	rainforest	Low microphyll rainforest and semi-evergreen vine thicket +- Araucaria cunninghamii on Cainozoic igneous rocks, especially basalt and lateritised basalt. Characteristic species include Brachychiton rupestris, Flindersia collina, F. australis, Alectryon diversifolius, A. subdentatus, Elattostachys xylocarpa, Erythroxylum australe, Canthium buxifolium, Diospyros geminata, Planchonella cotinifolia, Croton insularis, Briedelia exaltata and Bursaria incana. Melaleuca bracteata is often present along watercourses.
12.9/10.7	9h	9	O	O			eucalypt open forest	Eucalyptus crebra, E. tereticornis +- Corymbia tessellaris, Angophora spp., E. melanophloia woodland on Cainozoic to Proterozoic sediments.
non remnant					361.9	5.9		
regrowth					1213.5	19.9		



## 2.2 VALUES OF REGIONAL ECOSYSTEMS

The assessment of the Inventory/Book Value of a Regional Ecosystem Type includes the following criteria :-

- remnant area as a percentage of preclearing area
- absolute remnant area remaining
- ecosystem type
- current percentage of pre clearing area in protected estate
- population distribution – sparse, thinned, normal
- fragility – low/robust, medium, high/fragile

The first three of these are the same as those used by Sattler and Williams (1999), which classified regional ecosystems in three categories of Endangered, Of Concern and Not of Concern. See Table 3 for a comparison.

**Table 3 Comparison Between NatCAM and Sattler & Williams Regional Ecosystem Status**

<b>Sattler &amp; Williams</b>	<b>NatCAM</b>
Endangered	8, 9, 10
Of Concern	5, 6, 7
Not of Concern	1, 2, 3, 4

A dry rainforest type in gullies on basalt, an ironbark open forest on basalt slopes, an open forest on sandstone lower slopes and an open forest type on alluvial flats are accorded an ‘Of Concern’ status by Sattler & Williams.

Taking other criteria into account, the most significant ecosystems comprise:

- a riparian community (12.3.7),
- associated forests on alluvial flats (12.3.3),
- a dry rainforest type on basalt (12.8.21),
- a woodland type on sandstone (12.9/10.7),
- open forests on basaltic upper slopes (12.8.16) and,
- open forests on basaltic lower slopes (12.8.17)

Table 2 shows the value or score for the ecosystems.

Current values were derived from local knowledge and data for the property. Disturbance was rated on eight criteria of which the presence of weeds, amount of clearing /thinning of the vegetation canopy and alteration to understorey vegetation were the chief determinants. In terms of viability the high degree of intact vegetation and connectivity at Glen Rock meant that the main determinants became position in the landscape and fragility. See the NatCAM manual for details. Guidelines for assessing disturbance and viability in the case of Glen Rock are given in Appendix 4d of the manual.

Map 8 shows the inventory values for REs. Map 9 modifies these to take present condition into account.

The highest 'Current Condition' values are associated with rainforest in Hoop Pine Gorge (PUID 58), Black Duck Creek headwaters (76), a gully near Cookes Tableland (61) and a rocky scree north of Mt Machar (31). Medium values are mainly found in the headwaters of Black Duck Creek and the slopes of Blackfellow Creek valley. Lowest values are found along lower sections of the Blackfellow Creek valley, Cookes Tableland (57,59,60) Black Duck Creek headwaters (77), north west of Mt Machar (30) and the ridge system west of the Glen Rock pinnacle (12,17).

### 3. PLANT AND ANIMAL SPECIES

#### 3.1 SIGNIFICANT SPECIES

A reasonably comprehensive inventory of species was made for Glen Rock and the surrounding grid. In all about 12,000 reliable records were used covering 1268 species. The bulk of these were plant species. For Glen Rock itself the tally was 1407 records for 532 species. Within the property the spread of site locations was comprehensive with few noticeable gaps (see Map 5). Many plant records were derived from plot descriptions taken during a vegetation mapping project. Fauna records were in large part obtained from surveys conducted specifically for the planning exercise. For most of the significant fauna species recorded in the area, supplementary data were generated by estimating probable distributions (80% confidence) where their habitat requirements were known with some confidence. Expert advice was sought in mapping probable distributions for selected high-value fauna species. The inventory values were discounted by 20 per cent to account for probability. A similar probability exercise for flora used the vegetation descriptions (based on Glen Rock site data) for some species.

Values were assigned to species following consideration by the Resource Assessment Team as shown in Table 4.

Table 4 Species Values

Code	Value/Score	Status
PE	10	presumed extinct
E	10	endangered
V	8	vulnerable
R	6	rare
CUT	6	common and under threat
WH	5	World Heritage
CJ	5	CAMBA/JAMBA/BONN
CS	4	culturally significant
C	2	common and not under threat

Those species with a value of 4 or greater (91 species) were taken into account in the assessment that followed. Species with an EPA status of Endangered, Vulnerable or Rare were rated from 10, 8 and 6 respectively (see Table 4).

A number of species that are classed by the EPA as Common were given a rating of 6 if they were considered to be under local threat in the context of Glen Rock. Included in this category are:

- species of freshwater fish likely to be collected for aquariums or subject to fishing
- Mt Mistake Spiny Cray\*(with restricted distribution)
- New Holland Mouse\* (restricted distribution)
- peregrine falcon (prone to disturbance of cliff site nesting sites),
- Scarlet Robin (diminishing distribution)
- Yellow-bellied glider\* (timber harvesting)
- showy epiphytic orchids sometimes collected for gardens
- fire-sensitive white cypress pine (*Callitris glaucophylla*) and,
- *Eucalyptus quadrangulata*, formerly harvested for timber production on the property.

\*Note found in close proximity to Glen Rock.

Values of 5 were assigned to those species or groups of species cited in the Nomination Report for the Central Eastern Rainforest Reserves -Australia (CERRA) which led to its listing, including the adjacent Main Range National Park. The same rating was given to those species listed in various international agreements (viz. JAMBA, CAMBA and Bonn).

Culturally significant species (Koala and Short-beaked Echidna) were given a rating of 4.

For those species with a status in more than one class the higher rating was applied.

Map 10 illustrates the result. PUIDS with the highest species' values are concentrated in the headwaters of Black Duck Creek, Flaggy Creek and Blackfellow Creek, on Cookes Tableland, around Mount Machar and the ridge/upper slope systems leading north and south from it, around Point Pure and Glen Rock pinnacle.

Note: Appendix 1 lists species with a value rating of 4 or more, with a complete list of all recorded species given in Appendix 2. Appendix 4b provides more information on the significant species, that is, those with a NatCAM status of 6 or greater.

### 3.2 PLANT SPECIES

Six species of plants were given a rating of 6 or more:- two species of cypress pine, three species of orchid, and a eucalypt (see Appendix 1). All have been recorded for the property. Additional data was generated by assigning species to PUIDS where they could be confidently linked to Regional Ecosystems.

**Table 5 Significant Plant Species**

Common Name	Status	Key Habitat	Threat
Bailey's Cypress Pine	Rare	Dry open forest	Fire
White Cypress Pine	Common	Dry open forest	Fire
King Orchid	Common	Trees, rocks	Collecting
Olive Orchid	Common	Rainforest trees	Collecting
Pink Rock-orchid	Common	Rocks	Collecting
White topped Box	Common	Near rainforest	Timber harvesting

Other significant species which may occur on the property include those listed by Grimshaw (1999) for Gatton and Laidley Shires as follows:

**Table 6 Significant plants possibly on Glen Rock**

Name	Status	Habitat/Location
Native Thistle ( <i>Stemmacantha australis</i> )	Vulnerable	RE 12.3.3. 19 km south of Gatton
Thesium ( <i>Thesium australe</i> )	Vulnerable	REs; 12.3.3, 12.8.14.
Bunya Bluegrass ( <i>Bothriochloa bunyensis</i> )	Vulnerable	REs; 12.8.14, 12.8.19. Mistake Range
Bristly Bluegrass ( <i>Dichanthium setosum</i> )	Rare	REs; 12.8.14, 12.8.19. Mistake Range
Mountain Guinea Flower ( <i>Hibbertia monticola</i> )	Rare	Mistake Range
Hawk Weed ( <i>Picris evae</i> ).	Vulnerable	West Haldon

These were not taken into account, however, in the assessment.

Threats to plant species include inappropriate fire regimes (for fire-sensitive cypress pines), collecting (rock orchids), and timber harvesting (eucalypt). While the eucalypt (White-topped Box) occurs on a moist plateau the other species are associated with dry, rocky slopes.

### 3.3 ANIMAL SPECIES

Sixteen animal species were accorded a value of 6 or more for Glen Rock. They comprise two endangered bird species, one vulnerable bird and one mammal species, 3 rare birds, and 9 other species with a common status but considered to be under threat in the area (see Appendix 1).

Some species are restricted to a particular habitat which is quite restricted in extent (eg rocky sites for the Brush-tailed Rock-wallaby) while for others the habitat is widespread (eg Glossy Black-cockatoo) or extensive (eg Red Goshawk). Species Profiles (see Appendix 4B) give further details.

Their characteristics are given in Table 7 below:

**Table 7 Highly Significant Animal Species at Glen Rock**

Common Name	Status	Key Habitat	Threat
Red Goshawk	Endangered	Riparian forest (for nesting)	Habitat loss/degradation, egg collecting
Regent Honeyeater	Endangered	Box-Ironbark forest.	Habitat loss/degradation
Brush-tailed Rock-wallaby	Vulnerable	Rocky sites	Habitat loss, predation
Glossy Black-cockatoo	Vulnerable	Forest oak food trees, hollow trees	Habitat loss/degradation
Red-browed Treecreeper	Rare	Dense eucalypt forest	Habitat loss/degradation
Sooty Owl	Rare	Tall wet forest, tree hollows	Habitat loss/degradation
Grey Goshawk	Rare	Dense mature forest	Habitat loss/degradation
Australian Long-fin Eel	Common	Streams, wetlands	Fishing, pollution
Australian Smelt	Common	Streams, wetlands	Aquarium collecting, pollution
Freshwater Catfish	Common	Streams, wetlands	Fishing, pollution
Marjorie's Hardyhead	Common	Streams, wetlands	Aquarium collecting, pollution
Mistake Mountains Crayfish	Common	Streams, wetlands	Aquarium collecting
Murray Rainbowfish	Common	Streams, wetlands	Aquarium collecting, pollution
Peregrine Falcon	Common	Cliff nest sites	Disturbance during breeding
Purple-spotted Gudgeon	Common	Streams, wetlands	Aquarium collecting, pollution
Scarlet Robin	Common	Scrubby eucalypt forest	Habitat loss/degradation

## 4. COMBINED CURRENT NATURE CONSERVATION VALUE

### 4.1 RESULTS

Maps 11 and 12 and Table 8 illustrate the results of the assessment.

A total of 42 PUIDS rated between 8 and 10, chiefly located in the headwaters of Black Duck Creek, on Cookes Tableland, the headwaters of Blackfellow Creek, the valley of Flaggy Creek, the north-western slopes of Blackfellow Creek and Mount Machar. These areas are in a relatively undisturbed condition. The presence of a highly rated species or group of otherwise significant species increased the rating of the PUID.

Particular concentrations of PUIDS with high nature conservation values were identified at:

Mount Machar and associated ridges (PUIDS 18, 31, 43, 34, 44). This area contains dry rainforest (an 'Of concern' RE), Ironbark open forests with 'Of Concern' or poor protected area status, and a number of significant species. The prime core area at Glen Rock for a breeding population of the vulnerable Brush-tailed Rock-wallaby and extensive secondary habitat occurs here. The surrounding grassy open forests (with forest oak) provide habitat for the vulnerable Glossy Black-cockatoo and the culturally significant koala. The rare Red-browed Treecreeper also occurs here.

Hoop Pine Gorge and basin. (PUIDS 57,58,59). The gorge contains a dry rainforest ecosystem classed as an 'Of Concern' RE. It also contains the other core habitat area on Glen Rock for a colony of Brush-tailed Rock-wallabies. Another significant species in the gorge is the Peregrine Falcon. Surrounding grassy to shrubby forests provide habitat for the endangered Regent Honeyeater, observed feeding on nectar from Yellow Box flowers, the vulnerable Glossy Black-cockatoo, the rare Grey Goshawk and Red-browed Treecreeper. The endangered Red Goshawk was observed flying overhead.

The headwaters of Black Duck Creek (PUIDS 76, 77) contains an 'Of Concern' rainforest ecosystem and another characterised by Silver-leaved/Narrow-leaved Ironbark. Significant species include the Glossy Black-cockatoo, Red-browed Treecreeper, Scarlet Robin and Koala.

The Point Pure/Blackfellow Creek headwaters (PUIDS 64,65,69,70, 71) is very diverse. It contains riparian forest (RE 12.3.7), which is poorly represented in the protected area estate and the Ironbark open forest which is 'Of Concern'. Significant species include Glossy Black-cockatoo, Peregrine Falcon, Brush-tailed Rock-wallaby, and Sooty Owl.

The Glen Rock pinnacle/Flaggy Creek area (PUIDS 17,29,39) is similarly diverse. It contains the Ironbark RE and various significant species including the Brush-tailed Rock-wallaby, Glossy Black-cockatoo and rock orchids.

Towards the entrance to the property along Blackfellow Creek (PUIDS 9,20, 21) are areas of Forest Red Gum on alluvial flats. This is an 'Of Concern' Ecosystem (12.3.3) but has not received a high value because of its degraded condition. Similarly another 'Of Concern' RE (12.9/19.7) in the same area (PUIDS 1,3,7,8,9) has been degraded and valued accordingly. However, if rehabilitation is achievable the nature conservation values of these areas would increase.



**Table 8 Nature Conservation Values from the NatCAM Assessment**

	Vegetation Type		Species	Overall		
Puid No.	Veg. Book	Veg. Current	Species Book	All Book	All Current	Notes
1	9.3	0.7	8.0	9.3	8.0	reg_12.8.17 eof 5, reg_12.8.9 ecf 1, reg_12.9-10.7 eof 9, Pacific black duck 5, Australian wood duck 5, wandering whistling-duck 5, nankeen kestrel 5, Australian hobby 5, white-throated gerygone 5, rainbow bee-eater 5, masked lapwing 5
2	5.4	5.3	8.7	8.7	8.7	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, buff-rumped thornbill 5, wedge-tailed eagle 5, Bailey's cypress 6, cicadabird 5, white-throated treecreeper 5, brown falcon 5, white-throated gerygone 5, glossy black-cockatoo 6.4
3	9.3	3.9	6.9	9.3	6.9	12.8.17 eof 5, 12.8.9 ecf 1, reg_12.9-10.7 eof 9, black-shouldered kite 5, rainbow bee-eater 5, southern boobook 5
4	5.3	5.1	6.4	6.4	6.4	12.8.14 eof 1, 12.8.17 eof 5, glossy black-cockatoo 6.4
5	5.0	4.9	8.5	8.5	8.5	12.8.17 eof 5, buff-rumped thornbill 5, cicadabird 5, white-throated treecreeper 5, brown falcon 5, white-throated gerygone 5, rainbow bee-eater 5, glossy black-cockatoo 6.4
6	5.0	4.0		5.0	4.0	reg_12.8.17 eof 5
7	9.4	3.8	8.6	9.4	8.6	12.3.7 rip 6, reg_12.8.17 eof 5, reg_12.9-10.7 eof 9, yellow-rumped thornbill 5, Australian wood duck 5, golden-headed cisticola 5, cicadabird 5, clicking froglet 5, nankeen kestrel 5, brown-striped marshfrog 5, eastern sedgefrog 5, striped rocketfrog 5, emerald-spotted treefrog 5, naked treefrog 5, rainbow bee-eater 5, white-browed scrubwren 5, masked lapwing 5
8	9.3	1.8		9.3	1.8	12.3.7 rip 6, reg_12.9-10.7 eof 9
9	9.3	1.8	6.3	9.3	6.3	12.3.7 rip 6, reg_12.9-10.7 eof 9, white-throated gerygone 5, rainbow bee-eater 5
10	5.0	2.6	6.3	6.3	6.3	reg_12.8.17 eof 5, cicadabird 5, southern boobook 5
11	1.5	1.4	6.4	6.4	6.4	12.8.14 eof 1, 12.8.9 ecf 1, glossy black-cockatoo 6.4
12	1.5	1.4	6.4	6.4	6.4	12.8.14 eof 1, 12.8.9 ecf 1, glossy black-cockatoo 6.4
13	5.0	0.3	7.7	7.7	7.7	reg_12.8.17 eof 5, cicadabird 5, brown-striped marshfrog 5, eastern sedgefrog 5, emerald-spotted treefrog 5, naked treefrog 5, southern boobook 5
14	5.3	3.5		5.3	3.5	12.8.9 ecf 1, reg_12.8.17 eof 5
15	5.3	3.5	6.4	6.4	6.4	12.8.9 ecf 1, reg_12.8.17 eof 5, glossy black-cockatoo 6.4
16	5.4	5.3	7.3	7.3	7.3	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 6.4, red-browed treecreeper 4.8

	Vegetation Type		Species	Overall		
Puid No.	Veg. Book	Veg. Current	Species Book	All Book	All Current	Notes
17	1.7	1.7	9.5	9.5	9.5	12.8.14 eof 1, 12.8.19 hea 1, 12.8.9 ecf 1, yellow-rumped thornbill 5, white-throated treecreeper 5, pink rock orchid 6, king orchid 6, major skink 5, brush-tailed rock-wallaby 8, grey goshawk 4.8, glossy black-cockatoo 6.4, red-browed treecreeper 4.8, red goshawk 8, white-browed scrubwren 5
18	7.8	7.8	8.6	8.6	8.6	12.8.16 eof 7, 12.8.17 eof 5, 12.8.9 ecf 1, brush-tailed rock-wallaby 8, glossy black-cockatoo 6.4
19	7.8	7.4	8.8	8.8	8.8	12.8.16 eof 7, 12.8.17 eof 5, 12.8.9 ecf 1, yellow-rumped thornbill 5, collared sparrowhawk 5, white cypress pine 6, cicadabird 5, clicking froglet 5, white-throated gerygone 5, brown-striped marshfrog 5, glossy black-cockatoo 6.4, satin bowerbird 5, white-browed scrubwren 5
20	8.8	2.4	8.2	8.8	8.2	12.3.3 eof 8, 12.3.7 rip 6, reg_12.8.17 eof 5, yellow-rumped thornbill 5, Australian wood duck 5, golden-headed cisticola 5, cicadabird 5, nankeen kestrel 5, emerald-spotted treefrog 5, naked treefrog 5, rainbow bee-eater 5, white-browed scrubwren 5, masked lapwing 5
21	5.0	0.3		5.0	0.3	reg_12.8.17 eof 5
22	5.4	4.5	6.4	6.4	6.4	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 6.4
23	5.4	4.8	7.7	7.7	7.7	12.8.14 eof 1, 12.8.17 eof 5, 12.8.19 hea 1, glossy black-cockatoo 6.4, pink rock orchid 4.8, king orchid 4.8
24	5.0	3.9	8.0	8.0	8.0	reg_12.8.17 eof 5, glossy black-cockatoo 8
25	7.8	6.9	8.6	8.6	8.6	12.8.9 ecf 1, reg_12.8.16 eof 7, reg_12.8.17 eof 5, yellow-rumped thornbill 5, collared sparrowhawk 5, wedge-tailed eagle 5, white cypress pine 6, cicadabird 5, clicking froglet 5, white-throated gerygone 5, brown-striped marshfrog 5, satin bowerbird 5, white-browed scrubwren 5
26	5.3	1.0	8.7	8.7	8.7	12.8.9 ecf 1, reg_12.8.17 eof 5, yellow-rumped thornbill 5, collared sparrowhawk 5, wedge-tailed eagle 5, white cypress pine 6, cicadabird 5, clicking froglet 5, white-throated gerygone 5, brown-striped marshfrog 5, eastern sedgefrog 5, broad-palmed rocketfrog 5, satin bowerbird 5, white-browed scrubwren 5
27	6.4	3.6	7.5	7.5	7.5	12.8.17 eof 5, 12.8.9 ecf 1, reg_12.8.17 eof 5, white cypress pine 6, glossy black-cockatoo 6.4
28	8.8	5.2	6.4	8.8	6.4	12.3.7 rip 6, reg_12.3.3 eof 8, reg_12.8.17 eof 5, glossy black-cockatoo 6.4
29	5.5	5.4	9.4	9.4	9.4	12.8.14 eof 1, 12.8.17 eof 5, 12.8.19 hea 1, 12.8.9 ecf 1, kurrajong 5, pink rock orchid 6, king orchid 6, brush-tailed rock-wallaby 8, glossy black-cockatoo 6.4, Regent honeyeater 8
30	1.5	1.4	8.0	8.0	8.0	12.8.14 eof 1, 12.8.9 ecf 1, kurrajong 5, glossy black-cockatoo 6.4, brush-tailed rock-wallaby 6.4
31	10.0	10.0	9.4	10.0	10.0	12.8.14 eof 1, 12.8.16 eof 7, 12.8.17 eof 5, 12.8.21 rf 10, 12.8.9 ecf 1, yellow thornbill 5, buff-rumped thornbill 5, white-throated treecreeper 5, southern boobook 5, brush-tailed rock-wallaby 8, koala 4, glossy black-cockatoo 6.4, red-browed treecreeper 4.8, Regent honeyeater 8
32	5.3	4.1	6.4	6.4	6.4	12.8.9 ecf 1, reg_12.8.17 eof 5, glossy black-cockatoo 6.4

	Vegetation Type		Species	Overall		
Puid No.	Veg. Book	Veg. Current	Species Book	All Book	All Current	Notes
33	5.4	4.2	6.4	6.4	6.4	12.8.14 eof 1, 12.8.9 ecf 1, reg_12.8.17 eof 5, glossy black-cockatoo 6.4
34	5.4	5.3	9.2	9.2	9.2	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 8, white-throated treecreeper 5, brush-tailed rock-wallaby 8, olive orchid 6, painted button-quail 5
35	5.3	3.7		5.3	3.7	12.8.9 ecf 1, reg_12.8.17 eof 5
36	5.0	1.8		5.0	1.8	reg_12.8.17 eof 5
37	7.0	4.0		7.0	4.0	12.3.7 rip 6, 12.8.17 eof 5
38	5.4	5.3	8.0	8.0	8.0	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 8
39	5.6	5.6	9.6	9.6	9.6	12.8.14 eof 1, 12.8.17 eof 5, 12.8.19 hea 1, 12.8.4 rf 1, 12.8.9 ecf 1, yellow-rumped thornbill 5, glossy black-cockatoo 8, white-throated treecreeper 5, clicking froglet 5, brush-tailed rock-wallaby 8, grey goshawk 4.8, red-browed treecreeper 4.8, pink rock orchid 4.8, king orchid 4.8, red goshawk 8, Albert's lyrebird 4.8, brush-tailed rock-wallaby 6.4
40	5.0	3.4		5.0	3.4	reg_12.8.17 eof 5
41	7.0	4.7		7.0	4.7	12.3.7 rip 6, reg_12.8.17 eof 5
42	5.3	4.1	8.6	8.6	8.6	12.8.9 ecf 1, reg_12.8.17 eof 5, white-throated treecreeper 5, Marjorie's Hardyhead 6, clicking froglet 5, purple spotted gudgeon 6, grey goshawk 4.8, satin bowerbird 5, Australian smelt (fw fish) 6, freshwater catfish 6
43	5.4	5.2	9.0	9.0	9.0	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 8, red-browed treecreeper 6, brush-tailed rock-wallaby 8
44	5.4	5.4	8.9	8.9	8.9	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, kurrajong 5, brush-tailed rock-wallaby 8, glossy black-cockatoo 6.4
45	5.0	4.0		5.0	4.0	reg_12.8.17 eof 5
46	6.4	5.9	8.6	8.6	8.6	12.8.14 eof 1, 12.8.17 eof 5, reg_12.8.17 eof 5, brush-tailed rock-wallaby 8, glossy black-cockatoo 6.4
47	5.4	5.3	6.4	6.4	6.4	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 6.4
48	9.2	4.8	6.4	9.2	6.4	12.3.3 eof 8, 12.3.7 rip 6, reg_12.3.3 eof 8, reg_12.8.17 eof 5, glossy black-cockatoo 6.4
49	1.7	1.7	6.4	6.4	6.4	12.8.14 eof 1, 12.8.9 ecf 1, 12.8.14 eof 1, glossy black-cockatoo 6.4
50	7.0	3.9	8.8	8.8	8.8	12.3.7 rip 6, reg_12.8.17 eof 5, wedge-tailed eagle 5, Marjorie's Hardyhead 6, clicking froglet 5, stony-creek frog 5, purple spotted gudgeon 6, glossy black-cockatoo 6.4, Australian smelt (fw fish) 6, freshwater catfish 6
51	7.0	4.1	8.8	8.8	8.8	12.3.7 rip 6, reg_12.8.17 eof 5, Australian longfin eel 6, Marjorie's Hardyhead 6, stony-creek frog 5, Murray Rainbowfish 6, purple spotted gudgeon 6, glossy black-cockatoo 6.4, Australian smelt

	Vegetation Type		Species	Overall		
Puid No.	Veg. Book	Veg. Current	Species Book	All Book	All Current	Notes
						(fw fish) 6, freshwater catfish 6
52	7.8	7.3	6.4	7.8	7.3	12.8.16 eof 7, 12.8.17 eof 5, glossy black-cockatoo 6.4
53	7.2	4.8	8.9	8.9	8.9	12.3.7 rip 6, 12.8.14 eof 1, 12.8.9 ecf 1, 12.8.9 ecf 1, reg_12.8.17 eof 5, Marjorie's Hardyhead 6, Mistake Mtns crayfish 6, purple spotted gudgeon 6, grey goshawk 4.8, glossy black-cockatoo 6.4, pink rock orchid 4.8, king orchid 4.8, Australian smelt (fw fish) 6, freshwater catfish 6
54	5.3	5.1	6.4	6.4	6.4	12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 6.4
55	7.7	3.9	9.3	9.3	9.3	12.3.7 rip 6, 12.8.17 eof 5, reg_12.3.7 rip 6, striated thornbill 5, brown thornbill 5, glossy black-cockatoo 8, cicadabird 5, brown falcon 5, stony-creek frog 5, purple spotted gudgeon 6, satin bowerbird 5, painted button-quail 5
56	7.9	7.8	8.2	8.2	8.2	12.8.16 eof 7, 12.8.17 eof 5, 12.8.19 hea 1, 12.8.9 ecf 1, Bailey's cypress 4.8, glossy black-cockatoo 6.4, red-browed treecreeper 4.8, pink rock orchid 4.8, king orchid 4.8
57	1.0	1.0	9.4	9.4	9.4	12.8.14 eof 1, grey goshawk 6, white-throated treecreeper 5, peregrine falcon 6, glossy black-cockatoo 6.4, red-browed treecreeper 4.8, red goshawk 8, brush-tailed rock-wallaby 6.4, satin bowerbird 5
58	10.0	9.8	9.4	10.0	9.8	12.8.21 rf 10, 12.8.9 ecf 1, grey goshawk 6, peregrine falcon 6, brown gerygone 5, brush-tailed rock-wallaby 8, red-browed treecreeper 4.8, red goshawk 8, satin bowerbird 5
59	1.0	1.0	10.0	10.0	10.0	12.8.14 eof 1, striated thornbill 5, buff-rumped thornbill 5, grey goshawk 6, Pacific baza 5, glossy black-cockatoo 8, white-throated treecreeper 5, Cunningham's skink 5, red goshawk 10, peregrine falcon 6, brown gerygone 5, yellow-tufted honeyeater 5, broad-palmed rocketfrog 5, whistling treefrog 5, brush-tailed rock-wallaby 8, red-browed treecreeper 4.8, brush-tailed rock-wallaby 6.4, satin bowerbird 5, white-browed scrubwren 5, Regent honeyeater 10
60	1.5	1.2	9.4	9.4	9.4	12.8.14 eof 1, 12.8.9 ecf 1, grey goshawk 6, glossy black-cockatoo 8, soft white box 6, brush-tailed rock-wallaby 8, red-browed treecreeper 4.8, red goshawk 8
61	10.0	9.9	9.0	10.0	9.9	12.8.21 rf 10, brush-tailed rock-wallaby 8, red-browed treecreeper 4.8, red goshawk 8
62	5.4	5.3	7.7	7.7	7.7	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, white-throated treecreeper 5, grey goshawk 4.8, brush-tailed rock-wallaby 6.4
63	6.4	5.6	7.3	7.3	7.3	12.8.17 eof 5, 12.8.9 ecf 1, reg_12.8.17 eof 5, white-throated treecreeper 5, glossy black-cockatoo 6.4
64	7.2	2.1	9.3	9.3	9.3	12.3.7 rip 6, reg_12.3.7 rip 6, striated thornbill 5, brown thornbill 5, glossy black-cockatoo 8, cicadabird 5, white-throated treecreeper 5, brown falcon 5, white-throated gerygone 5, fawn-footed melomys 5, painted button-quail 5

	Vegetation Type		Species	Overall		
Puid No.	Veg. Book	Veg. Current	Species Book	All Book	All Current	Notes
65	5.6	4.7	9.5	9.5	9.5	12.8.14 eof 1, 12.8.19 hea 1, 12.8.9 ecf 1, 12.8.14 eof 1, reg_12.8.17 eof 5, striated thornbill 5, buff-rumped thornbill 5, clicking froglet 5, major skink 5, peregrine falcon 6, stony-creek frog 5, fawn-footed melomys 5, brush-tailed rock-wallaby 8, grey goshawk 4.8, glossy black-cockatoo 6.4, red-browed treecreeper 4.8, pink rock orchid 4.8, king orchid 4.8
66	7.9	7.6	6.4	7.9	7.6	12.8.14 eof 1, 12.8.16 eof 7, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 6.4
67	5.4	4.0		5.4	4.0	12.8.9 ecf 1, reg_12.8.17 eof 5, reg_12.8.9 ecf 1
68	5.4	4.2	9.0	9.0	9.0	12.8.14 eof 1, 12.8.9 ecf 1, reg_12.8.17 eof 5, grey goshawk 4.8, glossy black-cockatoo 6.4, red-browed treecreeper 4.8, red goshawk 8
69	5.4	5.2	9.4	9.4	9.4	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, white-throated treecreeper 5, clicking froglet 5, Cunningham's skink 5, white-throated gerygone 5, stony-creek frog 5, eastern water dragon 5, grey goshawk 4.8, red goshawk 8, brush-tailed rock-wallaby 6.4, New Holland mouse 4.8, sooty owl 4.8, satin bowerbird 5
70	6.2	4.5	8.2	8.2	8.2	12.8.9 ecf 1, reg_12.3.7 rip 6, hoop pine 5, white-throated treecreeper 5, clicking froglet 5, white-throated gerygone 5, stony-creek frog 5, eastern water dragon 5, Stephens' banded snake 4.8, New Holland mouse 4.8, sooty owl 4.8, satin bowerbird 5
71	1.5	1.4	9.3	9.3	9.3	12.8.14 eof 1, 12.8.9 ecf 1, striated thornbill 5, glossy black-cockatoo 8, white-throated treecreeper 5, stony-creek frog 5, eastern water dragon 5, grey goshawk 4.8, red-browed treecreeper 4.8, sooty owl 6
72	5.4	5.3	7.3	7.3	7.3	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, grey goshawk 4.8, glossy black-cockatoo 6.4
73	7.8	7.5	8.8	8.8	8.8	12.8.16 eof 7, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 8, red goshawk 8
74	5.4	5.2	8.6	8.6	8.6	12.8.14 eof 1, 12.8.17 eof 5, 12.8.9 ecf 1, glossy black-cockatoo 6.4, red goshawk 8
75	7.8	7.5	9.3	9.3	9.3	12.8.16 eof 7, 12.8.17 eof 5, 12.8.9 ecf 1, brown goshawk 5, clicking froglet 5, glossy black-cockatoo 6.4, red goshawk 8, Regent honeyeater 8
76	10.0	9.9	9.5	10.0	9.9	12.8.14 eof 1, 12.8.17 eof 5, 12.8.21 rf 10, 12.8.9 ecf 1, 12.8.17 eof 5, reg_12.8.17 eof 5, glossy black-cockatoo 8, red-browed treecreeper 6, white-throated treecreeper 5, clicking froglet 5, king orchid 6, scarlet robin 6, koala 4, grey goshawk 4.8, red goshawk 8
77	1.5	1.4	9.3	9.3	9.3	12.8.14 eof 1, 12.8.9 ecf 1, glossy black-cockatoo 8, red-browed treecreeper 6, white-throated treecreeper 5, scarlet robin 6, koala 4, red goshawk 8

## 5. INTERACTIONS

### 5.1 LAND USE AND MANAGEMENT COMPATIBILITY

The following discussion does not refer to the case involving National Parks where legislative constraints preclude some activities such as timber production, grazing, and horse riding.

In gauging compatibility between land uses it is assumed that best practice will be followed. However, while best practice should apply, in reality this does not always occur. Measures, including monitoring, should be taken to ensure high standards are maintained. While the effects outlined below may not eventuate in a particular situation, the potential for problems to arise should be recognised.

Effects will vary depending on intensity, duration and timing of use. Some environments are fragile (eg alpine) while others are not (eg sand berm on beach). However, even relatively robust sites may be vulnerable at certain times eg. saturated tracks. Recovery rates can also vary. Site hardening and other protective techniques can also modify effects (eg. board walks in alpine areas).

Effects on species can be gleaned in some cases from information presented in Appendix 4B and C.

The following notes are not intended to be in any way definitive. Such a task is well beyond the scope of this paper. Rather they are to be used as a general guide only in the process of planning the use of Glen Rock

#### **Grazing**

Effects of stock are taken here to refer to cattle rather than sheep or goats, which have greater impacts.

*General.* Cattle trails can be a source of erosion. Trails also provide access for predators. Cattle are associated with weed introduction and spread. Ground cover can be crushed by trampling or reduced by grazing and bare soil exposed. Nutrient concentrations from dung can assist weed growth. Water quality is degraded from watering in streams resulting from dung and stream bank damage.

*Specific.* Cattle grazing is likely to have adverse impacts on particular species or suites of species eg. stream-dwelling/breeding frogs and other aquatic fauna. A study in nearby Dalrymple/Banshee Creeks at Goomburra examined the effects of forest grazing on breeding of the endangered Fleay's Barred Frog. This species lays its eggs in depressions in the stony beds of shallow streams. The likely effect of cattle watering and wading through such sites is destruction of eggs by trampling and dislodgment. And the tadpoles appear to be sensitive to fouling of water quality by cattle showing signs of stress and loss of vigour.

Grazing can also cause habitat alteration for Brush-tailed Rock Wallaby by introduction of Lantana onto refuges or foraging areas where this weed competes with food plants. Extensive areas of flattened grass, cattle paths and dung were observed beside the prime core

area habitat of the rock-wallaby at Glen Rock. Such disturbance leads to establishment of Lantana and other weeds, now apparent at this site. Cattle also create trails that tend to be used by foxes to access rock-wallaby habitats and predate on them.

Native plants such as Forest Oak and She Oak are regarded as weeds by some graziers because their litter prevents or reduces the growth of grass in their vicinity. Management for grazing which uses fire or other means to promote grass growth would therefore aim to reduce the cover of this tree species, which is a critical food source for the vulnerable Glossy Black-cockatoo.

Similarly Cypress pine is regarded by some as an undesirable species and is removed because it is considered to be an agent for erosion from its suppression of grass cover. Bailey's Cypress, however, is a rare species and White Cypress, while classified as common, has a restricted distribution in Glen Rock.

Cattle may also compete with native herbivores for fodder. Whiptail Wallabies were apparently once prolific at Glen Rock but now occur in very low numbers. The cause for its sudden decline and failure to re-establish are not known but may be related to the presence of cattle.

Grazing pressure that greatly reduces ground cover almost certainly will reduce habitat for many small ground-dwelling mammals and birds. Removal of woody litter such as fallen logs and tree limbs will adversely affect populations of a range of terrestrial species.

### **Timber Production.**

Effects include: removal of habitat trees, damage to understorey plants from felling activities, impacts on native fauna, soil erosion, water quality degradation, and impacts associated with logging roads and snig tracks.

### **Outdoor recreation.**

#### **Horse riding.**

This activity has some similar effects to cattle grazing. Differences are related to the control that can be exercised over horses and the recreational use to which they are put. Nutrients and weed seeds in horse dung can assist the establishment and spread of weeds. However, introduction and spread of weeds can be minimised by use of weed-free feed.

Impacts can be minimised if horses are managed by a commercial operator rather than by a number of horse riders acting as individuals or as a group. In the first case the horses stay on the property and feed is controlled by the operator who has a financial interest in complying with the rules. Soil erosion is minimised by keeping to designated trails and rotating routes used to avoid trail degradation.

#### **Bush Camping.**

Effects include: Soil compaction, risk of fire, littering, water contamination, soil erosion, vegetation removal for fires.

**Rock Climbing.**

Effects include: Vegetation removal from cliff faces, raptor breeding disturbance to breeding raptors (eg. Peregrine Falcons), damage to vegetation at top and base of the rock face.

**Rogaining.**

Night time disturbance to grazing Rock Wallabies, trampling of vegetation.

**Orienteering.**

Trampling, creation of trails across the landscape.

**Bushwalking.**

Soil compaction, littering, increased risk of fire.

**Four wheel driving.**

Soil erosion, siltation, water quality degradation, littering.

**Walking with domestic dogs.**

Potential to maim or kill some native fauna or cause poor health due to stress (eg in koalas). Can change behaviour of some native fauna

## **5.2 SPECIES' RESPONSES**

**Grey Goshawk (R)**

Threatening processes include loss and fragmentation of habitat. This species prefers mature moist, dense forest for breeding. It appears to be tolerant of selective rather than intensive timber harvesting. Mature forest of 10 hectares or more is required for breeding. The nest is built in a large tree. Disturbance during breeding and egg collection pose threats. Inappropriate fire regimes threaten habitat.

**Bailey's Cypress (R) and White Cypress (C)**

These species are susceptible to fire. Dense stands of White Cypress Pine suppress the herbaceous ground cover and therefore do not tend to carry fire. Open stands are more prone to fire damage. Forest grazing can reduce regeneration and lead to more open spacing of Cypress Pines. Bailey's Cypress Pine has similar characteristics.

**Brush-tailed Rock-wallaby (V)**

Core habitat areas are essential for breeding. Links between core areas are also important to facilitate movement between primary habitat, especially for young animals, but also may function as areas of secondary habitat where densities are low.

The main threats are fragmentation of habitat, predation by foxes and cats, and competition by goats for food and shelter. Cattle also compete for food and can introduce weeds. Human activity can displace these shy animals. A precautionary approach is needed when considering the effects of human presence. Loud or unfamiliar noise may affect colonies, even from a distance. A monitoring program would be advisable to measure any effects, especially at dusk, dawn, or during the evening when animals tend to move away from their



rocky refuge to graze. Close encounters with humans entering their refuge areas are also likely to disturb the colony, especially during times of breeding.

**Glossy Black-cockatoo.(V)**

The chief food source of this species is Casuarina seeds, primarily *Allocasuarina torulosa* (Forest Oak) and *A. littoralis*. *Casuarina cunninghamiana* (River Sheoak) is also used at Glen Rock. Seeds of eucalypts, angophoras and acacias are also taken. Nests are constructed in tree hollows. Threats include frequent fire, removal of food trees and loss of breeding trees with hollows.

**Red-browed Treecreeper.(R)**

This rare bird species prefers cool, dense, wet eucalypt forest. Threats are considered to be clearing, and loss of habitat trees for nesting and roosting through fire and timber harvesting.

**Red Goshawk (E)**

The prime threat to this wide-ranging species is fragmentation of open forest by clearing. They do hunt in selectively harvested forest. The species has a large home range requirement of up to 200 km<sup>2</sup>. Fire can kill nestlings even though the nest is built high in a large tree. Loss of suitable nest trees which are chosen near water, are living and greater than 20 metres tall poses a threat. Timber harvesting or fire could remove such trees. Human disturbance of breeding pairs at nest and egg collection are also significant threats..

**Sooty Owl (R)**

The preferred prey of this species is arboreal mammals. Its key habitat is rainforest or wet sclerophyll forest. The owl roosts in large hollows in tall trees or in dense vegetation, often low to the ground. It prefers to roost and nest in gullies. The home range may be around 800 ha. Threats include removal of trees containing hollows by timber harvesting or fire. Fire in gullies also degrades habitat by removing vegetation cover.

**Regent Honeyeater (E)**

Yellow Box and White Box are important food trees for this species. Threats include fragmentation of habitat and removal of food trees.

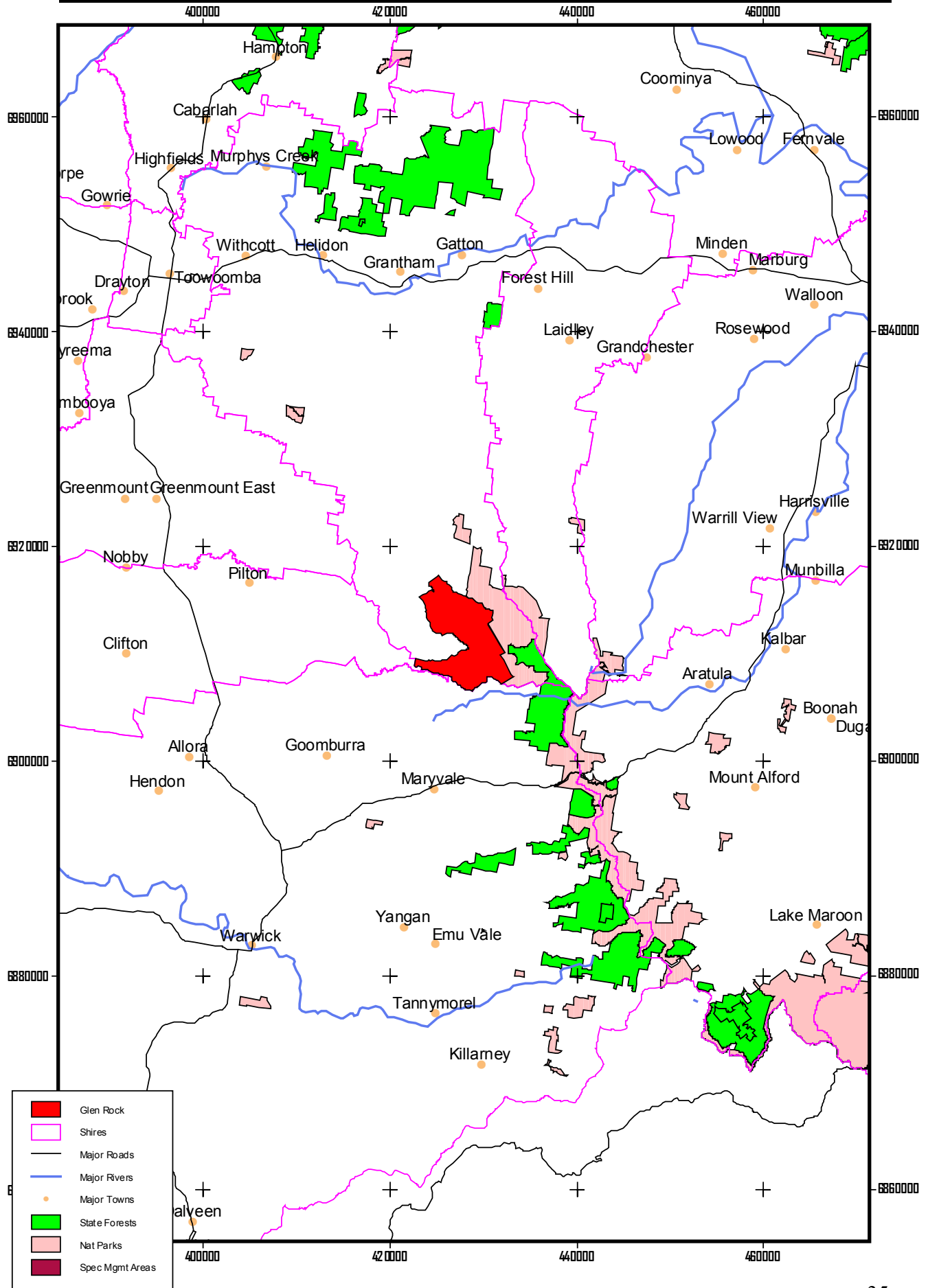
**Peregrine Falcon (C)**

This raptor roosts and nests on cliffs. Threats include disturbance at nest site during breeding season by activities such as rope sports.

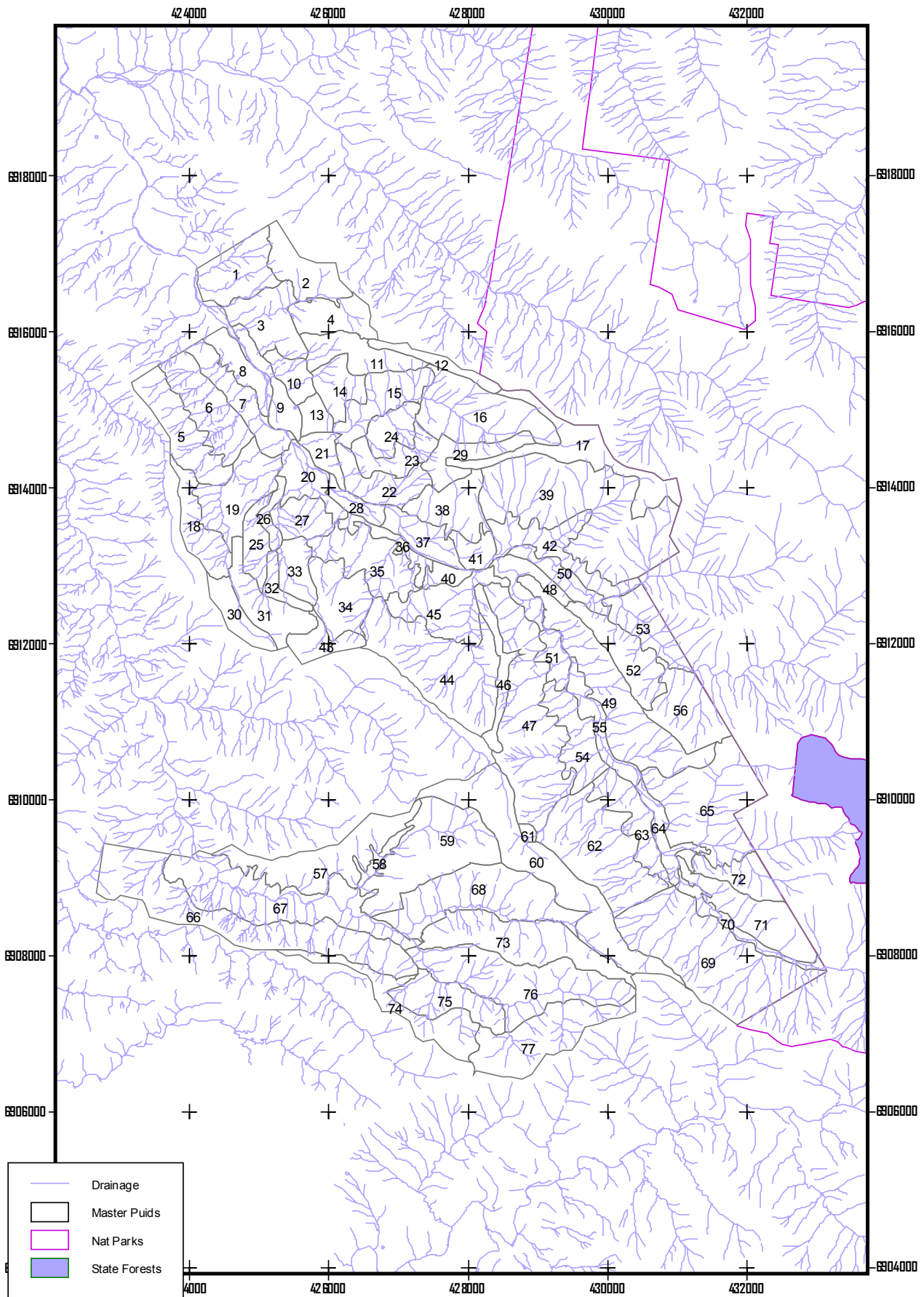
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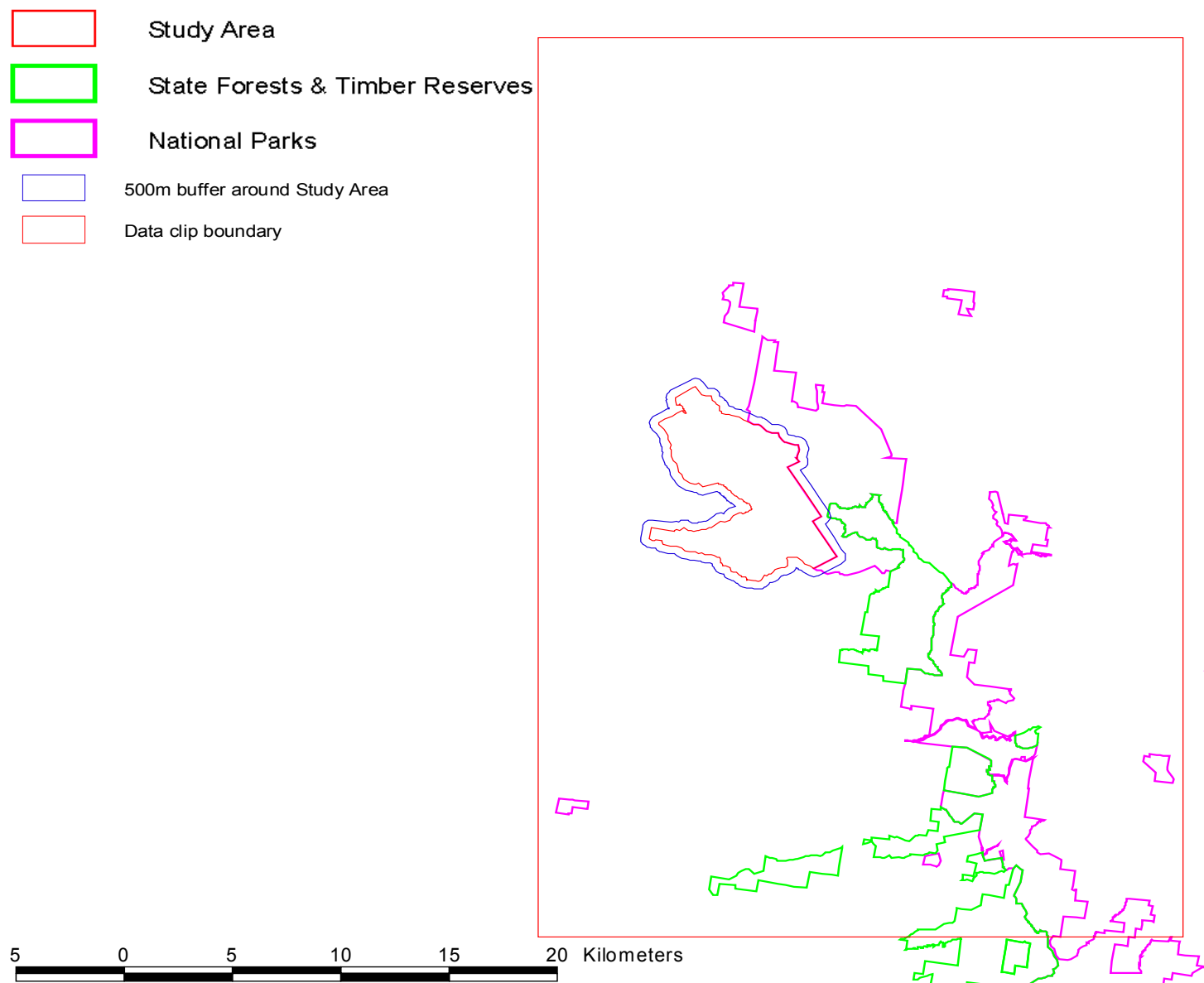
# MAP 1 GENERAL STUDY AREA



## MAP 2 PLANNING UNITS








### MAP 3 OVERALL AREA USED FOR DATA COLLECTION/COLLATION







## MAP 4 DATA FOR THE OVERALL AREA

Overall








11 987 records  
1268 species

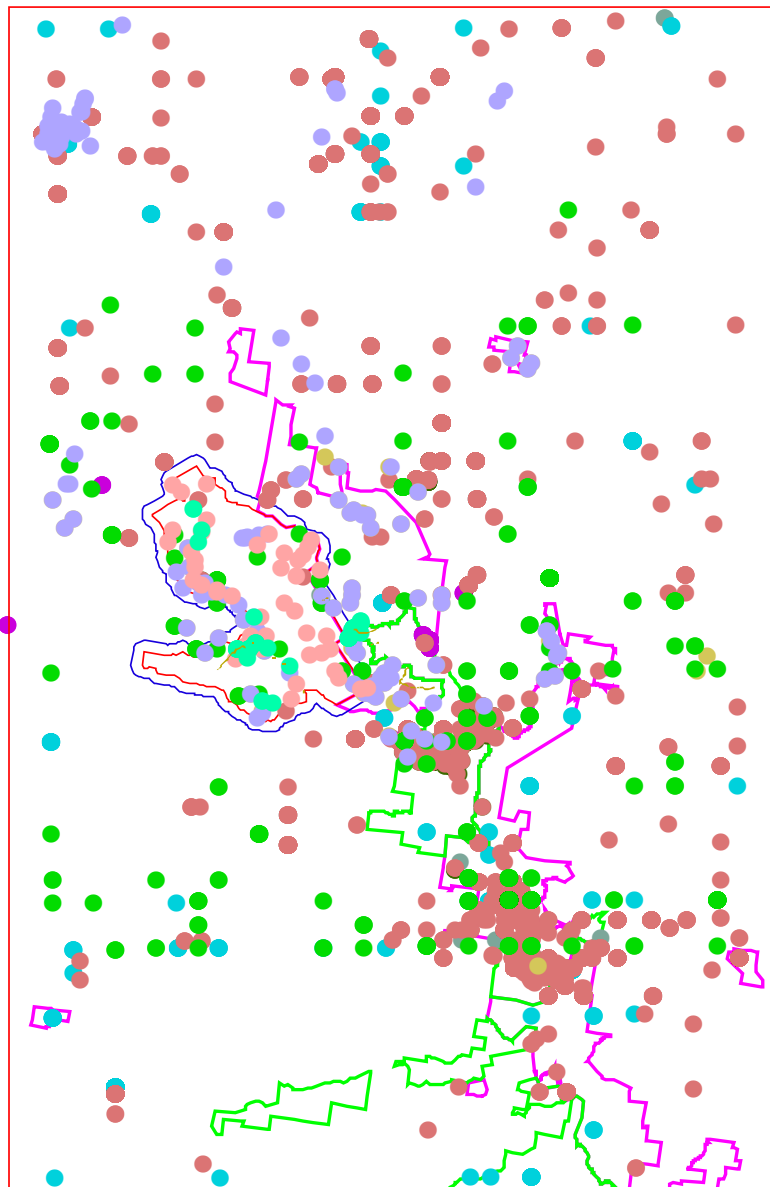
-  Study Area
-  State Forests & Timber Reserves
-  National Parks
-  500m buffer around Study Area
-  Data clip boundary

### Primary Data

-  Frog Survey Q P W S
-  Recent Q P W S
-  Vertebrate Sites
-  Flora Sites

### Secondary Data

-  Herbreccs
-  Corveg Sites
-  Wildnet
-  Goomburra Flora
-  Goomburra Fauna
-  QLD Museum
-  QLD Museum Crustacea



5 0 5 10 15 20 Kilometers



## MAP 5 DATA FOR THE STUDY AREA

Overall





11 987 records  
1268 species

In Glen Rock

1407 records  
532 species

-  Study Area
-  500m buffer around Study Area


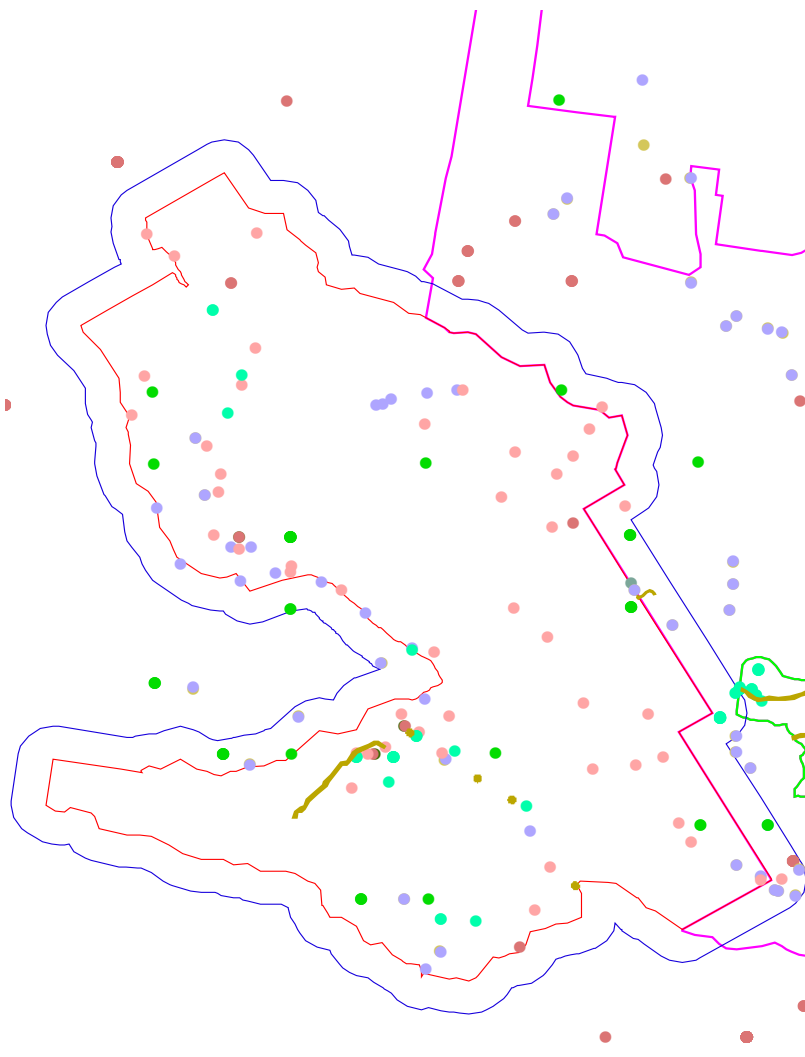
### Primary Data

-  Frog Survey Q P W S
-  Recent Q P W S
-  Vertebrate Sites
-  Flora Sites

### Secondary Data

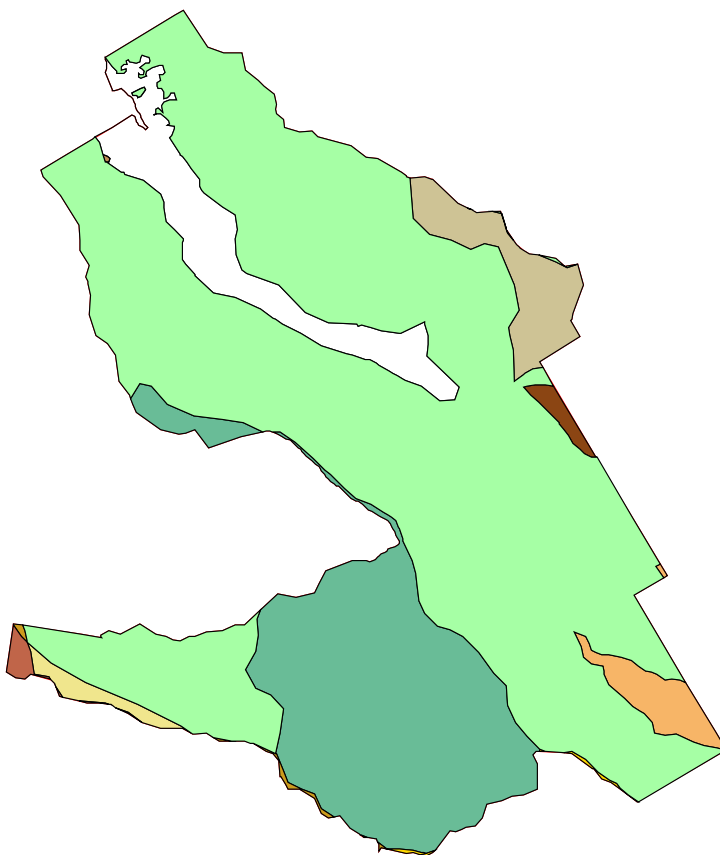
-  Herbreccs
-  Corveg Sites
-  Wildnet
-  Goomburra Flora
-  Goomburra Fauna
-  QLD Museum
-  QLD Museum Crustacea

2 0 2 4 Kilometers

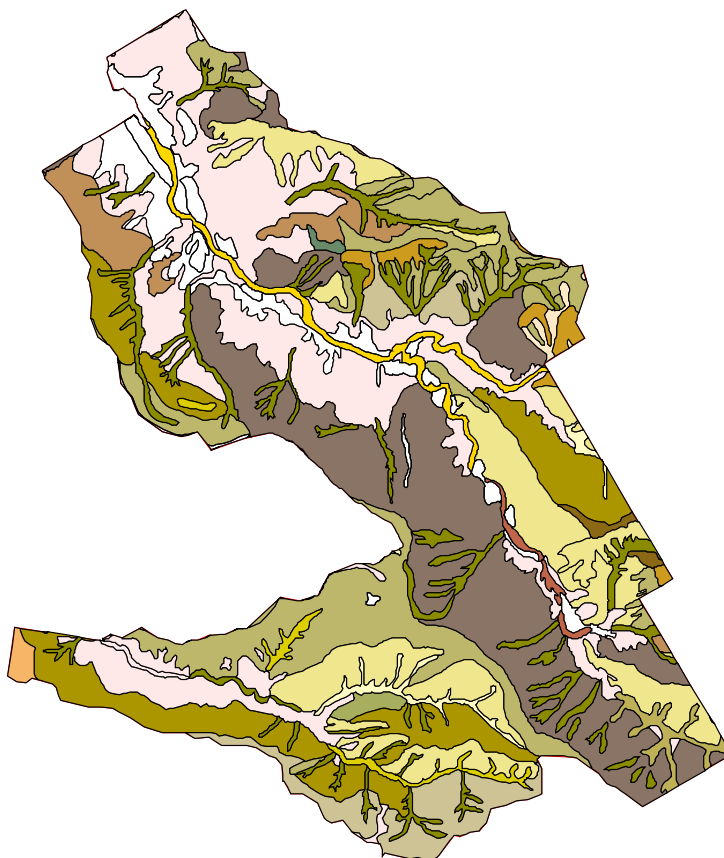
## MAP 6 COMPARISON BETWEEN REGIONAL ECOSYSTEM MAPPING AT DIFFERENT SCALES

Queensland Herbarium  
1:100 000  
11 RE polygons



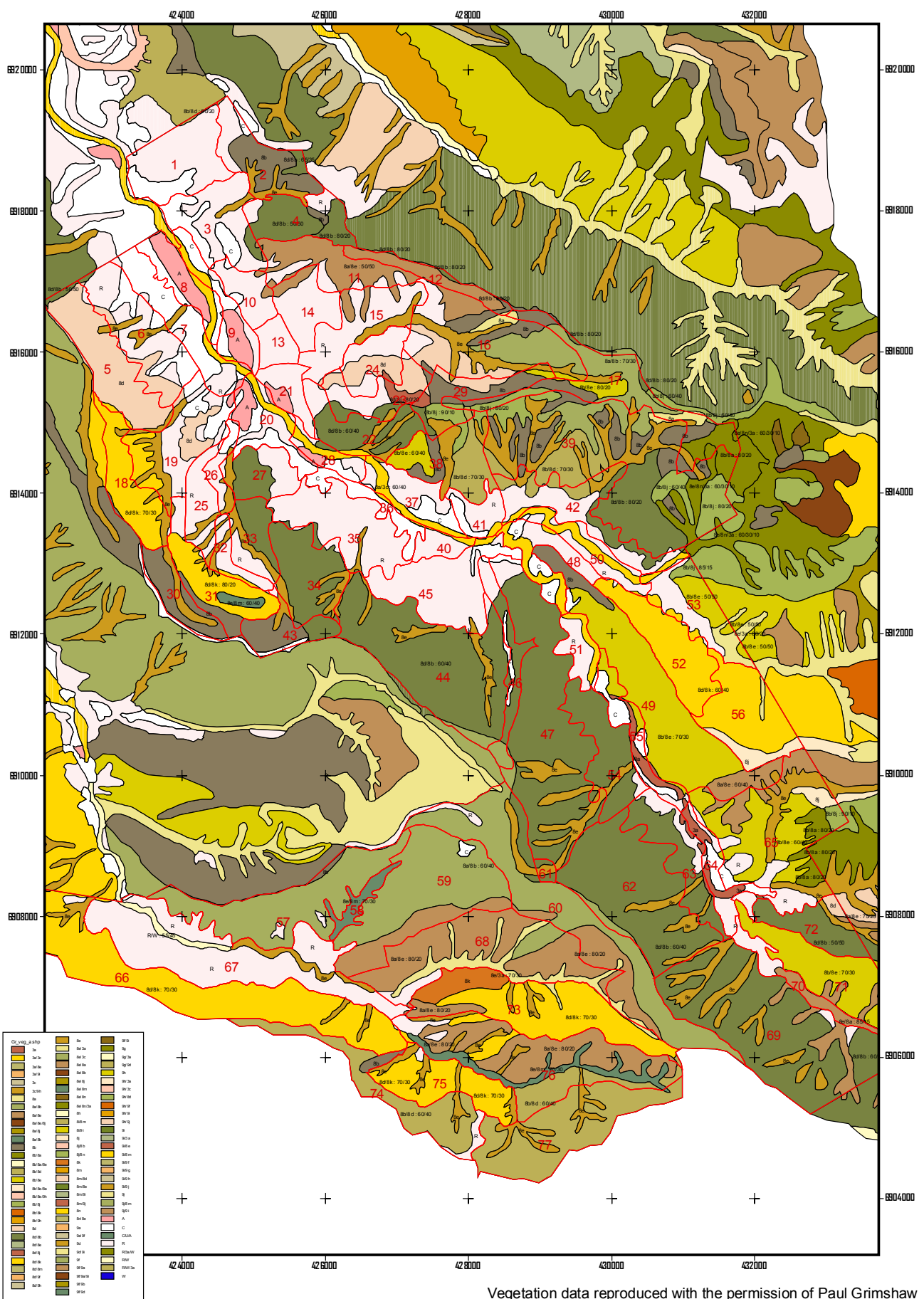
6 RE polygons common

Gatton Shire – Paul Grimshaw  
1:25 000  
21 RE polygons



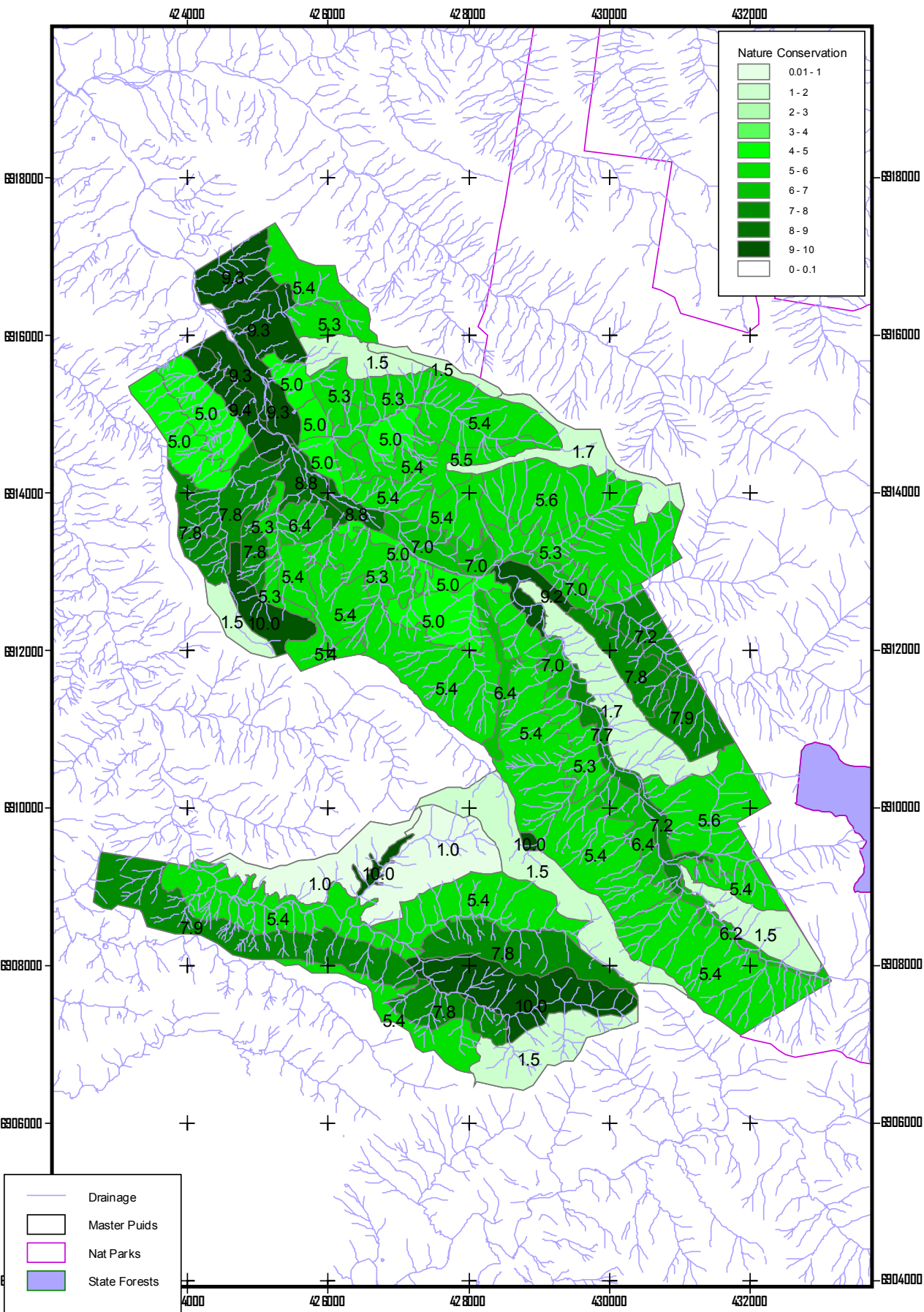


# MAP 7 REGIONAL ECOSYSTEM COVERAGE

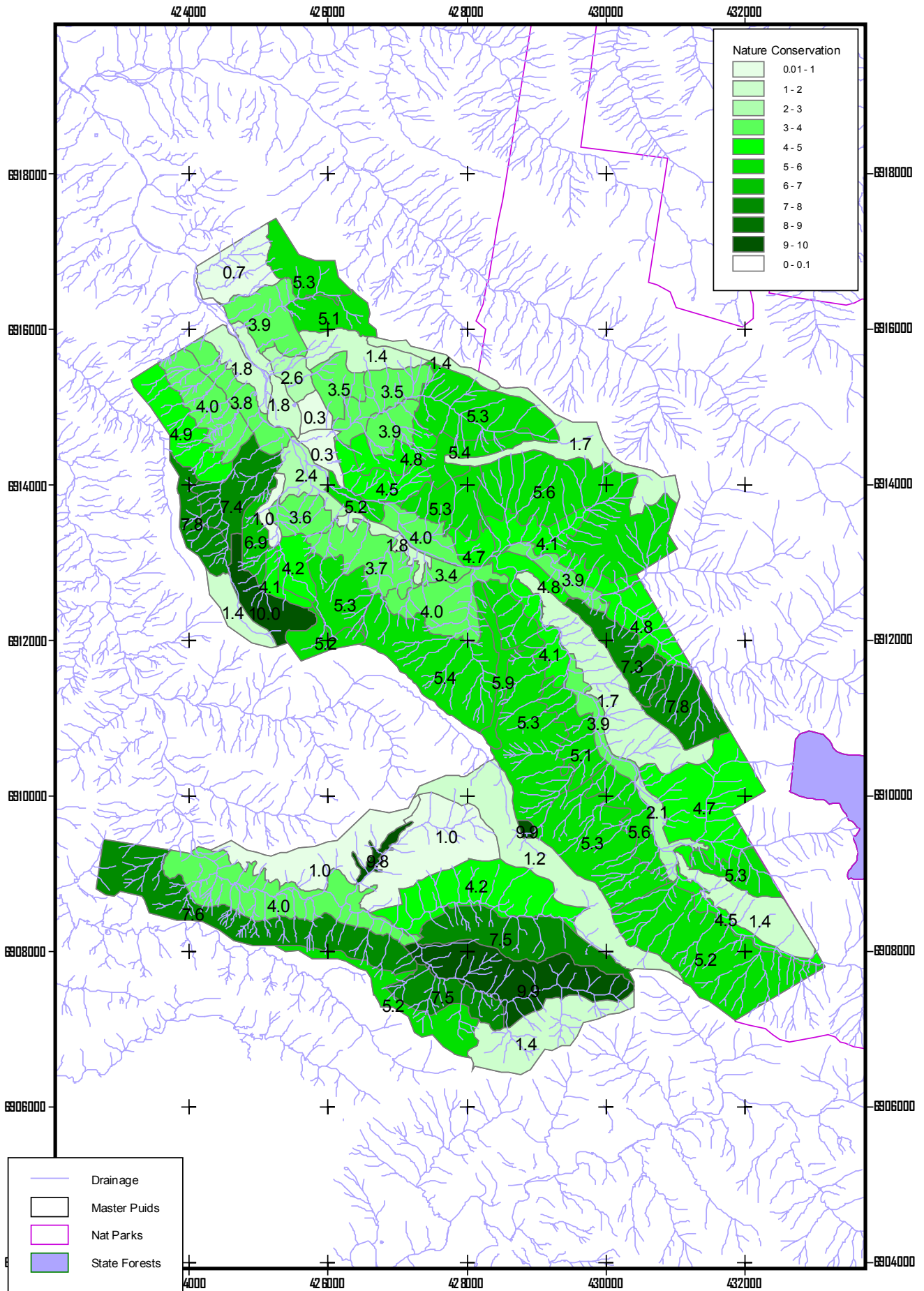


Vegetation data reproduced with the permission of Paul Grimshaw

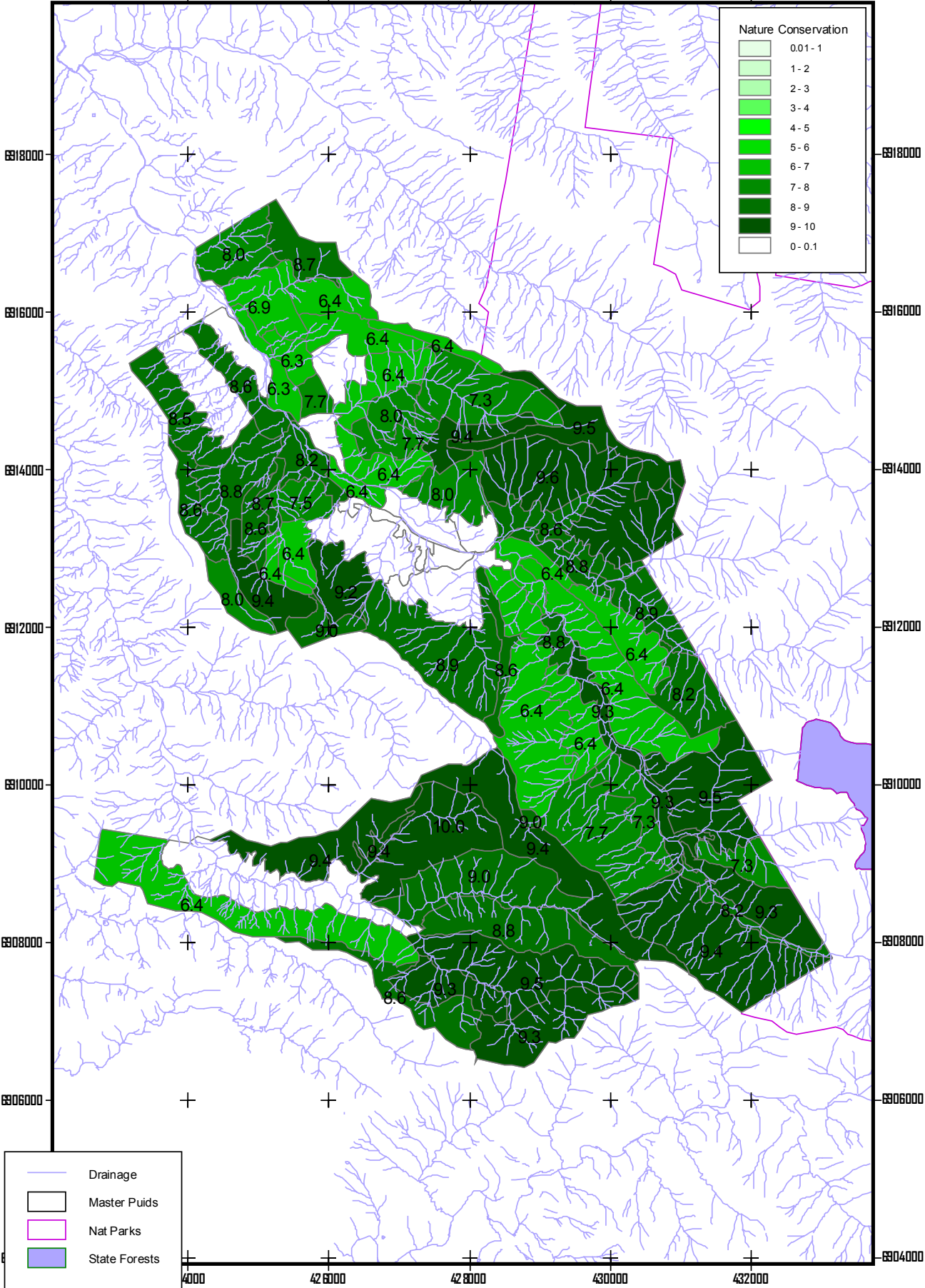
## MAP 8 VEGETATION – INVENTORY/BOOK

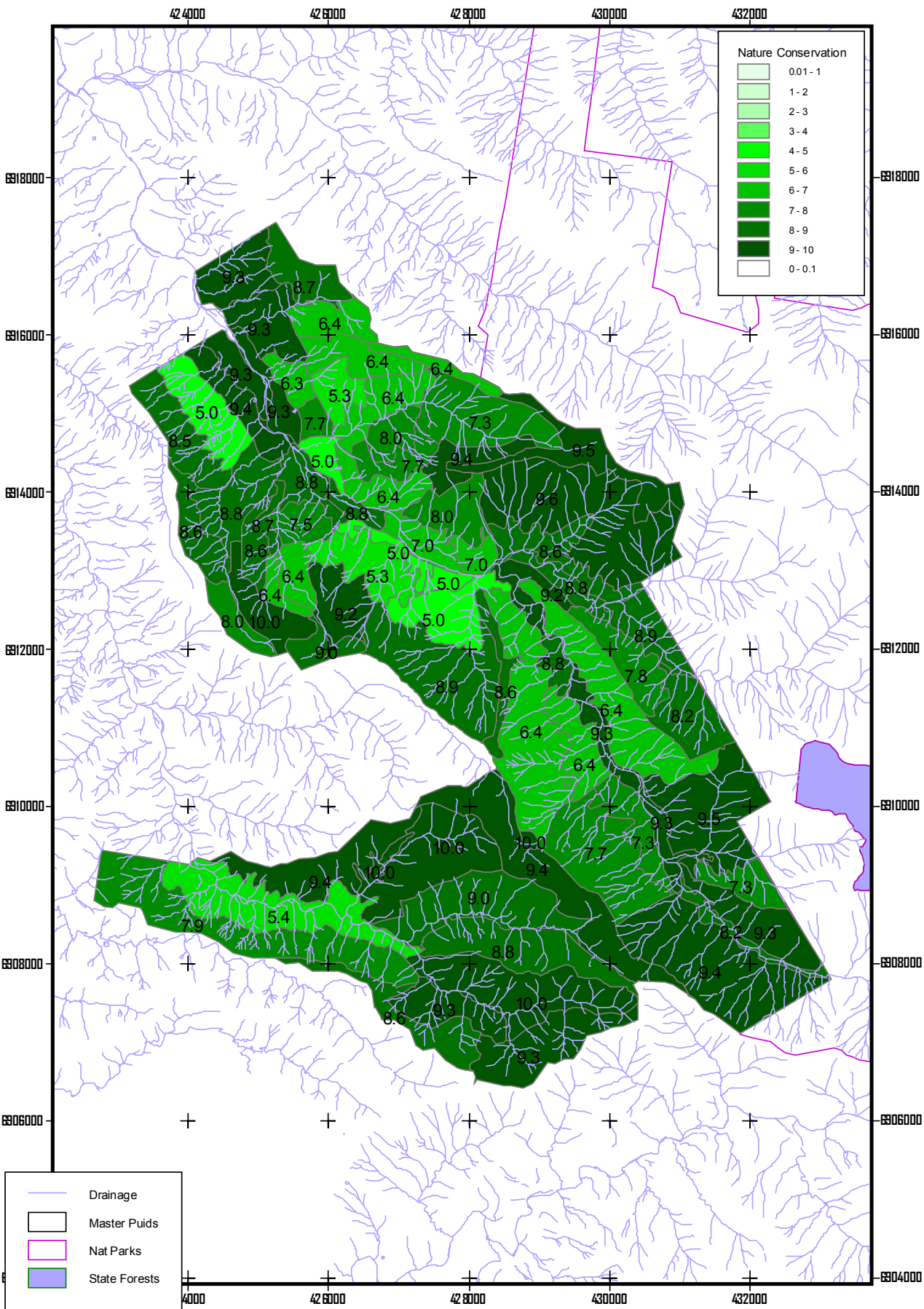


# MAP 9 VEGETATION – CURRENT CONDITION

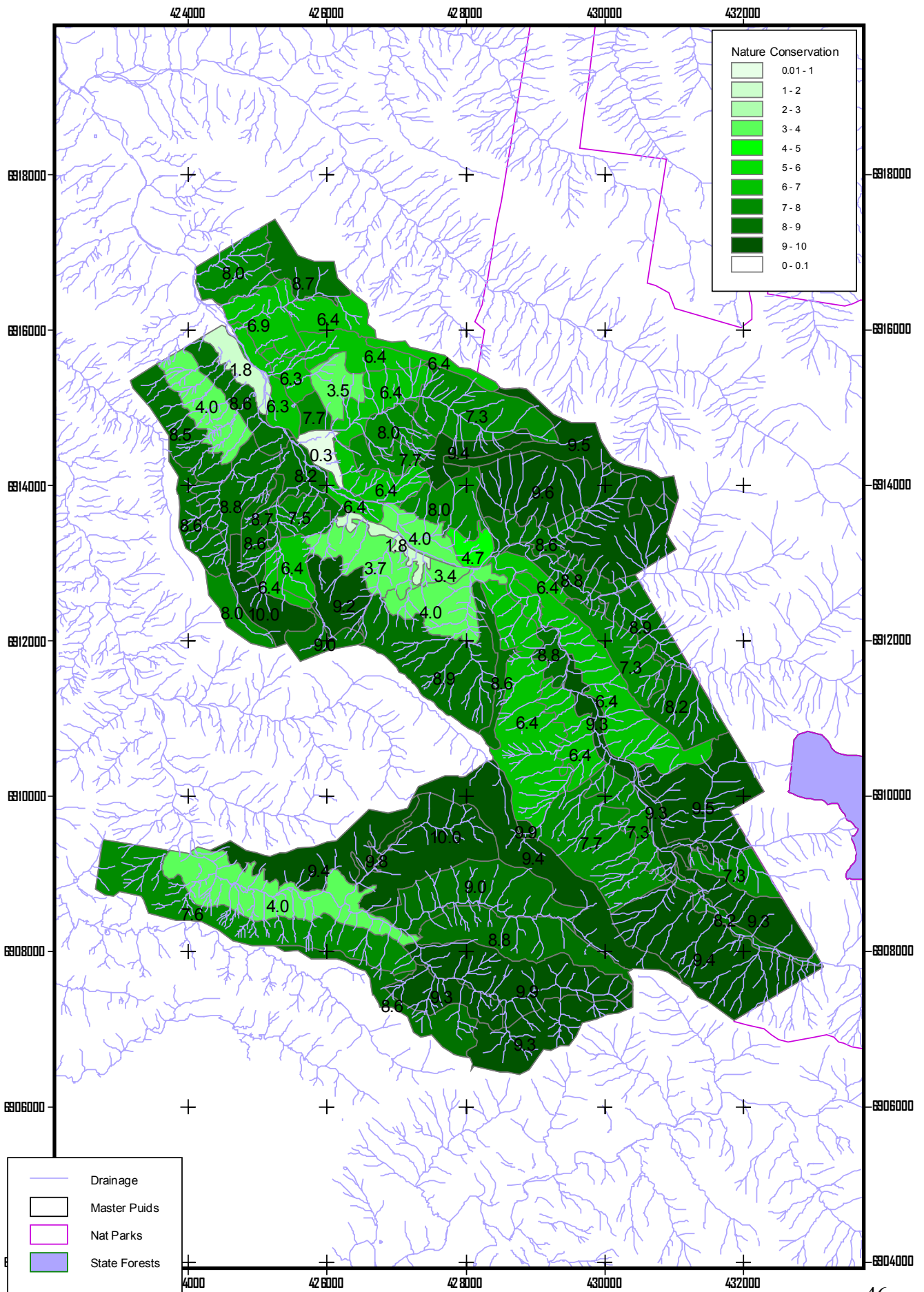




**MAP 10 SPECIES – INVENTORY/BOOK**

**MAP 11 ALL – INVENTORY/BOOK**

# MAP 12 ALL – CURRENT CONDITION



## APPENDIX 1 LIST OF SIGNIFICANT SPECIES FOR GLEN ROCK

Final status value	Final status class	Status
10	PE	Presumed Extinct
10	E	Endangered
8	V	Vulnerable
6	R	Rare
6	CUT	Common and under threat
5	WH	World Heritage
5	CJ	CAMBA/JAMBA/BONN
4	CS	Culturally significant
2	C	Common and not under threat



## Sorted by Common Name

Common Name	Species	Status	Final status class	Final status value	Location	Class	Family
Albert's lyrebird	Menura alberti	R	R, WH	6	found nearby	birds	Menuridae
Australian hobby	Falco longipennis	C	CJ	5		birds	Falconidae
Australian longfin eel	Anguilla reinhardtii		CUT	6		fish	Anguillidae
Australian smelt (fw fish)	Retropinna semoni		CUT	6		fish	Retropinnidae
Australian wood duck	Chenonetta jubata	C	CJ	5		birds	Anatidae
Bailey's cypress	Callitris baileyi	R	R	6		conifers	Cupressaceae
ball nut tree	Floydia praealta	V	V	8	found nearby	higher dicots	Proteaceae
black booyong	Argyrodendron actinophyllum		WH	5	found nearby	higher dicots	Sterculiaceae
black-shouldered kite	Elanus axillaris	C	CJ	5		birds	Accipitridae
black-soled frog	Lechriodus fletcheri	R	R, WH	6	found nearby	amphibians	Myobatrachidae
broad-palmed rocketfrog	Litoria latopalmata	C	WH	5		amphibians	Hylidae
brown falcon	Falco berigora	C	CJ	5		birds	Falconidae
brown gerygone	Gerygone mouki	C	WH	5		birds	Pardalotidae
brown goshawk	Accipiter fasciatus	C	CJ	5		birds	Accipitridae
brown thornbill	Acanthiza pusilla	C	WH	5		birds	Pardalotidae
brown-hearted quandong	Elaeocarpus kirtonii		WH	5	found nearby	higher dicots	Elaeocarpaceae
brown-striped marshfrog	Limnodynastes peronii	C	WH	5		amphibians	Myobatrachidae
brush-tailed rock-wallaby	Petrogale penicillata	V	V	8		mammals	Macropodidae
buff-rumped thornbill	Acanthiza reguloides	C	WH	5		birds	Pardalotidae
cascade tree frog	Litoria pearsoniana	E	E	10	found nearby	amphibians	Hylidae
cicadabird	Coracina tenuirostris	C	CJ	5		birds	Campephagidae
clicking froglet	Crinia signifera	C	WH	5		amphibians	Myobatrachidae
collared sparrowhawk	Accipiter cirrhocephalus	C	CJ	5		birds	Accipitridae
common ground fern	Calochlaena dubia	C	WH	5	found nearby	ferns	Dicksoniaceae
Cunningham's skink	Egernia cunninghami	C	WH	5		reptiles	Scincidae
diamond-leaf Pittosporum	Pittosporum rhombifolium		WH	5	found nearby		Pittosporaceae
eastern sedgefrog	Litoria fallax	C	WH	5		amphibians	Hylidae
eastern water dragon	Physignathus lesueurii	C	WH	5		reptiles	Agamidae
emerald-spotted treefrog	Litoria peronii	C	WH	5		amphibians	Hylidae
fawn-footed melomys	Melomys cervinipes	C	WH	5		mammals	Muridae
flame tree	Brachychiton acerifolius		WH	5	found nearby		Sterculiaceae
Fleay's barred-frog	Mixophyes fleayi	E	E, WH	10	found nearby	amphibians	Myobatrachidae
freshwater catfish	Tandanus tandanus		CUT	6		fish	Plotosidae
glossy black-cockatoo	Calyptorhynchus lathami	V	V	8		birds	Cacatuidae
golden-headed cisticola	Cisticola exilis	C	CJ	5		birds	Sylviidae
grey goshawk	Accipiter novaehollandiae	R	R, CJ	6		birds	Accipitridae
gum vine	Aphanopetalum resinosum		WH	5	found nearby		Cunoniaceae
hoop pine	Araucaria cunninghamii		WH	5			Araucariaceae
king orchid	Dendrobium speciosum	C	CUT	6		monocots	Orchidaceae
koala	Phascolarctos cinereus	C	CS	4	found nearby	mammals	Phascolarctidae
kurrajong	Brachychiton populneus		WH	5			Sterculiaceae
large-eared pied bat	Chalinolobus dwyeri	R	R	6	found nearby	mammals	Vespertilionidae
major skink	Egernia frerei	C	WH	5		reptiles	Scincidae
Marjorie's Hardyhead	Craterocephalus marjoriae		CUT	6		fish	Atherinidae
masked lapwing	Vanellus miles	C	CJ	5		birds	Charadriidae
Mistake Mtns crayfish	Euastacus jagara		R, WH	6		crustacea	Parastacidae
mock orange	Bursaria incana		WH	5	found nearby	higher dicots	Pittosporaceae
Murray Rainbowfish	Melanotaenia fluviatilis		CUT	6		fish	Atherinidae
naked treefrog	Litoria rubella	C	WH	5		amphibians	Hylidae
nankeen kestrel	Falco cenchroides	C	CJ	5		birds	Falconidae
native Hydrangea	Abrophyllum ornans		WH	5	found nearby	higher dicots	Grossulariaceae
New Holland mouse	Pseudomys novaehollandiae	C	CUT	6	found nearby	mammals	Muridae
olive orchid	Sarcochilus olivaceus	C	CUT	6		monocots	Orchidaceae
Pacific baza	Aviceda subcristata	C	CJ	5		birds	Accipitridae



Common Name	Species	Status	Final status class	Final status value	Location	Class	Family
Pacific black duck	Anas superciliosa	C	CJ	5		birds	Anatidae
painted button-quail	Turnix varia	C	WH	5		birds	Turnicidae
peregrine falcon	Falco peregrinus	C	CUT, CJ	6	found nearby	birds	Falconidae
pink rock orchid	Dendrobium kingianum	C	CUT	6		monocots	Orchidaceae
purple spotted gudgeon	Mogurnda adspersa		CUT	6		fish	Eleotrididae
rainbow bee-eater	Merops ornatus	C	CJ	5		birds	Meropidae
red goshawk	Erythrotriorchis radiatus	E	E, CJ	10		birds	Accipitridae
red-and-yellow mountain-frog	Kyarranus kundagungan	R	R, WH	6	found nearby	amphibians	Myobatrachidae
red-browed treecreeper	Climacteris erythrops	R	R, WH	6		birds	Climacteridae
Regent honeyeater	Xanthomyza phrygia	E	E, CJ	10		birds	Meliphagidae
satin bowerbird	Ptilonorhynchus violaceus	C	WH	5		birds	Ptilonorhynchidae
scarlet robin	Petroica multicolor	C	CUT	6		birds	Petroicidae
scarlet-sided pobblebonk	Limnodynastes terraereginae	C	WH	5	found nearby	amphibians	Myobatrachidae
shadeskink	Saproscincus rosei	R	R	6	found nearby	reptiles	Scincidae
short-beaked echidna	Tachyglossus aculeatus	C	CS	4		mammals	Tachyglossidae
soft white box	Eucalyptus quadrangulata		CUT	6	found nearby	higher dicots	Myrtaceae
sooty owl	Tyto tenebricosa	R	R	6		birds	Tytonidae
southern boobook	Ninox novaeseelandiae	C	CJ	5		birds	Strigidae
spotted marshfrog	Limnodynastes tasmaniensis	C	WH	5	found nearby	amphibians	Myobatrachidae
spotted-tailed quoll (southern subsp.)	Dasyurus maculatus maculatus	V	V	8	found nearby	mammals	Dasyuridae
Stephens' banded snake	Hoplocephalus stephensii	R	R, WH	6	found nearby	animal	Elapidae
stony-creek frog	Litoria lesueuri	C	WH	5		amphibians	Hylidae
striated thornbill	Acanthiza lineata	C	WH	5		birds	Pardalotidae
striped rocketfrog	Litoria nasuta	C	WH	5		amphibians	Hylidae
sweet Pittosporum	Pittosporum undulatum		WH	5	found nearby		Pittosporaceae
wandering whistling-duck	Dendrocygna arcuata	C	CJ	5		birds	Anatidae
wedge-tailed eagle	Aquila audax	C	CJ	5		birds	Accipitridae
whistling treefrog	Litoria verreauxii	C	WH	5		amphibians	Hylidae
white cypress pine	Callitris glaucophylla	C	CUT	6		conifers	Cupressaceae
white-browed scrubwren	Sericornis frontalis	C	WH	5		birds	Pardalotidae
white-throated gerygone	Gerygone olivacea	C	WH	5		birds	Pardalotidae
white-throated treecreeper	Cormobates leucophaeus	C	WH	5		birds	Climacteridae
yellow carabeen	Sloanea woollsii		WH	5	found nearby		Elaeocarpaceae
yellow thornbill	Acanthiza nana	C	WH	5		birds	Pardalotidae
yellow-bellied glider (southern subsp.)	Petaurus australis australis	C	CUT, WH	6	found nearby	mammals	Petauridae
yellow-rumped thornbill	Acanthiza chrysorrhoa	C	WH	5		birds	Pardalotidae
yellow-tufted honeyeater	Lichenostomus melanops	C	CJ	5		birds	Meliphagidae

## Sorted by Species

Common Name	Species	Status	Final status class	Final status value	Location	Class	Family
native Hydrangea	Abrophyllum ornans		WH	5	found nearby	higher dicots	Grossulariaceae
yellow-rumped thornbill	Acanthiza chrysorrhoa	C	WH	5		birds	Pardalotidae
striated thornbill	Acanthiza lineata	C	WH	5		birds	Pardalotidae
yellow thornbill	Acanthiza nana	C	WH	5		birds	Pardalotidae
brown thornbill	Acanthiza pusilla	C	WH	5		birds	Pardalotidae
buff-rumped thornbill	Acanthiza reguloides	C	WH	5		birds	Pardalotidae
collared sparrowhawk	Accipiter cirrhocephalus	C	CJ	5		birds	Accipitridae
brown goshawk	Accipiter fasciatus	C	CJ	5		birds	Accipitridae
grey goshawk	Accipiter novaehollandiae	R	R, CJ	6		birds	Accipitridae
Pacific black duck	Anas superciliosa	C	CJ	5		birds	Anatidae
Australian longfin eel	Anguilla reinhardtii		CUT	6		fish	Anguillidae
gum vine	Aphanopetalum resinosum		WH	5	found nearby		Cunoniaceae
wedge-tailed eagle	Aquila audax	C	CJ	5		birds	Accipitridae
hoop pine	Araucaria cunninghamii		WH	5			Araucariaceae
black booyong	Argyrodendron actinophyllum		WH	5	found nearby	higher dicots	Sterculiaceae
Pacific baza	Aviceda subcristata	C	CJ	5		birds	Accipitridae
flame tree	Brachychiton acerifolius		WH	5	found nearby		Sterculiaceae
kurrajong	Brachychiton populneus		WH	5			Sterculiaceae
mock orange	Bursaria incana		WH	5	found nearby	higher dicots	Pittosporaceae
Bailey's cypress	Callitris baileyi	R	R	6		conifers	Cupressaceae
white cypress pine	Callitris glaucophylla	C	CUT	6		conifers	Cupressaceae
common ground fern	Calochlaena dubia	C	WH	5	found nearby	ferns	Dicksoniaceae
glossy black-cockatoo	Calyptorhynchus lathami	V	V	8		birds	Cacatuidae
large-eared pied bat	Chalinolobus dwyeri	R	R	6	found nearby	mammals	Vespertilionidae
Australian wood duck	Chenonetta jubata	C	CJ	5		birds	Anatidae
golden-headed cisticola	Cisticola exilis	C	CJ	5		birds	Sylviidae
red-browed treecreeper	Climacteris erythrops	R	R, WH	6		birds	Climacteridae
cicadabird	Coracina tenuirostris	C	CJ	5		birds	Campephagidae
white-throated treecreeper	Cormobates leucophaeus	C	WH	5		birds	Climacteridae
Marjorie's Hardyhead	Craterocephalus marjoriae		CUT	6		fish	Atherinidae
clicking froglet	Crinia signifera	C	WH	5		amphibians	Myobatrachidae
spotted-tailed quoll (southern subsp.)	Dasyurus maculatus maculatus	V	V	8	found nearby	mammals	Dasyuridae
pink rock orchid	Dendrobium kingianum	C	CUT	6		monocots	Orchidaceae
king orchid	Dendrobium speciosum	C	CUT	6		monocots	Orchidaceae
wandering whistling-duck	Dendrocygna arcuata	C	CJ	5		birds	Anatidae
Cunningham's skink	Egernia cunninghami	C	WH	5		reptiles	Scincidae
major skink	Egernia frerei	C	WH	5		reptiles	Scincidae
brown-hearted quandong	Elaeocarpus kirtonii		WH	5	found nearby	higher dicots	Elaeocarpaceae
black-shouldered kite	Elanus axillaris	C	CJ	5		birds	Accipitridae
red goshawk	Erythrotriorchis radiatus	E	E, CJ	10		birds	Accipitridae
Mistake Mtns crayfish	Euastacus jagara		R, WH	6		crustacea	Parastacidae
soft white box	Eucalyptus quadrangulata		CUT	6	found nearby	higher dicots	Myrtaceae
brown falcon	Falco berigora	C	CJ	5		birds	Falconidae
nankeen kestrel	Falco cenchroides	C	CJ	5		birds	Falconidae
Australian hobby	Falco longipennis	C	CJ	5		birds	Falconidae
peregrine falcon	Falco peregrinus	C	CUT, CJ	6	found nearby	birds	Falconidae
ball nut tree	Floydia praealta	V	V	8	found nearby	higher dicots	Proteaceae
brown gerygone	Gerygone mouki	C	WH	5		birds	Pardalotidae
white-throated gerygone	Gerygone olivacea	C	WH	5		birds	Pardalotidae
Stephens' banded snake	Hoplocephalus stephensii	R	R, WH	6	found nearby	animal	Elapidae
red-and-yellow mountain-frog	Kyarranus kundagungan	R	R, WH	6	found nearby	amphibians	Myobatrachidae
black-soled frog	Lechriodus fletcheri	R	R, WH	6	found nearby	amphibians	Myobatrachidae
yellow-tufted honeyeater	Lichenostomus melanops	C	CJ	5		birds	Meliphagidae
brown-striped marshfrog	Limnodynastes peronii	C	WH	5		amphibians	Myobatrachidae

Common Name	Species	Status	Final status class	Final status value	Location	Class	Family
spotted marshfrog	Limnodynastes tasmaniensis	C	WH	5	found nearby	amphibians	Myobatrachidae
scarlet-sided pobblebonk	Limnodynastes terraereginae	C	WH	5	found nearby	amphibians	Myobatrachidae
eastern sedgefrog	Litoria fallax	C	WH	5		amphibians	Hylidae
broad-palmed rocketfrog	Litoria latopalmata	C	WH	5		amphibians	Hylidae
stony-creek frog	Litoria lesueuri	C	WH	5		amphibians	Hylidae
striped rocketfrog	Litoria nasuta	C	WH	5		amphibians	Hylidae
cascade tree frog	Litoria pearsoniana	E	E	10	found nearby	amphibians	Hylidae
emerald-spotted treefrog	Litoria peronii	C	WH	5		amphibians	Hylidae
naked treefrog	Litoria rubella	C	WH	5		amphibians	Hylidae
whistling treefrog	Litoria verreauxii	C	WH	5		amphibians	Hylidae
Murray Rainbowfish	Melanotaenia fluviatilis		CUT	6		fish	Atherinidae
fawn-footed melomys	Melomys cervinipes	C	WH	5		mammals	Muridae
Albert's lyrebird	Menura alberti	R	R, WH	6	found nearby	birds	Menuridae
rainbow bee-eater	Merops ornatus	C	CJ	5		birds	Meropidae
Fleay's barred-frog	Mixophyes fleayi	E	E, WH	10	found nearby	amphibians	Myobatrachidae
purple spotted gudgeon	Mogurnda adspersa		CUT	6		fish	Eleotrididae
southern boobook	Ninox novaeseelandiae	C	CJ	5		birds	Strigidae
yellow-bellied glider (southern subsp.)	Petaurus australis australis	C	CUT, WH	6	found nearby	mammals	Petauridae
brush-tailed rock-wallaby	Petrogale penicillata	V	V	8		mammals	Macropodidae
scarlet robin	Petroica multicolor	C	CUT	6		birds	Petroicidae
koala	Phascolarctos cinereus	C	CS	4	found nearby	mammals	Phascolarctidae
eastern water dragon	Physignathus lesueurii	C	WH	5		reptiles	Agamidae
diamond-leaf Pittosporum	Pittosporum rhombifolium		WH	5	found nearby		Pittosporaceae
sweet Pittosporum	Pittosporum undulatum		WH	5	found nearby		Pittosporaceae
New Holland mouse	Pseudomys novaehollandiae	C	CUT	6	found nearby	mammals	Muridae
satin bowerbird	Ptilonorhynchus violaceus	C	WH	5		birds	Ptilonorhynchidae
Australian smelt (fw fish)	Retropinna semoni		CUT	6		fish	Retropinnidae
shadeskink	Saproscincus rosei	R	R	6	found nearby	reptiles	Scincidae
olive orchid	Sarcochilus olivaceus	C	CUT	6		monocots	Orchidaceae
white-browed scrubwren	Sericornis frontalis	C	WH	5		birds	Pardalotidae
yellow carabeen	Sloanea woollsii		WH	5	found nearby		Elaeocarpaceae
short-beaked echidna	Tachyglossus aculeatus	C	CS	4		mammals	Tachyglossidae
freshwater catfish	Tandanus tandanus		CUT	6		fish	Plotosidae
painted button-quail	Turnix varia	C	WH	5		birds	Turnicidae
sooty owl	Tyto tenebricosa	R	R	6		birds	Tytonidae
masked lapwing	Vanellus miles	C	CJ	5		birds	Charadriidae
Regent honeyeater	Xanthomyza phrygia	E	E, CJ	10		birds	Meliphagidae

## Sorted by Final Status Value then Common Name

Common Name	Species	Status	Final status class	Final status value	Location	Class	Family
red goshawk	Erythrotriorchis radiatus	E	E, CJ	10		birds	Accipitridae
cascade tree frog	Litoria pearsoniana	E	E	10	found nearby	amphibians	Hylidae
Fleay's barred-frog	Mixophyes fleayi	E	E, WH	10	found nearby	amphibians	Myobatrachidae
Regent honeyeater	Xanthomyza phrygia	E	E, CJ	10		birds	Meliphagidae
glossy black-cockatoo	Calyptorhynchus lathami	V	V	8		birds	Cacatuidae
spotted-tailed quoll (southern subsp.)	Dasyurus maculatus maculatus	V	V	8	found nearby	mammals	Dasyuridae
ball nut tree	Floydia praealta	V	V	8	found nearby	higher dicots	Proteaceae
brush-tailed rock-wallaby	Petrogale penicillata	V	V	8		mammals	Macropodidae
grey goshawk	Accipiter novaehollandiae	R	R, CJ	6		birds	Accipitridae
Bailey's cypress	Callitris baileyi	R	R	6		conifers	Cupressaceae
large-eared pied bat	Chalinolobus dwyeri	R	R	6	found nearby	mammals	Vespertilionidae
red-browed treecreeper	Climacteris erythrops	R	R, WH	6		birds	Climacteridae
Stephens' banded snake	Hoplocephalus stephensii	R	R, WH	6	found nearby	animal	Elapidae
red-and-yellow mountain-frog	Kyarranus kundagungan	R	R, WH	6	found nearby	amphibians	Myobatrachidae
black-soled frog	Lechriodus fletcheri	R	R, WH	6	found nearby	amphibians	Myobatrachidae
Albert's lyrebird	Menura alberti	R	R, WH	6	found nearby	birds	Menuridae
New Holland mouse	Pseudomys novaehollandiae	C	CUT	6	found nearby	mammals	Muridae
shadeskink	Saproscincus rosei	R	R	6	found nearby	reptiles	Scincidae
sooty owl	Tyto tenebricosa	R	R	6		birds	Tytonidae
Australian longfin eel	Anguilla reinhardtii		CUT	6		fish	Anguillidae
white cypress pine	Callitris glaucophylla	C	CUT	6		conifers	Cupressaceae
Marjorie's Hardyhead	Craterocephalus marjoriae		CUT	6		fish	Atherinidae
pink rock orchid	Dendrobium kingianum	C	CUT	6		monocots	Orchidaceae
king orchid	Dendrobium speciosum	C	CUT	6		monocots	Orchidaceae
soft white box	Eucalyptus quadrangulata		CUT	6	found nearby	higher dicots	Myrtaceae
Murray Rainbowfish	Melanotaenia fluviatilis		CUT	6		fish	Atherinidae
purple spotted gudgeon	Mogurnda adspersa		CUT	6		fish	Eleotrididae
scarlet robin	Petroica multicolor	C	CUT	6		birds	Petroicidae
Australian smelt (fw fish)	Retropinna semoni		CUT	6		fish	Retropinnidae
olive orchid	Sarcochilus olivaceus	C	CUT	6		monocots	Orchidaceae
freshwater catfish	Tandanus tandanus		CUT	6		fish	Plotosidae
peregrine falcon	Falco peregrinus	C	CUT, CJ	6	found nearby	birds	Falconidae
yellow-bellied glider (southern subsp.)	Petaurus australis australis	C	CUT, WH	6	found nearby	mammals	Petauridae
Mistake Mtns crayfish	Euastacus jagara		R, WH	6		crustacea	Parastacidae
collared sparrowhawk	Accipiter cirrhocephalus	C	CJ	5		birds	Accipitridae
brown goshawk	Accipiter fasciatus	C	CJ	5		birds	Accipitridae
Pacific black duck	Anas superciliosa	C	CJ	5		birds	Anatidae
wedge-tailed eagle	Aquila audax	C	CJ	5		birds	Accipitridae
Pacific baza	Aviceda subcristata	C	CJ	5		birds	Accipitridae
Australian wood duck	Chenonetta jubata	C	CJ	5		birds	Anatidae
golden-headed cisticola	Cisticola exilis	C	CJ	5		birds	Sylviidae
cicadabird	Coracina tenuirostris	C	CJ	5		birds	Campephagidae
wandering whistling-duck	Dendrocygna arcuata	C	CJ	5		birds	Anatidae
black-shouldered kite	Elanus axillaris	C	CJ	5		birds	Accipitridae
brown falcon	Falco berigora	C	CJ	5		birds	Falconidae
nankeen kestrel	Falco cenchroides	C	CJ	5		birds	Falconidae
Australian hobby	Falco longipennis	C	CJ	5		birds	Falconidae
yellow-tufted honeyeater	Lichenostomus melanops	C	CJ	5		birds	Meliphagidae
rainbow bee-eater	Merops ornatus	C	CJ	5		birds	Meropidae
southern boobook	Ninox novaeseelandiae	C	CJ	5		birds	Strigidae
masked lapwing	Vanellus miles	C	CJ	5		birds	Charadriidae
native Hydrangea	Abrophyllum ornans		WH	5	found nearby	higher dicots	Grossulariaceae
yellow-rumped thornbill	Acanthiza chrysorrhoa	C	WH	5		birds	Pardalotidae
striated thornbill	Acanthiza lineata	C	WH	5		birds	Pardalotidae

Common Name	Species	Status	Final status class	Final status value	Location	Class	Family
yellow thornbill	Acanthiza nana	C	WH	5		birds	Pardalotidae
brown thornbill	Acanthiza pusilla	C	WH	5		birds	Pardalotidae
buff-rumped thornbill	Acanthiza reguloides	C	WH	5		birds	Pardalotidae
gum vine	Aphanopetalum resinosum		WH	5	found nearby		Cunoniaceae
hoop pine	Araucaria cunninghamii		WH	5			Araucariaceae
black booyong	Argyrodendron actinophyllum		WH	5	found nearby	higher dicots	Sterculiaceae
flame tree	Brachychiton acerifolius		WH	5	found nearby		Sterculiaceae
kurrajong	Brachychiton populneus		WH	5			Sterculiaceae
mock orange	Bursaria incana		WH	5	found nearby	higher dicots	Pittosporaceae
common ground fern	Calochlaena dubia	C	WH	5	found nearby	ferns	Dicksoniaceae
white-throated treecreeper	Cormobates leucophaeus	C	WH	5		birds	Climacteridae
clicking froglet	Crinia signifera	C	WH	5		amphibians	Myobatrachidae
Cunningham's skink	Egernia cunninghami	C	WH	5		reptiles	Scincidae
major skink	Egernia frerei	C	WH	5		reptiles	Scincidae
brown-hearted quandong	Elaeocarpus kirtonii		WH	5	found nearby	higher dicots	Elaeocarpaceae
brown gerygone	Gerygone mouki	C	WH	5		birds	Pardalotidae
white-throated gerygone	Gerygone olivacea	C	WH	5		birds	Pardalotidae
brown-striped marshfrog	Limnodynastes peronii	C	WH	5		amphibians	Myobatrachidae
spotted marshfrog	Limnodynastes tasmaniensis	C	WH	5	found nearby	amphibians	Myobatrachidae
scarlet-sided pobblebonk	Limnodynastes terraereginae	C	WH	5	found nearby	amphibians	Myobatrachidae
eastern sedgefrog	Litoria fallax	C	WH	5		amphibians	Hylidae
broad-palmed rocketfrog	Litoria latopalmata	C	WH	5		amphibians	Hylidae
stony-creek frog	Litoria lesueuri	C	WH	5		amphibians	Hylidae
striped rocketfrog	Litoria nasuta	C	WH	5		amphibians	Hylidae
emerald-spotted treefrog	Litoria peronii	C	WH	5		amphibians	Hylidae
naked treefrog	Litoria rubella	C	WH	5		amphibians	Hylidae
whistling treefrog	Litoria verreauxii	C	WH	5		amphibians	Hylidae
fawn-footed melomys	Melomys cervinipes	C	WH	5		mammals	Muridae
eastern water dragon	Physignathus lesueurii	C	WH	5		reptiles	Agamidae
diamond-leaf Pittosporum	Pittosporum rhombifolium		WH	5	found nearby		Pittosporaceae
sweet Pittosporum	Pittosporum undulatum		WH	5	found nearby		Pittosporaceae
satin bowerbird	Ptilonorhynchus violaceus	C	WH	5		birds	Ptilonorhynchidae
white-browed scrubwren	Sericornis frontalis	C	WH	5		birds	Pardalotidae
yellow carabeen	Sloanea woollsii		WH	5	found nearby		Elaeocarpaceae
painted button-quail	Turnix varia	C	WH	5		birds	Turnicidae
koala	Phascolarctos cinereus	C	CS	4	found nearby	mammals	Phascolarctidae
short-beaked echidna	Tachyglossus aculeatus	C	CS	4		mammals	Tachyglossidae