Policy Title	Roadside Vegetation Management Policy
Policy Category	Public
Number & Version	SVC – RDS – PO - 066
Policy Owner	Asset Planning and Design
Approval by	
Effective date	
Date for review	September 2020

1. STRATEGIC PURPOSE

Is to ensure the environment is protected during roadside project work and regular roadside maintenance. This is required to protect and revitalise areas of recognised ecological significance (Conservation Value) in the LGA. This aligns with Council's Strategic Plan (*3.5 Partner and support other agencies to protect local fauna and biodiversity ecosystems*).

2. POLICY STATEMENT

The Roadside Vegetation Management (RVMP) aims to ensure:

- correct identification of areas of low, medium and high conservation risk in roadside corridors
- implementation of environmental risk checks to be conducted before regular maintenance works in order to conserve ecological significance
- clear guidelines for particular activities in each conservation risk category to avoid and/or mitigate possible environmental damage
- clear responsibility of each Council employee undertaking field works to check Conservation Value and mitigate any risk to an acceptable level

3. DEFINITIONS

Employee - refers to a person employed by Council and whose conditions of employment are covered by the Local Government (State) Award 2017 and includes persons employed on a permanent, temporary or casual basis. Employees also include Senior Officers whose conditions of employment are covered by a written agreement or contract with Council.

Linear or Road Reserves – refers to public land contained in long, narrow stretches like rail and road corridors and travelling stock routes.

4. CONTENT

4.1 THREATENED AND MIGRATORY SPECIES KNOWN FROM SVC AREA

Information regarding the locations of threatened flora and fauna are protected by Office of Environment and Heritage (OEH). If this information is required a sensitive species data licence can be obtained from OEH. No information from this licence can be publically displayed. For further information on threatened flora, fauna, threatened ecological areas and migratory species please refer to Appendix 1.

4.2 CONSIDERATIONS IN ROADSIDE VEGETATION MANAGEMENT

The council infrastructure and asset management team, road construction crews and contractors have a responsibility to undertake works within a suite of guidelines aimed at minimising any deleterious impacts on the landscape and environment within the immediate road project footprint and adjacent areas.

- Council's design team to undertake a review of environmental factors (REF) for non-routine project works
- A RVMP in the field assessment to be undertaken before all routine road maintenance jobs to establish whether the area has Low, Medium* or High* conservation value and to detail activities that are to occur and relevant strategies to mitigate damage. For further example of permissible / non-permissible activities refer Table 4-1.

**Where areas are deemed to be of Medium or High conservation value and the planned maintenance works will occur outside of the existing footprint, an environmental assessment is required to be completed and all recommendations followed, where practical.*

- Machinery, plant and equipment should be regularly maintained in order to avoid spills or leakages, emission of excessive fumes, or transportation of exotic plant seed or unwanted pathogens entering the surrounding environment.
- Similarly, the construction and maintenance processes should be planned in compliance with relevant policies and procedures and ensuring that due consideration is given to design so as to limit the impacts of high volume water and velocity associated with road drainage.

For further information on the following, please refer to the RVMP:

- Construction activities
- Clear zone maintenance
- Stockpile management
- Erosion and sediment control
- Pathogen and Weed management
- Fire Management
- Public Utilities

4.3 CONSERVATION VALUE AND MANAGEMENT ACTIONS

1650 kilometres of roadside were assessed during the RVMP (2018) and follow a traffic light Conservation Value system. Employees working on roadsides are requires to check provided maps for any available information denoting the conservation value they may have works planned in.

4.3.1 High Conservation Value (HCV)

Activities within areas of HCV should be highly restrictive, but where deemed necessary by council, should be subject to detailed environmental assessment. See table 4-1.

4.3.2 Medium Conservation Value (MCV)

Activities within areas of MCV should be highly restrictive, as with areas of HCV, but where deemed necessary by council, should be subject to detailed environmental assessment. See table 4-1.

4.3.3 Low Conservation Value (LCV)

Activities within areas of LCV are subject to no special requirements under this RVMP. However, activities as defined by Part 5 of the EP&A Act and within the Infrastructure SEPP, provide guidance for council whether approval for activities is required. These location while holding low conservation value, should have limited clearing and be maintained to minimize the spread of weeds and exotic species, fire and erosion. See table 4-1.

Table 4-1: Recommendations for management of high, medium and low conservation roadsides within Snowy Valley Council

Activity	HCV Roadsides	MCV Roadsides	LCV Roadsides
Road construction and maintenance	Disturbance only permitted within the existing road footprint and existing disturbed area (ie, road verge and mowed clearzone if present). Disturbance outside of the existing road foot print and mowed cleared zone subject to detailed environmental assessment	Disturbance only permitted within the existing road footprint and existing disturbed area (ie, road verge and mowed clearzone if present). Disturbance outside of the existing road foot print and mowed cleared zone subject to environmental assessment	Activities undertaken to minimise any damage or introduction of an exotic species to the area.
Ancillary works (stockpile sites, machinery parking)	Not recommended without detailed environmental assessment	Not recommended without detailed environmental assessment	Permissible
Public utilities (water,	Not recommended without detailed environmental	Permissible Retain existing	Permissible

Activity	HCV Roadsides	MCV Roadsides	LCV Roadsides
electricity, phone, footpath)	assessment	vegetation and utilise existing disturbed/degraded areas Revegetate impact areas	
Firewood collection	Not recommended	Not recommended	Not recommended
Grazing	Not recommended	Permissible for travelling stock and when compatible with management aims (eg weed control, hazard reduction). Avoid camping and corralling Avoid during spring seeding and heavy rain periods	Permissible
Weed control	Minimal impact methods including spot hand spraying, selective herbicide use, hand removal, controlled burning	Minimal impact methods including spot hand spraying, selective herbicide use, hand removal, controlled burning, light grazing	Permissible

5. RESPONSIBILITIES /ACCOUNTABILITIES

Accountability for conserving ecological significance of roadside shall be the responsibility of all Employees conducting work in the area. A specific responsibility is delegated to Team Leaders to conduct environmental risk assessments

5.1 Enforcement

Instances where there has not been appropriate management of the roadside vegetation will result in supervising staff receiving a warning and further training. Where breaches of RVMP are identified by government bodies, this may result in significant fines for Council for breeching legislative conditions.

6. ASSOCIATED LEGISLATION

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
NSW Environmental Planning and Assessment Act 1979 (EP&A Act)
NSW Coastal Management Act 2016
NSW Biodiversity Act 2016 (BC Act)
NSW Fisheries Management Act 1994 (FM Act)
NSW National Parks and Wildlife Act 1974 (NPW Act)

NSW Heritage Act 1997
NSW Biosecurity Act 2015
NSW Protection of the Environment Operations Act 1997 No. 156 (POEO Act)
NSW Roads Act 1993
NSW Rural Fires Act 1997 (RFS Act)
NSW Water management Act 2000 (WM Act)
State Environmental Planning Policy (SEPP) (Infrastructure 2007)
State Environmental Planning Policy (SEPP) (Coastal Management) 2018
State Environmental Planning Policy (SEPP) (Vegetation in Non-rural areas) 2017
NSW Threatened Species Conservation Act 1995
NSW Native Vegetation Act 2003
NSW Noxious Weeds Act 1993
For a comprehensive explanation of each Act please refer to Local Government NSW "Council Roadside Environmental Management Framework".

7. ASSOCIATED COUNCIL DOCUMENTS

SVC Roadside Vegetation Management Plan 2018 SVC – RDS – Pln – 004 - 01
Training documentation and Environmental Risk Assessment Scaffold

8. HISTORY

Date	Action	Name	Policy Number	Resolution Date	Resolution Number
EG	Superseded	Tumut Roadside Vegetation Management Plan 2012	Road.17 v1.0		
	Superseded	Tumbarumba Roadside Vegetation Management Plan 2003			

APPENDIX 1

1. THREATENED AND MIGRATORY SPECIES KNOWN FROM SVC AREA

Threatened flora
29 species of threatened flora are identified within the SVC LGA (A full list with locations is found in the RVMP 2018). These include the Tumut Grevillea (*Grevilliea wikinsonii*) and Silky Swainson-pea (*Swainsona sericea*).

**Accurate locations of threatened species is withheld from Office of Environment & Heritage to protect against illegal collection.*

Threatened fauna
71 species of threatened fauna are identified within the SVC LGA (A full list with locations is found in the RVMP 2018). They include:

- 44 species of bird
- 16 species of mammal, including an endangered population
- species of frog
- species of reptile
- One species of insect

**Accurate locations of threatened species is withheld from Office of Environment & Heritage to protect against illegal collection.*

Migratory species
Five species of migratory bird have been identified, including:

- White-throated Needletail
- Common Sandpiper
- Sharp-tailed Sandpiper
- Latham's Snipe
- Rainbow Bee-eater

**Accurate locations of threatened species is available upon request from GIS and Assets.*

Threatened Ecological Communities (TEC)
Four TEC are known from within SVC LGA. Including:

- White Box, Yellow Box, Blakely's Red Gum Woodland (BC Act and EPBC Act)
- Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland (BC Act)
- Natural Temperate Grassland (EPBC Act)
- Coolac – Tumut Serpentinite Shrubby Woodland (BC Act).

*All four TEC were detected during the site assessments carried out for the RVMP (2018).

Site Managed Species

A number of threatened biota known from the SVC LGA are listed as site-managed species under the Saving our Species (SOS) as part of the BC Act. However, site-managed species also have management sites allocated to them, and only those which include roadsides of SVC managed roads are detailed below:

- Booroolong frog
- Kelton's leek orchid
- Tumut grevillea

While not listed as a site managed species, the Silky Swainson-pea is listed as vulnerable under the BC Act and occurs within the roadside of Gocup Road (near Meadow Creek). It is significant as it is the only known instance of this species within the LGA.

Important Habitat for Migratory Fauna

Rainbow Bee-eater: Horse Creek Road and River Road, in the southern portion of the SVC LGA. In the case of any roadside cuttings and/or embankments along River Road, and the incised creek bank on Horse Creek Road, both would constitute important habitat on the following basis:

- Rainbow Bee-eater as it the southern limit of its range
- The habitat present is of critical importance to Rainbow Bee-eater at a particular life-cycle stage (nesting habitat)

Any action carried out by SVC along River Road or Horse Creek Road may constitute a significant impact under the EPBC Act. Further investigation by a suitability qualified and experienced ecologist in the form of an environmental assessment and a referral to the Commonwealth Environment Minister is recommended for any work in these areas.

*Further information for this migratory fauna can be found in the RVMP (2018)

Roadside Vegetation Management Plan

Snowy Valleys Council

FEBRUARY 2018

Report No. 18.EM-003

Citation

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Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
A	24.02.2018	SS, LS, SP, SH	SH	Steve Sass (CEnvP)

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Definitions & Acronyms used within this report

BC Act	NSW *Biodiversity Conservation Act 2016*
CRR	Council Roadside Reserves
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FM Act	NSW Fisheries Management Act 1994
HCV	High Conservation Value
LGA	Local Government Area
LCV	Low Conservation Value
LEP	Local Environment Plan
MCV	Medium Conservation Value
NES	National Environmental Significance
OEH	NSW Office of Environment & Heritage
PCT	Plant Community Type
POEO Act	NSW *Protection of the Environment Operations Act 1997*
RAM	Rapid Assessment Methodology
RVMP	Roadside Vegetation Management Plan
SEPP	State Environmental Planning Policy
SOS	Saving our Species Program
SVC	Snowy Valleys Council
TEC	Threatened Ecological Community

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Maps & Tables

1 INTRODUCTION

1.1 THE PROJECT

Snowy Valleys Council (SVC) was formed in 2016 after the merger of two local councils; Tumbarumba Shire Council and Tumut Shire Council. Previous to the merger, both councils had a roadside vegetation management plan (RVMP) (Walker, 1997, Stein, 2003).

SVC was successful in obtaining grant funding from the Council Roadside Reserves (CRR) Project which is funded by the NSW Environment Trust. The CRR Project has been established to build the capacity of Councils to enable values of natural assets in roadside reserves to be embedded into integrated planning and reporting systems of councils.

This project allows SVC to update and integrate natural assets of about 1,215 kilometres of roads into Councils asset management system.

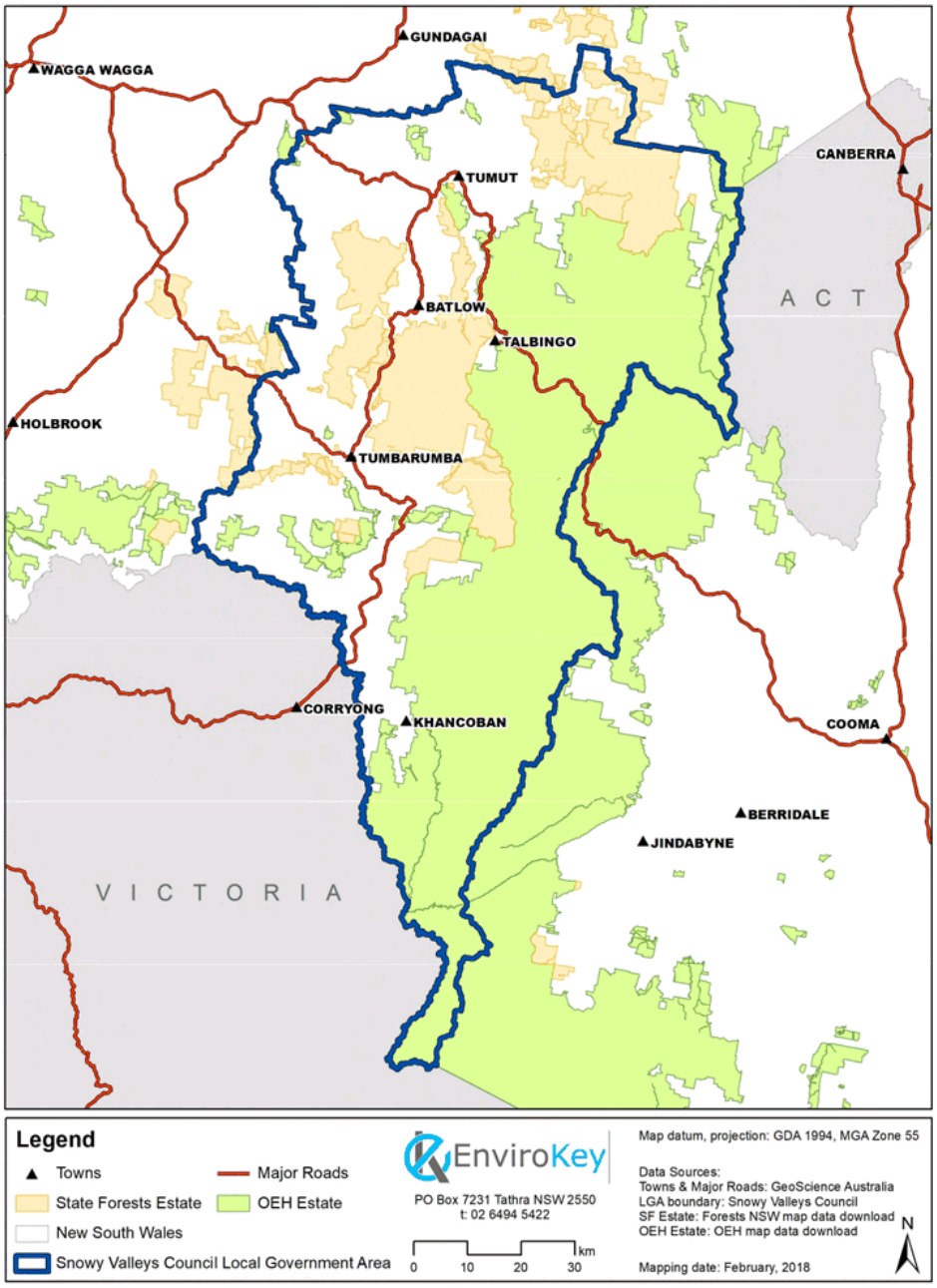
1.2 PROJECT OBJECTIVES

This project has a number of key objectives. These being:

- Undertake desktop 'pre-assessment' utilising available geographic information system (GIS) datasets
- Undertake field assessments using Rapid Assessment Methodology (RAM) (LGNSW, 2017)
- Review for Tumbarumba and Tumut RVMP to assist in the above objectives
- Identify sites for signs/posts marking areas of High or Medium conservation value
- Development of Roadside Environment Policy/Plan

1.3 SNOWY VALLEYS COUNCIL AREA

The SVC area is located in southern NSW and covers the western side of the south-most portion of the Great Dividing Range in NSW (**Map 1-1**). It comprises 8,960 square kilometres in area and has large sections of national park and state forest. The SVC local government area (LGA) is also bioregionally diverse, with four bioregions present. These being NSW South Western Slopes, Riverina, South Eastern Highlands, Australian Alps bioregions.



Map 1-1: Snowy Valleys Council boundary

1.4 PREVIOUS RVMP

Two RVMP have been previously prepared for the former council areas that now comprise SVC. These being the:

- Tumut Shire Roadside Vegetation Survey and Management Guidelines (Walker, 1997)
- Tumbarumba Shire Roadside Vegetation Management Plan (Stein, 2003).

The Tumbarumba RVMP (2003) assessed 549.9 kilometres of roads in that shire, and found that 69.1 kilometres of roadside were High Conservation Value (HCV), 97.9 kilometres were Medium Conservation Value (MCV) and 382.8 kilometres were Low Conservation Value (LCV). Roadside Vegetation was assessed using a roadside vegetation assessment sheet, based on criteria developed by the NSW Roadside Environment Committee. The methodology used has some similarities to the current RAM. However, it lacks landscape context or considerations such as critically endangered or endangered ecological communities.

The Tumut RVMP (1997) does not detail the HCV, MCV or LCV in the same format, but rather discusses specific roads and how they are assigned to each value.

Both RVMP include management guidelines, which in general, form a basis for the development of management actions for this RVMP.

2 VALUES AND THREATS IN THE ROADSIDE ENVIRONMENT

2.1 ROAD CORRIDORS IN AN ECOLOGICAL SETTING

Initially, paths and later, roads were developed in response to the regional communities need to access natural resources such as food, water and construction materials. This is evident in the distribution of early settlement camps, with many established in close proximity to streams and rivers. Continual foot passage saw a simple system of inter-connecting footpaths appear, extending across the landscape and simplifying access to resources. Primitive roads followed, built from rock, stone and dirt. As transportation methods developed, such as the horse and cart and beyond, so too did the extent and construction methods of roads.

The introduction of the rail network was the first major infrastructure development to impact the landscape of the SVC LGA. The introduction of cars at the turn of the 20th century further facilitated the communities access to the entire nation, increasing pressures on the environment. The technological advances that had seen the development of cars was not matched by commensurate advances in infrastructure technology. This meant that insufficient consideration was given to the deleterious impact that cars would have on road surfaces.

Some road structures acted as barriers to hydrological function, whilst hard surfaces and drainage works increased the velocity of water drainage leading to erosive pressures. This in turn saw an increase in the movement of surface sediment and the deposition of material in ground water systems, altering local water courses and associated ecosystems.

Vegetation loss as a result of clearing for roads, as well as for new pastoral land, saw a decline in native vegetation cover and a depletion of the seed bank. Efforts to revegetate roadsides had arguably little ecological benefit, often being undertaken using unsuitable native species or invasive exotic species. Cars travelling throughout the area and into the wider landscape became a new vector of spread compounding the introduction of new seed sources and vegetative matter.

Major progress for the Snowy Valleys area continued when in 1949 the Snowy Mountains Hydro Electric Power Act was passed. This resulted in 1600 kilometres of new roads and tracks built to service the “Snowy Scheme”, labour camps, townships and associated industries (OEH, 2014).

In more recent times the main purpose of roads is to transport people between destinations and provide access to areas (Donaldson and Bennett, 2004).The most common 21st century land uses in the area include agriculture, forestry and horticulture (Stein, 2003) and the road network has evolved in response to the need to improve both the speed and safety of travel.

In the current context it is important to note that road verges can sometimes provide a valuable indication of historical vegetation communities in an otherwise heavily modified landscape. Although roadside vegetation quality may vary it can give some indication of the structure and diversity that would have been present prior to land clearing – which can be helpful when planning restoration.

2.2 NON-LIVING ENVIRONMENTAL FACTORS THAT AFFECT ROADS

The interaction between abiotic factors and roads is functionally relatively simple however mitigating the impacts of those interactions on roads is complex, costly and often problematic.

The natural process of erosion has been shaping our landscapes for millennia (Attwill and Wilson, 2006) and this process has been significantly disrupted by the construction of roads. Soils are in large part formed by the erosion process the gradual weathering and transport of rock material over time. This process is closely related to the decomposition and transport of organic matter, with much vegetative material decomposing either on or amongst the eroded material. When vegetation is cleared during road construction and an adjacent drainage line is installed - water collects in greater volumes and the velocity of flows across mineral earth surfaces increases, gauging channels and fast tracking the erosion process.

If poorly drained, water may collect and saturate the soil underneath the road surface, leaving it susceptible to movement, soft spots and holes. This may result in an unstable base and an altered road surface level.

Existing dirt or gravel roads are susceptible to corrugations caused by the interaction between wind, water and traffic. This type of road surface requires more frequent maintenance. These roads are often quite old and the technology and materials used to construct them did not have the traffic volumes and weights of modern vehicles in mind when they were designed. This has meant that unless a road was completely re-built to cater for current needs – the maintenance program is unlikely to deliver long-lasting improvements in drainage and erosion.

Dust and eroded material from poorly situated and/or constructed dirt roads can cause excessive deposition in waterways and drains, disrupting hydrological function and altering associated habitats. The quantity and impact of this may be further exacerbated by climatic conditions such as wind, rain, freeze-thaw cycles or excessive dry conditions.

2.3 EFFECTS OF ROADS ON THE LIVING ENVIRONMENT

As road systems have expanded over time, they can be seen to have had a wide range of effects on the living environment. From pre-construction vegetation clearing (impacting critical habitat attributes such as logs, rocks, hollows, ground cover) to the noise and sustained modification associated with the construction phase – the establishment and

maintenance of road networks can impact the living environment in myriad ways such as direct mortality from contact with vehicles or machinery; the removal or reduction of food resources or shelter; and the fragmentation, containment or isolation of un-viable habitat patches.

Roads create barriers for the passage and dispersal of unwilling or incapable fauna. Roads represent significant open areas between habitat patches for some species, in particular small mammals, that when crossed elevate the risk of predation or collisions, resulting in numerous injured or killed animals. In instances where the risk posed by crossing a road corridor is considered too great by a particular species – the ongoing restriction of movement has been shown to impact on population size, age class ratios and genetic diversity.

Altering vegetation communities at any scale may lead to a reduction in flora and fauna species either explicitly within the LGA or successionally across a wider landscape. Fauna relying on resources provided by particular vegetation types will be forced to move locations or become isolated, which may have deleterious impacts on a myriad core of ecological functions such as seed dispersal or pollination.

Once cleared, landscapes are impacted by the loss of vegetation structure and in its capacity to recolonise in the future due to the loss of seed banks, impacts of ongoing maintenance, changed fire regimes, altered soil chemistry and invasion of unwanted flora and fauna well adapted to colonising denuded and modified systems such as the European Rabbit (*Oryctolagus cuniculus*) or African Love Grass (*Eragrostis curvula*).

3 KEY STATUTORY CONSIDERATIONS

3.1 RELEVANT COMMONWEALTH LEGISLATION

3.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a national scheme for protecting the environment and conserving biodiversity values.

Approval from the Commonwealth Environment Minister is required for significant impacts on matters of National Environmental Significance (NES). NES matters include species and ecological communities that are listed under the EPBC Act, migratory species protected under international agreements, wetlands under international agreements, commonwealth marine environments, world heritage properties, national heritage places, and nuclear actions.

The document '*Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*' provides guidance to Councils for determining significant impacts on NES matters (http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance).

SVC should identify any matters of NES that have the potential to be impacted by proposed activities, regardless of whether it is considered routine maintenance or new construction (http://www.environment.gov.au/epbc/protected-matters-search-tool).

SVC would then need to assess the potential impact of any activity against the EPBC Act Significant Impact Criteria (SIC). This should be assessed against the significant impact guidelines (http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance) .

Where a potential significant impact could occur to matters of NES, SVC would need to refer the proposed activity to the Commonwealth, for a decision by the Minister.

(http://www.environment.gov.au/epbc/publications/factsheet-submitting-referral-under-epbc-act).

3.2 RELEVANT STATE LEGISLATION

3.2.1 *Environmental Planning and Assessment Act 1979*

The NSW Environmental Planning and Assessment Act 1979 (EP&A Act) is the principal planning legislation in NSW. The EP&A Act provides the framework for the assessment of SVC activities. The EP&A Act places a duty on SVC to adequately assess a range of environmental, social and economic matters including the likely impact of activities on

threatened species, populations or ecological communities listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) or NSW *Fisheries Management Act 1994* (FM Act).

SVC is responsible for administering various sections of the EP&A Act in the case of roadsides and activities and how these may impact on biodiversity, threatened species, populations and ecological communities as listed by the BC Act or FM Act. In general, Part 5 of the EP&A Act is of relevance to SVC. The preparation of a review of environmental factors (REF) or environmental impact assessment (EIA) is the key mechanism in which SVC can generally fulfil its responsibilities under the EP&A Act.

3.2.2 Biodiversity Conservation Act 2016

The purpose of the BC Act is:

- To conserve biological diversity at bioregional and state scales
- To maintain the diversity and quality of ecosystems
- To improve, share and use knowledge, data and resource sharing in the community
- To support biodiversity conservation in the context of a changing climate
- To assess the extinction risk of species and ecological communities
- To identify key threatening processes
- To regulate human-wildlife interactions by applying a risk-based approach
- To slow the rate of biodiversity loss and conserve threatened species.

The BC Act and its supporting regulations commenced on 25 August 2017. The BC Act repeals the *Threatened Species Conservation Act 1995* along with other natural resource management legislation.

The BC Act insert provisions into the EP&A Act approvals process and biodiversity offset scheme (BOS).

SVC may also require a Threatened Species License under Part 2 of the BC Act, which allows harm to a threatened species or ecological community for any work within the roadside environment. A Threatened Species License is generally required if an action by SVC is likely to result in:

- Harm to an animal that is a threatened species or part of an ecological community
- Picking a plant that is a threatened species or part of an ecological community
- Damage to a habitat of a threatened species or ecological community
- Damage to a declared area of outstanding biodiversity conservation value.

3.2.3 Fisheries Management Act 1994

The NSW *Fisheries Management Act 1994* (FM Act) provides for the protection, conservation and recovery of threatened species defined under the Act. It also makes provision for the management of threats to threatened species, populations and ecological communities defined under the Act, as well as the protection of fish and fish habitat in general.

SVC needs to consider the impacts to these biota for any actions within the roadside, including specific policy regarding fish passage. There may be a need for SVC to notify the Minister of activities that may affect fish habitat or fish passage. Concurrence from the Director-General may also be required.

3.2.4 Protection of the Environment Operations Act 1997

The key objectives of the NSW *Protection of the Environment Operations Act 1997* (POEO Act) are to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development and to prevent the degradation of the environment.

The POEO Act contains a list of 'scheduled activities' that require a license under the Act. While the list includes road construction, this is currently defined under the Act as roads that are of four or more lanes. Scheduled activities can be viewed at http://www8.austlii.edu.au/cgi-bin/viewdoc/au/legis/nsw/consol_act/poteoa1997455/sch1.html.

3.2.5 State Environmental Planning Policy (Infrastructure 2007)

The State Environmental Planning Policy (SEPP) (Infrastructure 2007) applied to all of NSW and aims to facilitate the effective delivery of infrastructure across the state.

For SVC, this SEPP deals specifically with development in or adjacent to road corridors and road reservations (Division 17). It allows for development to be carried out without consent by a public authority (as defined by the EP&A Act and of which SVC is a public authority) on a public road that is unzoned land for any purpose. Given this, activities can be assessed in accordance with Part 5 of the EP& Act within the preparation of a REF. Should a significant impact be identified during the REF process, the preparation of an EIS may be required.

The SEPP also identifies a series of activities that can be carried out by a public authority such as SVC that are classified as exempt and complying. SVC should consider these in their planning and approvals process, particularly in relation to routine and maintenance activities.

3.3 LOCAL GOVERNMENT PLANNING POLICIES

Along with commonwealth and state legislation, the Tumbarumba Local Environment Plan (LEP) 2010 and Tumut LEP 2012, may influence the level and type of assessment required for particular activities. These are prepared pursuant to the EP&A Act.

SVC would need to investigate any requirements prior to the commencement of any roadside activities.

4 THREATENED ECOLOGICAL COMMUNITIES, THREATENED SPECIES AND MIGRATORY SPECIES

4.1 THREATENED ECOLOGICAL COMMUNITIES

4.1.1 What are threatened ecological communities?

An ecological community is a naturally occurring group of native flora, fauna and other organisms living in a habitat. An ecological community becomes a threatened ecological community (TEC) when it is at risk of extinction (OEH, 2018b).

4.1.2 Why identify and manage threatened ecological communities?

SVC has both a legal and ethical responsibility to manage TEC within council managed land. While beyond the scope of this RVMP to map the extent of TEC, the presence of TEC is considered within the RAM when determining conservation value.

4.1.3 Threatened ecological communities of the Snowy Valleys Council area

Based on a review of the plant community type (PCT) mapping for the region and consideration of the TEC known to or predicted to occur within the IBRA regions and sub-regions of the SVC LGA, four TEC are known. These being:

- White Box, Yellow Box, Blakely's Red Gum Woodland (BC Act and EPBC Act)
- Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland (BC Act)
- Natural Temperate Grassland (EPBC Act)
- Coolac – Tumut Serpentinite Shrubby Woodland (BC Act).

4.2 THREATENED AND MIGRATORY SPECIES KNOWN FROM SNOWY VALLEY COUNCIL AREA

4.2.1 Threatened flora

Based on a review of data held within the NSW BioNET, 29 species of threatened flora are known from the Snowy Valley local government area (LGA) (OEH, 2018a). These include the Tumut Grevillea (*Grevillea wilkinsonii*) and Silky Swainson-pea (*Swainsona sericea*).

Locations of previous records are provided in **Map 4-1**. However, it should be noted that the spatial location of most threatened flora records is withheld by OEH due to potential illegal collection, so these records are generally randomly offset for the purpose of illustration and general locality information only.

4.2.2 Threatened fauna

Previous records for threatened fauna within the NSW BioNET identify 71 species known from the SVC LGA (OEH, 2018a). These comprise:

- 44 species of bird
- 16 species of mammal including an endangered population
- 6 species of frog
- 4 species of reptile
- One species of insect

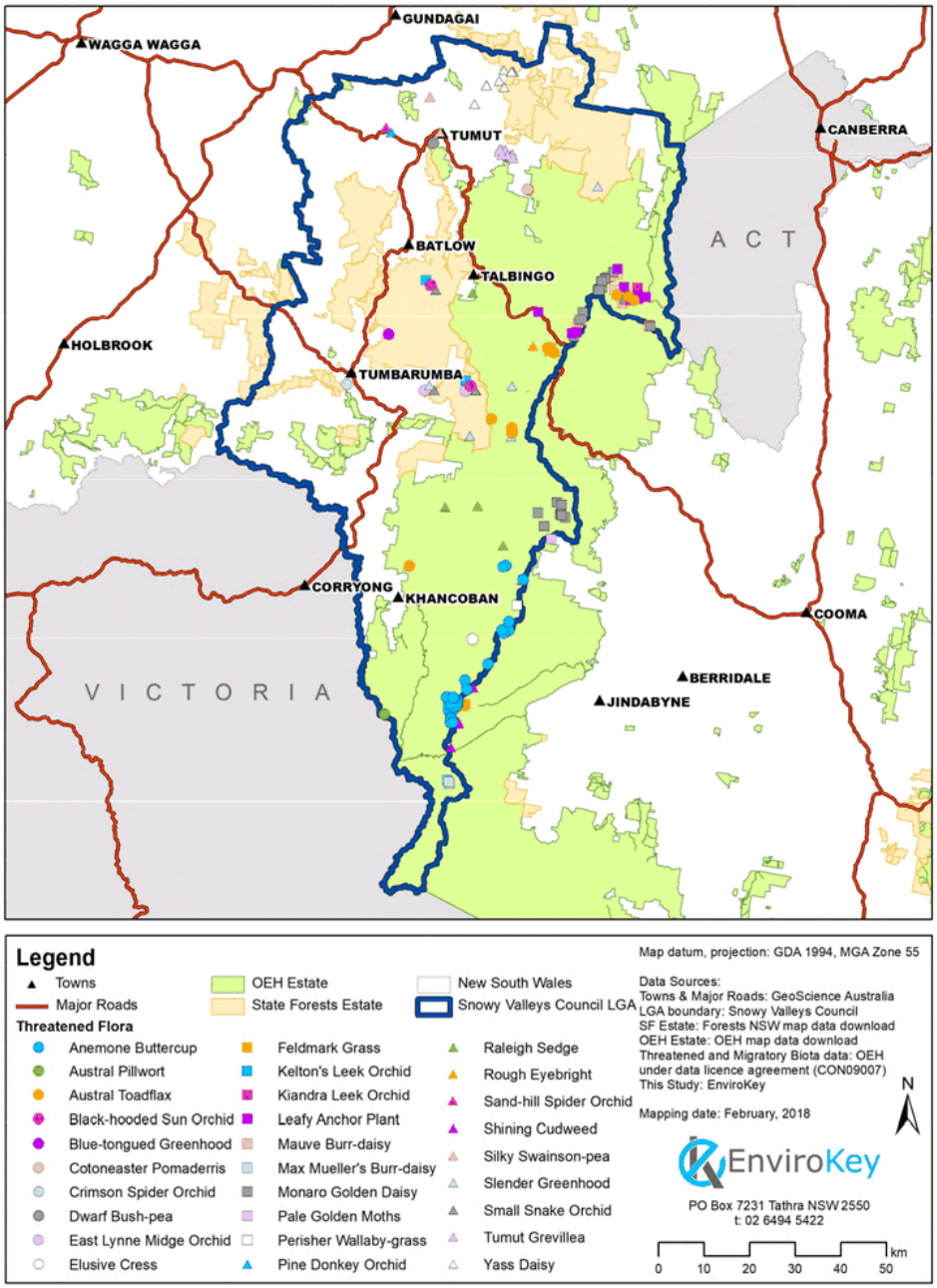
Locations of previous records are provided in **Maps 4-2 to 4-5**.

4.2.3 Migratory species

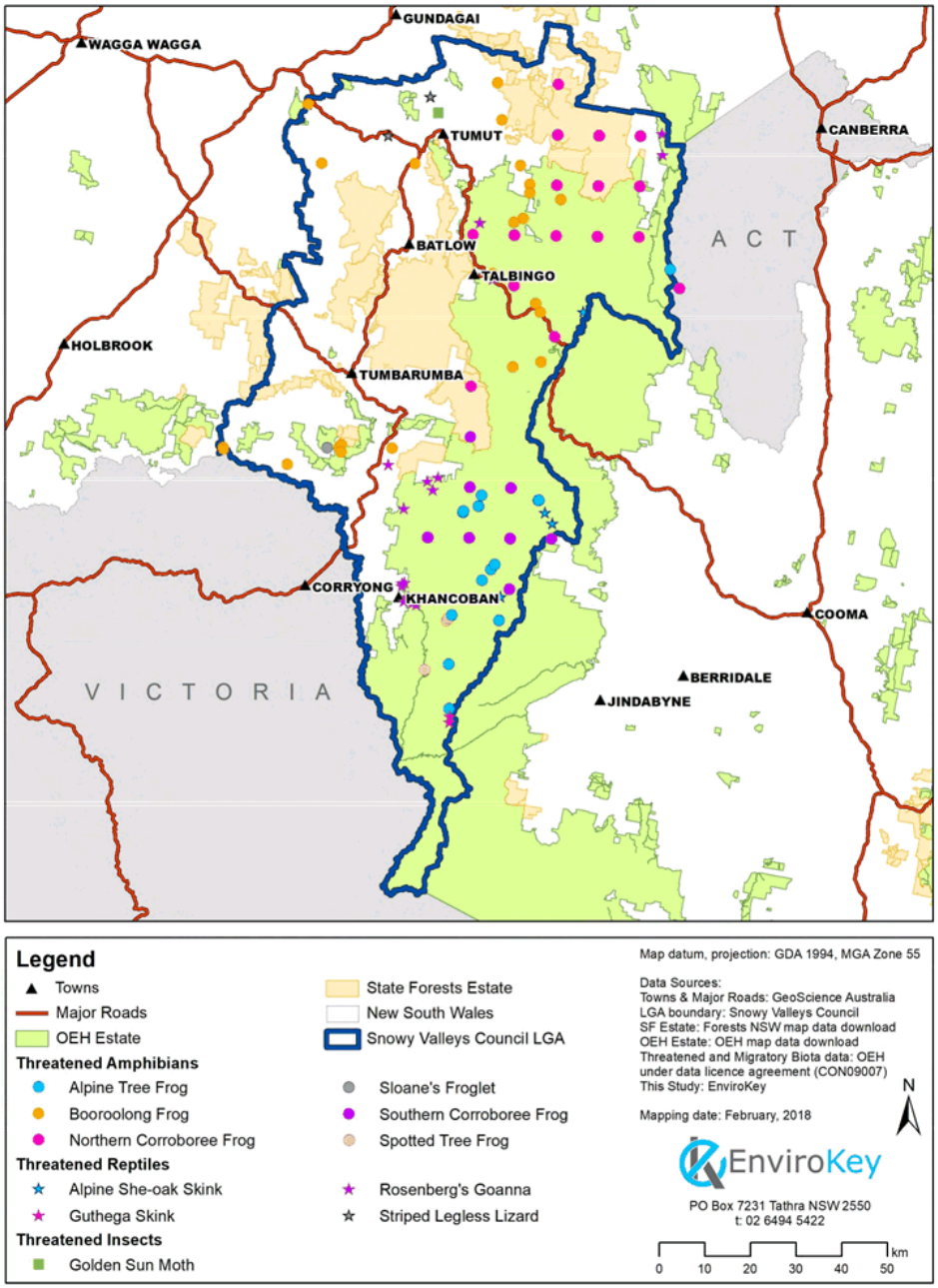
Five species of migratory bird are known from previous records within the SVC LGA (OEH, 2018a). These being:

- White-throated Needletail
- Common Sandpiper
- Sharp-tailed Sandpiper
- Latham's Snipe
- Rainbow Bee-eater.

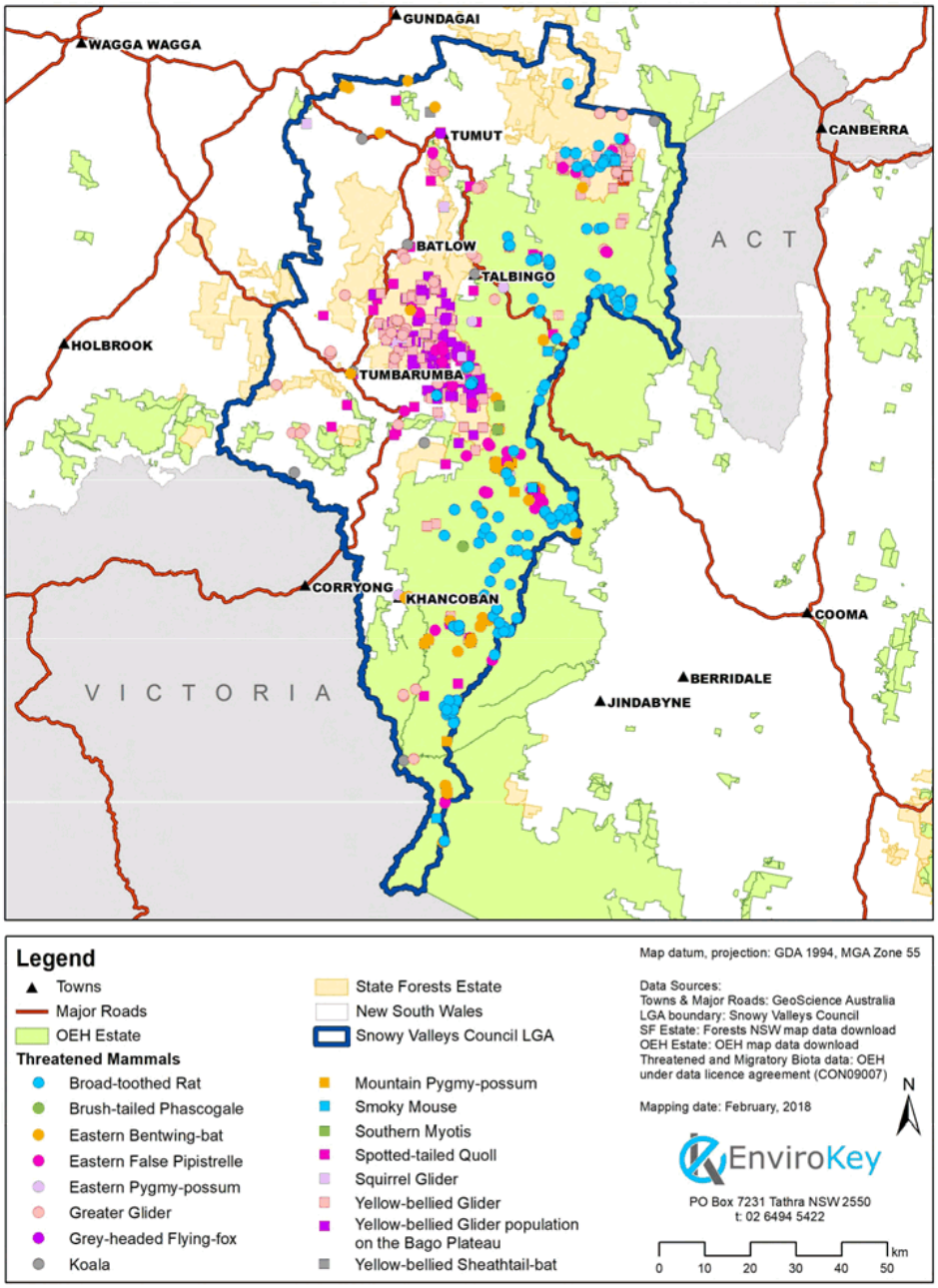
Locations of previous records are provided in **Maps 4-4 & 4-5**.



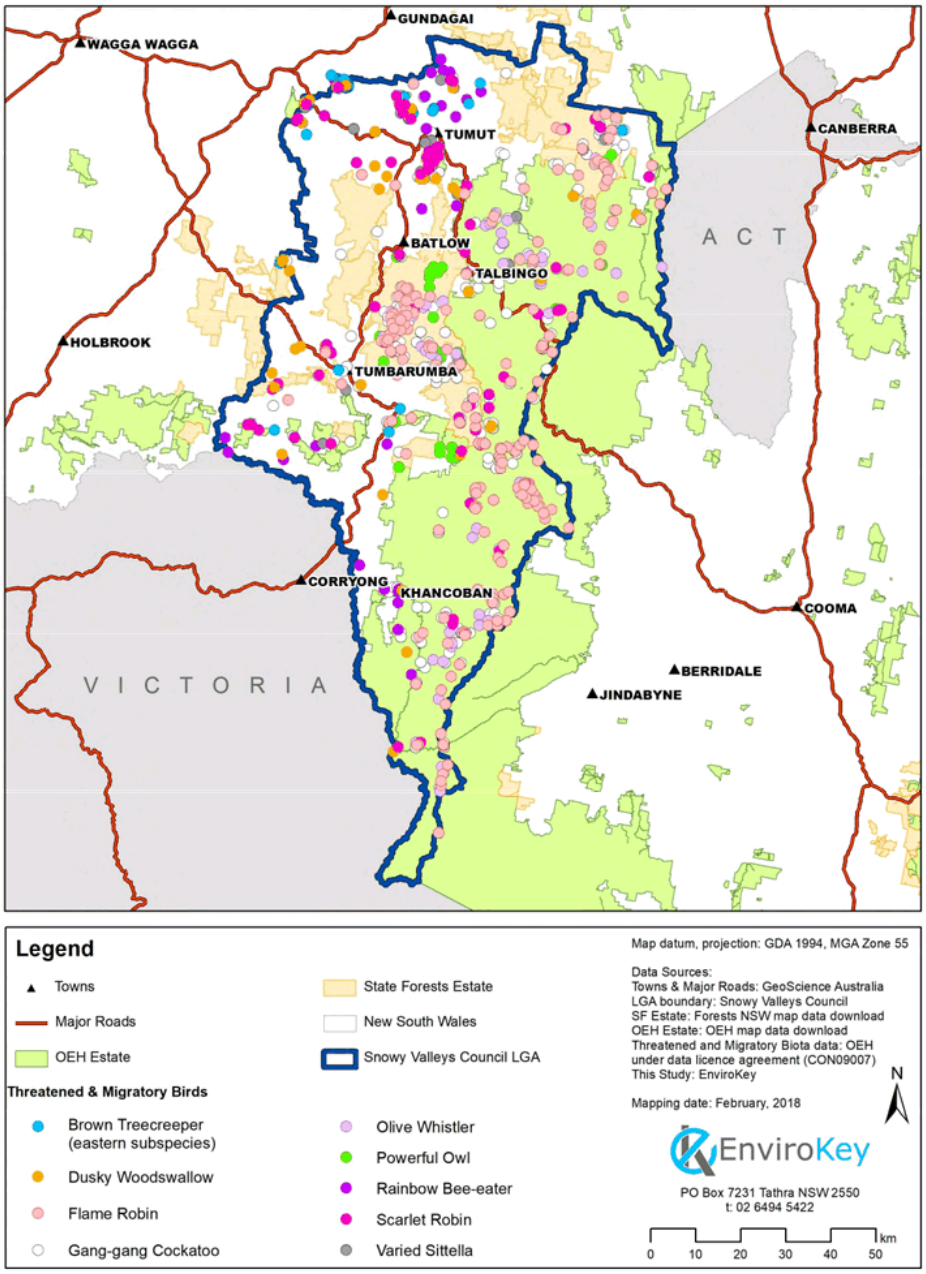
Map 4-1: Previous records of threatened flora from the Snowy Valleys Council local government area.



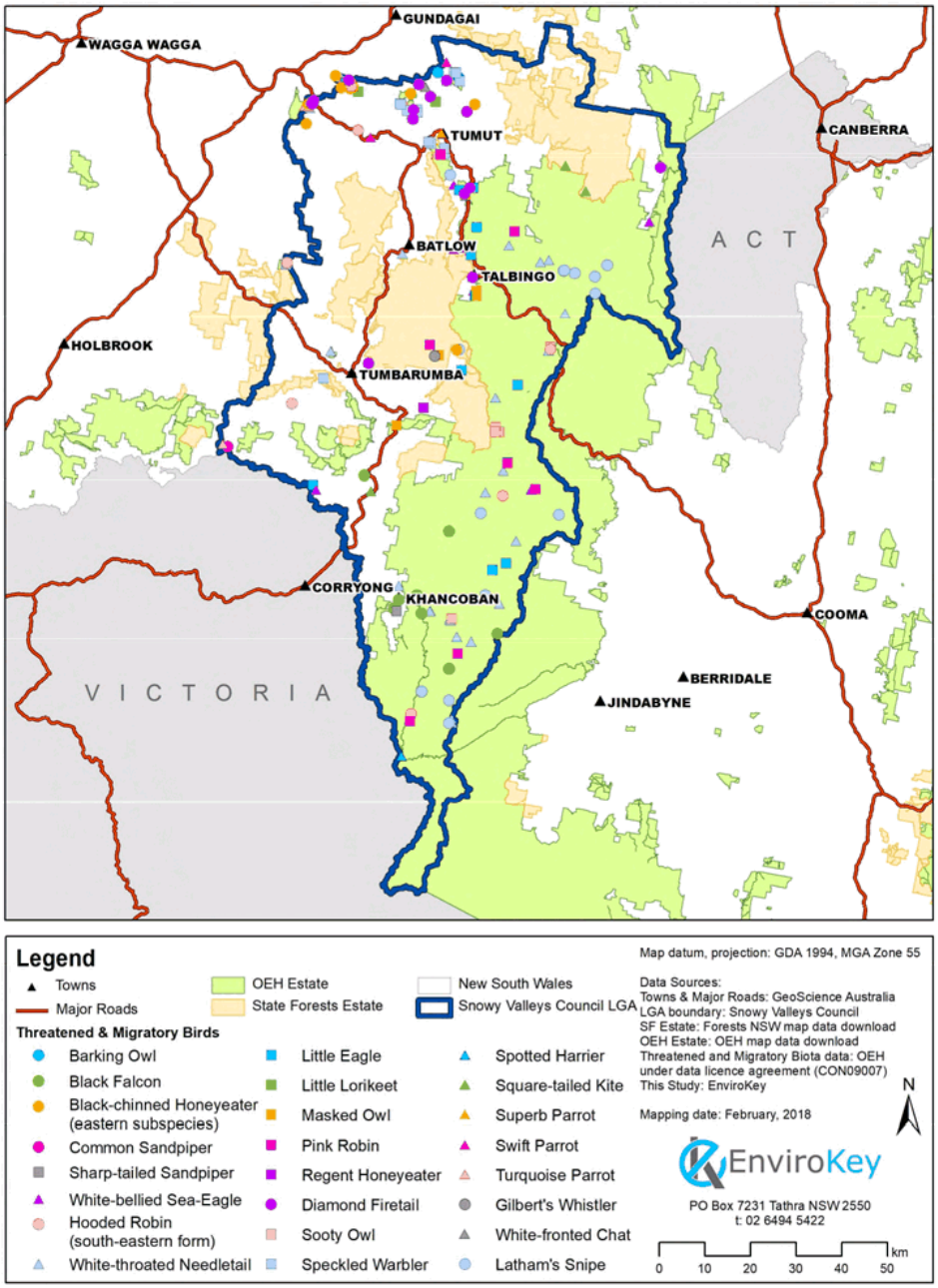
Map 4-2: Previous records of threatened reptiles, insects and amphibians from the Snowy Valleys Council local government area.



Map 4-3: Previous records of threatened mammals from the Snowy Valleys Council local government area.



Map 4-4: Previous records of threatened and migratory birds from the Snowy Valleys Council local government area.



Map 4-5: Previous records of threatened and migratory birds from the Snowy Valleys Council local government area.

4.3 THREATENED ECOLOGICAL COMMUNITIES KNOWN FROM SNOWY VALLEYS COUNCIL AREA

Four TEC are known from within SVC LGA. These being:

- White Box, Yellow Box, Blakely's Red Gum Woodland (BC Act and EPBC Act)
- Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland (BC Act)
- Natural Temperate Grassland (EPBC Act)
- Coolac – Tumut Serpentinite Shrubby Woodland (BC Act).

All four TEC were detected during the site assessments carried out for this RVMP.

4.4 SITE-MANAGED SPECIES

A number of threatened biota known from the SVC LGA are listed as site-managed species under the Saving our Species (SOS) as part of the BC Act. However, site-managed species also have management sites allocated to them, and only those which include roadsides of SVC managed roads are detailed here.

These being:

- Booroolong frog
- Kelton's leek orchid
- Tumut grevillea

4.5 OTHER THREATENED BIOTA

The only known population of Silky Swainson-pea (*Swainsona sericea*) within the SVC LGA occurs within the roadside of Gocup Road near Meadow Creek. While not listed as a site-managed species, the species is listed as vulnerable under the BC Act and occurs within the road reserve. In a local and regional context, its presence is considered significant as it is the only known location of this species within the LGA.

4.6 IMPORTANT HABITAT FOR MIGRATORY FAUNA

During the field survey, nesting activity for the migratory species, Rainbow Bee-eater was identified within the roadside. These areas were on Horse Creek Road and River Road, in the southern portion of the SVC LGA. At the Horse Creek Road site, an incised creek bank supported at least 20 nesting Rainbow Bee-eater at the time of the survey, while the roadside cuttings along River Road supported dozens of nesting pairs. Recently fledged young were also observed.

Under the EPBC Act, *important habitat* is defined as: a. habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant

proportion of the population of the species, and/or b. habitat that is of critical importance to the species at particular life-cycle stages, and/or c. habitat utilised by a migratory species which is at the limit of the species range, and/or d. habitat within an area where the species is declining (DotE, 2013).

In the case of any roadside cuttings and/or embankments along River Road, and the incised creek bank on Horse Creek Road, both would constitute important habitat on the following basis:

- Rainbow Bee-eater as it the southern limit of its range (point c)
- The habitat present is of critical importance to Rainbow Bee-eater at a particular life-cycle stage (nesting habitat) (point b)

Any action carried out by SVC along River Road or Horse Creek Road may constitute a significant impact under the EPBC Act. Further investigation by a suitability qualified and experienced ecologist in the form of an environmental assessment and a referral to the Commonwealth Environment Minister is recommended for any work in these areas.

5 CONSIDERATONS IN ROADSIDE VEGETATION MANAGEMENT

5.1 ROAD CONSTRUCTION AND MAINTENANCE ACTIVITIES

The SVC infrastructure and asset management team, road construction crews and contractors have a responsibility to undertake works within a suite of guidelines aimed at minimising any deleterious impacts on the landscape and environment within the immediate road project footprint and adjacent areas. Machinery, plant and equipment should be regularly maintained in order to avoid spills or leakages, emission of excessive fumes, or transportation of exotic plant seed or unwanted pathogens entering the surrounding environment.

Similarly, the construction and maintenance processes should be planned in compliance with relevant policies and procedures and ensuring that due consideration is given to design so as to limit the impacts of high volume water and velocity associated with road drainage.

5.1.1 Construction activities

Activities associated with the construction of roads are vast and varied and include surveying and alignment, vegetation clearing, surface leveling, application of road base, excavation and placement of culverts, installation of bridges and other engineered structures, erection of signage and more. All of which have the capacity to impact on the natural environment.

From project scoping and conception and throughout the construction phase, environmental factors should be identified and managed in an effort to minimise negative impacts and retain the maximum amount of vegetation to mitigate as much as possible against any reduction in the overall integrity of associated vegetation communities.

During the construction process, changes in soil dynamics (such as compaction or erosion) and changed drainage patterns may have an effect on vegetation and ecosystem function. There is a potential to cause dieback in the disturbance of root systems, introduction of pathogens, changed soil chemistry or altered hydrological function. To mitigate against these risks it is important that adequate excavation and sediment control plans are in place.

5.1.2 Clear zone maintenance

Maintenance of the clear zone as part of managing road verges is an important aspect of road safety. Pruning of low vegetation, lopping of overhanging branches and mowing or slashing of grasses are all activities that are required in order to maintain road safety. The balance between road user safety and environmental and conservation values should be considered and managed appropriately, enabling roadsides to continue playing an important role in landscape connectivity and the retention of lineally relevant habitat patches. Similarly, numerous roadside vegetation communities are home to flora species listed as threatened in

NSW and poorly planned or managed maintenance of the clear zone may impact on such threatened species in contravention of State or Federal legislation.

5.1.3 Stockpile management

Stockpile sites located in numerous locations throughout the SVC LGA allow for organic materials including gravel, soil, mulch, rock, roadwork supplies or refuse to be stored close to project sites. Designated stockpile sites can be permanent or temporary and are sometimes only established for an explicit period of time for a particular project.

Where possible stockpiles should be established in areas already cleared of vegetation and when operational they should be carefully managed and contained within an area defined by a cleared boundary, mitigating against negative impacts that may be caused by encroachment into surrounding vegetation. Similarly, it is important that machinery and vehicles remain within designated areas and tracks to minimise transportation of unwanted materials and minimise the overall impact footprint.

Climate and weather events may make stockpiles and surrounds more dynamic. Strong winds, dry conditions and excessive water may transport excessive material or unwanted plant matter into adjacent vegetation – posing a risk of infestation by exotic weeds, invasive native competitors or pathogens.

Stockpiles often attract public interest and use. Recreational activities can lead to existing boundaries and tracks extending into vegetated areas and vehicles can readily spread plant seed or material from stockpiles to other locations. Some stockpiles can be easily accessed by the public, which can lead to the uncontrolled removal of organic waste from a project site, enabling the spread of contaminants and/or plant material to other locations. Stockpiles can also act as a seed bank if removal of waste is incomplete or transport hygiene is poorly managed. This may be managed by with a variety of access management techniques.

A Stockpile Management Plan for the SVC is recommended. Examples of these can be found on the Roads and Maritime Services website. Understanding and complying with principles and guidelines presented in these types of documents is an important consideration when planning to ensure the placement and management of road construction stockpiles can effectively mitigate risks to surrounding vegetation communities.

5.1.4 Erosion and sediment control

Road construction, infrastructure and maintenance activities, such as land clearing and excavation may cause erosion resulting in loss of topsoil, sediment deposition or the pollution of waterways. It is important to recognise the significant impact erosion can have on surrounding vegetation communities and ecosystems and ensure that considered and effective erosion and sediment control plans are in place at sites that have an elevated risk.

Water has the ability to run freely from hard road surfaces. With increased runoff the severity and pace of erosion increases. This may have a particular impact upon in-stream and riparian systems where altered dynamics and erosive pressures may impact in ways such as

changing the path of the channel, introducing excessive woody debris or sediment and building blockages that cause the unnatural formation of pools and weirs.

Infrastructure including bridges and culverts that are set into aquatic ecosystems may alter flow regimes, channels dynamics and the structure and shape of stream banks. The deposition of sediment and abundance of unnatural chemical contaminants are also higher at water crossings (Forman and Alexander, 1998).

The quantity of sediment eroded from a site has been shown to be influenced by a number of factors including road geology, slope, length, width, surface and maintenance (Forman and Alexander, 1998). An increased accumulation of sediment may be evident around culverts, bridges, excavated cuttings, banks and ditches. In some cases, poorly designed and/or managed sediment movement may result in significant slippage or even landslides in extreme circumstances.

Contamination from car exhausts, fuels and oil are found in drainage along roads and may negatively impact vegetation and ecosystems. Localised flooding of drains caused from pollution and sediment build up is possible.

A range of pre-fabricated products are available to manage sediment both during and following construction including, geo-textiles such as jute matting or coir logs, sediment control fencing, sediment traps and sedimentation ponds. These may be accompanied by a wide range of engineering solutions to mitigate against excessive erosion and sedimentation.

Maintenance activities that can have a positive effect for erosion management include but are not limited to preserving existing vegetation, installing appropriate revegetation following, utilising ground covers to minimise the amount of exposed mineral earth that is easily transported.

5.2 PATHOGENS AND WEEDS

5.2.1 Pathogen management

Plant pathogens is the collective name given to fungi, viruses and bacteria affecting plants. Pathogens have the ability to occur naturally in soils, water, flora and fauna and can spread across the landscape naturally or in response to the controlled or uncontrolled transport or dumping of soil and/or other organic material. Outbreaks of disease can occur in response to biotic or abiotic changes in the environment, resulting in an increased pathogen load or heightened susceptibility of organisms. Changes in soil characteristics and nutrient levels may encourage an outbreak. Some pathogen outbreaks have the ability to degrade plants quickly, whilst other may occur over long periods of time.

One significant pathogen listed as a key threatening process is 'Infection of Native Plants by *Phytophthora cinnamomi*' (OEH, 2018b). This soil borne pathogen can be dispersed by transported soil, propagules attached to objects such as machinery or clothes, or the

disturbance and transport of soil. Infected plant species display in a range of ways with the most devastating being complete mortality of an individual or localised community, to mild infection and negative impacts, to infected but displaying no obvious impacts. A detailed list of species which *Phytophthora cinnamomi* has been found to affect is on the OEH website. Once established, the disease can cause dieback throughout an ecosystem including a decline in fauna using the habitat due to reduced shelter and food resources.

Phytophthora favour moist wet conditions and once introduced to an area it is very hard to control. Due to the geographic location of SVC, it is important to be aware of this pathogen. As there is no cost-effective treatment for this pathogen, prevention is key to reducing spread. Good site hygiene and biosecurity protocols are the most effective tool in reducing spread and as such construction and maintenance crews should be both educated and required to follow best practise guidelines.

Developing a Pathogen Management Plan would be a beneficial activity in an effort to reduce the spread of plant pathogens and diseases in the SVC. Identifying the presence of pathogens and their extent in the region will enable managers to inform the management and monitor the spread of outbreaks and enable appropriate risk profiling to be undertaken.

5.2.2 Weed management

Weeds can compete, thrive and alter landscapes due to their inherent characteristics including adaptability, greater fecundity (produce) and survival, defence strategies, lack of predators and their capability to disperse and advantageously utilise available resources. Along with natural vectors such as wind, weeds may be transported numerous other factors including movement of vehicles and machinery between sites or areas, wind created by passing vehicles, poorly managed erosion or the removal and transportation of soil, seed or vegetative matter.

Although roadside reserves can be an area of high species diversity, weeds are also often observed dominating such sites. Areas opened up during road construction and maintenance are prone to significant edge effects due to the large ration of edge to total area. This is often observed to create an opportunity for weeds to readily and aggressively colonise, with ample light and water in the form of runoff from roads. Further, in some instances poorly managed agricultural runoff may see increased fertiliser loads that are advantageous for weed species establishment. Mowing and burning of roadside reserves may also create favourable conditions for weeds to dominate an area and poorly timed programs may sabotage the recruitment or limit the diversity within established patches.

Consideration should be given to the suitability of species selected for roadside revegetation. Poorly selected native species or invasive exotics are high risk for both a cost effective outcome (i.e. survival limited by less than suitable conditions) and for the potential for seed spread into the surrounding landscape. There are numerous instances of where inappropriate plant selection for roadside revegetation or stability works has seen long term and costly impacts on both remnant vegetation and agricultural productivity (e.g. African Lovegrass *Eragrostis curvula*).

SVC has a responsibility with regard to Priority Weeds as a public authority under the NSW *Biosecurity Act 2015*.

5.3 FIRE MANAGEMENT

Roads play an important role in fire prevention and suppression. Roads can act as a physical barrier, aiding in pulling a fire up or slowing spread, or they may be used as an access route to enable emergency management crews to control a fire, whilst enabling communities to move away from danger.

Road managers have an obligation to both manage vegetation growth to ensure access and egress, but also have an obligation to conserve vegetation communities and the habitat of flora and fauna.

Planning and delivering a maintenance regime that delivers appropriate management of fuel loads along roadsides is a balance between the requirements of the *RF Act* and *EP&A Act*. Reducing fuel loads by removing vegetation to create fire breaks can aid in the prevention and spread of fires - but can also create cleared spaces for invasive species to colonise, some of which are extremely prone to fire and may in fact increase an overall fire risk rating.

Effectively utilising fire is an extremely complex activity and it should be noted that whilst one burn regime may benefit a particular species, or achieve a particular management outcome – subsequent impacts may be detrimental to a wide range of other ecosystem variables. For example, a fuel reduction fire program along a road corridor may lead to excessive bare earth within an associated vegetation community, leaving top soil exposed to erosive forces and or invasion by weed species well-adapted to take advantage of favourable, low competition conditions.

The conflict between fire prevention and protecting and retaining ecological values is difficult to assess and requires planning and a thorough investigation of the species present and vegetation communities' needs at a particular site.

5.4 PUBLIC UTILITIES

Infrastructure for privately and publicly owned utilities such as electricity, water, gas, sewerage, and telecommunications, are usually located within, or immediately adjacent to road corridors. Ongoing maintenance to these services is unavoidable, however access to these services and the facility of them being easily accessible is a necessary fact. Whilst the impact on vegetation communities and the environment of constructing these assets may be significant, the ongoing impacts are mitigated by the ease of access and concentration of associated issues in the vicinity of the road network.

Consideration should be given to retaining vegetation when planning for the placement of utilities. Minimal impact on the already altered areas around roads could be achieved by the placement of piping, poles and sewerage in such a way that avoids areas of significant conservation value and pursues alternatives wherever possible. Similarly, vegetation

removal and maintenance should be panned and implemented in a way that remains sensitive to these areas and keeps disturbance to a minimum.

Acknowledging that utility assets are visited regularly by maintenance crews, it is important for managers, staff and contractors to recognise the role that good site hygiene and biosecurity protocols can play to reduce the risk of transmission of pathogens and weed seed and vegetative matter between sites and across the broader landscape.

6 METHODS FOR DEVELOPING THIS RVMP

6.1 DATA AUDIT AND LITERATURE REVIEW

6.1.1 Data layers reviewed

A review was undertaken on a number of state-based GIS datasets prior to commencing the field survey. This review was limited to the data made available on public-access spatial data portals and those that could be provided by SVC.

The following datasets were considered:

- NSW BioNET
- Mitchell Landscapes of NSW
- State Vegetation Map – Riverina Region version 1.2, VIS_ID 4469

At the time of the development of this RVMP, the OEH Biodiversity Values Map and OEH Native Vegetation Regulatory Map was not available as a spatial dataset.

6.1.2 Literature reviewed

The following literature was reviewed, and where relevant, considered during the development of this RVMP:

- Rapid Assessment Methodology to Assess Conservation Value of Linear Reserves in NSW (LGNSW, 2017)
- Roads and their major ecological effects (Forman and Alexander, 1998)
- Guide to the management of roadside sites with significant native vegetation (Miles and Roche, 2004)
- Technical Series: Ecological Effects of Roads - Implications for the internal fragmentation of Australian parks and reserves (Donaldson and Bennett, 2004)
- The influence of land-use history on roadside conservation values in an Australian agricultural landscape (Spooner and Lunt, 2004)
- Roadside Management Guidelines in the Murray Region (LLS, nd)
- Tumut Shire Roadside Vegetation Survey and Management Guidelines (Walker, 1997)
- Tumbarumba Shire Roadside Vegetation Management Plan (Stein, 2003).

6.2 RATING SYSTEM FOR CONSERVATION VALUE

6.2.1 Conservation status

The RAM assesses the conservation status at the scale of ecological communities, wetlands and species. The following attributes and justifications are detailed within the RAM (Table 1,pg. 6):

- EEC or over-cleared PCT – important for extent and vulnerability
- Wetland – important for habitat, extent and vulnerability
- Site-managed species – important for habitat.

6.2.2 Landscape context

The RAM assesses landscape context in relation to the landscape surrounding roadsides. The following attributes and justifications are detailed within the RAM (Table 2, pg. 6):

- Mitchell landscape – regional measure of clearing / remaining vegetation
- Zone native vegetation width – size of native vegetation within reserve – important for edge effects, persistence of species in the community, and resilience
- Total native vegetation width – size of native vegetation within total patch – important for edge effects, persistence of species in the community, and resilience
- Area of native vegetation patches within 100 metres of zone – measure of immediate connectivity

6.2.3 Condition and habitat

The RAM provides condition assessments for three vegetation types, defined by dominant growth form – communities dominated by trees, communities dominated by shrubs and communities dominated by non-woody species. The following attributes and justifications are detailed within the RAM (Table 3, pg. 7):

- Density of trees – important structural and habitat feature
- Large trees / hollows – important habitat feature
- Density of shrubs - important structural and habitat feature
- Tree recruitment – important for resilience, habitat complexity
- Shrub recruitment - important for resilience, habitat complexity
- Logs / fallen timber - important habitat feature
- Non-indigenous wood weeds – important sign of degradation
- Ground cover – important sign of degradation
- Non-woody plant cover (non-woody plant forms only) - important structural and habitat feature.

6.2.4 Conservation value assessment matrix

The RAM assigns numeric scores to each attribute level collected during the field survey. A total of 310 sites were surveyed throughout the SVC LGA as well as the full length of each individual road was driven.

From each site assessment, scores for each attribute were totaled for each RAM category (conservation status, landscape context and condition / habitat). The total score for each category was then used to rate importance, using the rating table detailed (**Table 6-1**). The overall conservation of the assessment zone was then evaluated from the conservation status, landscape context and condition / habitat ratings, using the assessment matrix

detailed in **Table 6-2**. Results gained from these individual site assessments (provided in **Appendix 4**) were then used to extrapolate conservation along each road based on both on-ground evaluation of each road and air photo interpretation (**Appendix 5**).

Table 6-1: Rating of conservation status, landscape context and condition / habitat

RAM category	Rating
A: Conservation status	2+ = Critical, 1 = Important, 0 = Minor
B: Landscape context	22+ = Good, 10-21 = Moderate, 0-9 = Limited
C: Condition and habitat	**Trees**: 18+ = Excellent, 8-17 = Modified, 0-7 = Poor **Shrubs**: 14+ = Excellent, 7-13 = Modified, 0-6 = Poor **Non-woody plants**: 10+ = Excellent, 5-9 = Modified, 0-4 = Poor

Table 6-2: Conservation value assessment matrix

Conservation Status	Landscape Context	Condition and Habitat		
		Excellent	Modified	Poor
Critical	Good	High	High	Medium
	Moderate	High	High	Medium
	Limited	High	High	Low
Important	Good	High	High	Low
	Moderate	High	Medium	Low
	Limited	High	Medium	Low
Minor	Good	High	Medium	Low
	Moderate	High	Low	Low
	Limited	Medium	Low	Low

7 RESULTS

7.1 THREATENED AND MIGRATORY SPECIES RECORDED DURING THE ROADSIDE ASSESSMENT

A total of 12 threatened species were recorded during the roadside assessment. These being:

- Brown Treecreeper
- Dusky Woodswallow
- Little Eagle
- White-bellied Sea-eagle
- Black Falcon
- Rosenberg's Goanna
- Diamond Firetail
- Gang-gang Cockatoo
- Hooded Robin
- Varied Sittella
- Scarlet Robin

Two migratory species were recorded. This being Rainbow Bee-eater as well as White-bellied Sea-eagle which is also a listed threatened species.

The spatial locations of these records are provided on **Map 7-1**.

7.2 CONSERVATION VALUE

The conservation value of all roads that form part of this RVMP is visually presented in **Appendix 6**. An ESRI shapefile of mapped HCV, MCV and LCV has been provided to SVC for incorporation into their asset management inventory.

Additionally, the proportion of each road is detailed within **Appendix 5** in table format.

7.2.1 High conservation value

Of the 1,215 kilometres of roads within SVC, and 1,650 kilometres of assessed roadsides, 27.88% (460.221 kilometres) were assigned as High Conservation Value (HCV) using the RAM. Some portions of road were assigned based on important ecological attributes not considered by the RAM. For example, a small section of HCV was assigned along Horse Creek Road (Map I01) due to the presence of important breeding habitat for the EPBC Act listed Rainbow Bee-eater, which was nesting during the site assessment (see section 4.6 for further discussion).

7.2.2 Medium conservation value

Medium Conservation Value (MCV) was assigned to 12.58% of roadsides (207.88 kilometres).

7.2.3 Low conservation value

The majority of roadsides within SVC are assigned to Low Conservation Value. This equates to 59.54% (983.093 kilometres).

INSERT MAP HERE

Map 7-1: Threatened and migratory biota recorded by EnviroKey during the roadside assessments.

7.3 REVIEW OF EXISTING PCT MAPPING

Information collected during the preparation of this RVMP allowed an evaluation of the existing of the most recent vegetation mapping for the region. The State Vegetation Map - Riverina Region version 1.2, VIS_ID 4469 provides the most up to date analysis of PCT across the SVC LGA.

Of the 310 site assessments, 103 (or 33.3%) were incorrectly mapped. Implications included areas that were mapped as non-native vegetation were actually TEC, while large numbers of the errors mapped the presence of a TEC, where no TEC was present.

Reliance on the State Vegetation Map in the SVC LGA is not recommended for determining the presence of PCT or TEC and cannot be considered a substitute for on-site assessment by a suitably qualified person. This can be said for all SVC activities within roadsides for the purpose of environmental assessment, or the consideration of development applications under Part 4 of the EP&A Act.

8 MANAGEMENT ACTIONS

8.1.1 High conservation value

Areas of HCV are considered vital to the long-term viability of ecological communities, flora and fauna. This is particularly relevant in highly cleared landscapes which includes many areas of the lower slopes of the SVC LGA. Activities within areas of HCV should be highly restrictive, but where deemed necessary by SVC, should be subject to detailed environmental assessment. **Table 8-1** provides recommendations for HCV roadsides within the SVC LGA.

8.1.2 Medium conservation value

Areas of MCV are considered important to the long-term viability of ecological communities, flora and fauna. This is of particular importance in highly cleared landscapes which includes many areas of the lower slopes of the SVC LGA. SVC could also target restoration activities in areas of MCV to increase the conservation value. Activities within areas of MCV should be highly restrictive as with areas of HCV, but where deemed necessary by SVC, should be subject to detailed environmental assessment. **Table 8-1** provides recommendations for MCV roadsides within the SVC LGA.

8.1.3 Low conservation value

Activities within areas of LCV are subject to no special requirements under this RVMP. However, activities as defined by Part 5 of the EP&A Act and within the Infrastructure SEPP, provide guidance for SVC whether approval for activities is required. **Table 8-1** provides recommendations for LCV roadsides within the SVC LGA.

Table 8-1: Recommendations for management of high, medium and low conservation roadsides within Snowy Valley Council

Activity	HCV Roadsides	MCV Roadsides	LCV Roadsides
Road construction and maintenance	Disturbance only permitted within the existing road footprint and existing disturbed area (ie, road verge and mowed clearzone if present). Disturbance outside of the existing road foot print and mowed cleared zone subject to detailed environmental assessment	Disturbance only permitted within the existing road footprint and existing disturbed area (ie, road verge and mowed clearzone if present). Disturbance outside of the existing road foot print and mowed cleared zone subject to environmental assessment	No special requirements
Ancillary works (stockpile sites, machinery	No new works recommended	No new works recommended	Permissible

Activity	HCV Roadsides	MCV Roadsides	LCV Roadsides
parking)			
Public utilities (water, electricity, phone, footpath)	Not recommended without detailed environmental assessment	Permissible Retain existing vegetation and utilise existing disturbed/degraded areas Revegetate impact areas	Permissible
Firewood collection	Not recommended	Not recommended	Not recommended
Grazing	Not recommended	Permissible for travelling stock and when compatible with management aims (eg weed control, hazard reduction). Avoid camping and corralling Avoid during spring seeding and heavy rain periods	Permissible
Weed control	Minimal impact methods including spot hand spraying, selective herbicide use, hand removal, controlled burning	Minimal impact methods including spot hand spraying, selective herbicide use, hand removal, controlled burning, light grazing	Permissible

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10 APPENDICES

APPENDIX 1 – QUALIFICATIONS AND EXPERIENCE OF PERSONNEL

Name and Qualifications	Experience
Steve Sass B.App.Sci (Env.Sci) (Hons) Director / Principal Ecologist Certified Environmental Practitioner, EIANZ Member, Ecological Consultants Association of NSW Member, Australian Society of Herpetologists	Steve is a highly experienced Ecologist / Herpetologist having undertaken hundreds of terrestrial and aquatic ecological surveys and assessments across Australia since 1992. He has an in-depth working knowledge of environmental and biodiversity legislation across all states and territories which allows him to provide detailed and accurate assessments and formulate practical solutions to clients and specific projects on a case-by-case basis. Steve is a past Councillor of the Ecological Consultants Association of NSW. Steve was recently invited by OEH to become a sitting member of a team to develop Priority Action Statements for a number of species listed as Endangered under the NSW *Threatened Species Conservation Act 1995*. Previous and current research holds Steve in high regard within both the scientific and ecological consultants' community. To date, Steve has published, submitted or has in preparation, twenty-four manuscripts within peer-reviewed scientific journals, many of which are related to threatened reptile species survey, monitoring or management. Steve has extensive experience in southern NSW and more specifically in the South West Slopes region. Over the past eight years, he has completed or provided specialist biodiversity advice to more than 500 environmental assessments for projects such as residential and industrial developments, highway upgrades and telecommunications, water, sewerage, energy, mining and electricity network infrastructure projects. Recently, Steve completed a Preliminary Biodiversity Investigation (PBI) along the full length of Gocup Road and Targeted Threatened Species Investigations (TSI) along selected sections of Gocup Road (including the study area) on behalf of Roads and Maritime. This included the mapping and condition ranking of vegetation communities, threatened ecological communities, aquatic and terrestrial fauna habitats and targeted threatened flora and fauna surveys. Steve is the Principal Ecologist of EnviroKey. For the BIA, he was the primary author.
Joshua Wellington B. Sc (Environmental) Botanist	Joshua is an experienced Botanist and Field Ecologist having completed surveys in NSW, QLD and VIC since 2008. In the field, Joshua's botanical skills make him a valuable part of the ecological impact assessment team. He is highly conversant with the flora and vegetation communities of NSW and Victoria but his knowledge of plant families and genera enable him to undertake botanical surveys in all states of Australia. Joshua's experience includes the field assessment and reporting for Review of Environmental Factors and Environmental Management Plans for various infrastructure projects within government and private industry. For this study, Joshua carried out some of the flora identification.

Name and Qualifications	Experience
Mark Harris B.App.Sci (Env Res Mgt) Senior Botanist / GIS Analyst Member, Ecological Consultants Association of NSW Biobanking Assessor, OEH	Mark is a highly experienced Botanist having undertaken flora surveys across eastern and central Australia and has more than 12 years' experience in Biodiversity Assessment and Planning. Mark has extensive experience with the flora and vegetation communities of the region confirmed by his two year tenure with the State-wide Native Vegetation Mapping Project and his engagement by the Murray CMA in a landcare facilitation role at Holbrook. His expertise in the flora and vegetation communities of the NSW south west slopes including condition assessments resulted in Mark becoming accredited as a Biobanking Assessor (Accred. No. 0062) by the NSW Office of Environment & Heritage. Mark completed the vegetation community and threatened ecological community mapping within the PBI. Mark completed the GIS mapping contained within this report given his extensive experience in ArcGIS and mapping of infrastructure and development projects.
Linda Sass B. Gn.St (Sci) (on-going), B.A, Dip. Ed (Sec) Director / Senior Ecologist Member, Ecological Consultants Association of NSW (ECA)	Linda is an experienced ecologist having conducted flora and fauna surveys across NSW over the past 8 years. Linda has extensive experience with the flora and fauna of southern and western NSW. In recent years, she has completed flora surveys for a proposed water pipeline in western NSW, a biodiversity study of an existing mining operation on the Cobar Peneplain, and as part of an REF for the proposed Quidong reconstruction along Gocup Road. Linda conducted an internal review of the BIA.

APPENDIX 2 – PROTECTED MATTERS SEARCH TOOL RESULTS

APPENDIX 3 – NOXIOUS WEED DECLARATIONS

APPENDIX 4 – CONSERVATION VALUE BY SITE

Name	Conservation Value
Site Assessment 1	HIGH
Site Assessment 2	HIGH
Site Assessment 3	LOW
Site Assessment 4	HIGH
Site Assessment 5	MEDIUM
Site Assessment 6	LOW
Site Assessment 7	HIGH
Site Assessment 8	LOW
Site Assessment 9	HIGH
Site Assessment 10	MEDIUM
Site Assessment 11	HIGH
Site Assessment 12	HIGH
Site Assessment 13	HIGH
Site Assessment 14	MEDIUM
Site Assessment 15	LOW
Site Assessment 16	LOW
Site Assessment 17	HIGH
Site Assessment 18	HIGH
Site Assessment 19	HIGH
Site Assessment 20	HIGH
Site Assessment 21	HIGH
Site Assessment 22	HIGH
Site Assessment 23	LOW
Site Assessment 24	MEDIUM
Site Assessment 25	LOW
Site Assessment 26	LOW
Site Assessment 27	LOW
Site Assessment 28	
Site Assessment 29	LOW
Site Assessment 30	LOW
Site Assessment 31	LOW
Site Assessment 32	LOW

Name	Conservation Value
Site Assessment 33	LOW
Site Assessment 34	LOW
Site Assessment 35	MEDIUM
Site Assessment 36	HIGH
Site Assessment 37	HIGH
Site Assessment 38	HIGH
Site Assessment 39	HIGH
Site Assessment 40	HIGH
Site Assessment 41	HIGH
Site Assessment 42	HIGH
Site Assessment 43	HIGH
Site Assessment 44	HIGH
Site Assessment 45	HIGH
Site Assessment 46	MEDIUM
Site Assessment 47	HIGH
Site Assessment 48	HIGH
Site Assessment 49	LOW
Site Assessment 50	HIGH
Site Assessment 51	HIGH
Site Assessment 52	HIGH
Site Assessment 53	HIGH
Site Assessment 54	HIGH
Site Assessment 55	MEDIUM
Site Assessment 56	HIGH
Site Assessment 57	HIGH
Site Assessment 58	HIGH
Site Assessment 59	HIGH
Site Assessment 60	HIGH
Site Assessment 61	MEDIUM
Site Assessment 62	HIGH
Site Assessment 63	HIGH
Site Assessment 64	HIGH

Name	Conservation Value
Site Assessment 65	HIGH
Site Assessment 66	HIGH
Site Assessment 67	HIGH
Site Assessment 68	MEDIUM
Site Assessment 69	MEDIUM
Site Assessment 70	HIGH
Site Assessment 71	HIGH
Site Assessment 72	HIGH
Site Assessment 73	MEDIUM
Site Assessment 74	MEDIUM
Site Assessment 75	MEDIUM
Site Assessment 76	MEDIUM
Site Assessment 77	HIGH
Site Assessment 78	HIGH
Site Assessment 79	MEDIUM
Site Assessment 80	HIGH
Site Assessment 81	MEDIUM
Site Assessment 82	LOW
Site Assessment 83	LOW
Site Assessment 84	HIGH
Site Assessment 85	LOW
Site Assessment 86	LOW
Site Assessment 87	MEDIUM
Site Assessment 88	HIGH
Site Assessment 89	LOW
Site Assessment 90	LOW
Site Assessment 91	MEDIUM
Site Assessment 92	LOW
Site Assessment 93	LOW
Site Assessment 94	MEDIUM
Site Assessment 95	MEDIUM
Site Assessment 96	MEDIUM

Name	Conservation Value
Site Assessment 97	MEDIUM
Site Assessment 98	LOW
Site Assessment 99	LOW
Site Assessment 100	HIGH
Site Assessment 101	HIGH
Site Assessment 102	LOW
Site Assessment 103	HIGH
Site Assessment 104	MEDIUM
Site Assessment 105	MEDIUM
Site Assessment 106	HIGH
Site Assessment 107	LOW
Site Assessment 108	HIGH
Site Assessment 109	HIGH
Site Assessment 110	HIGH
Site Assessment 111	HIGH
Site Assessment 112	HIGH
Site Assessment 113	HIGH
Site Assessment 114	HIGH
Site Assessment 115	HIGH
Site Assessment 116	HIGH
Site Assessment 117	HIGH
Site Assessment 118	MEDIUM
Site Assessment 119	LOW
Site Assessment 120	HIGH
Site Assessment 121	HIGH
Site Assessment 122	LOW
Site Assessment 123	HIGH
Site Assessment 124	MEDIUM
Site Assessment 125	MEDIUM
Site Assessment 126	MEDIUM
Site Assessment 127	MEDIUM
Site Assessment 128	HIGH

Name	Conservation Value
Site Assessment 129	MEDIUM
Site Assessment 130	LOW
Site Assessment 131	MEDIUM
Site Assessment 132	HIGH
Site Assessment 133	LOW
Site Assessment 134	LOW
Site Assessment 135	HIGH
Site Assessment 136	HIGH
Site Assessment 137	HIGH
Site Assessment 138	HIGH
Site Assessment 139	HIGH
Site Assessment 140	MEDIUM
Site Assessment 141	HIGH
Site Assessment 142	HIGH
Site Assessment 143	LOW
Site Assessment 144	MEDIUM
Site Assessment 145	MEDIUM
Site Assessment 146	HIGH
Site Assessment 147	HIGH
Site Assessment 148	HIGH
Site Assessment 149	HIGH
Site Assessment 150	HIGH
Site Assessment 151	HIGH
Site Assessment 152	HIGH
Site Assessment 153	HIGH
Site Assessment 154	MEDIUM
Site Assessment 155	HIGH
Site Assessment 156	LOW
Site Assessment 157	LOW
Site Assessment 158	HIGH
Site Assessment 159	MEDIUM
Site Assessment 160	HIGH

Name	Conservation Value
Site Assessment 161	HIGH
Site Assessment 162	HIGH
Site Assessment 163	HIGH
Site Assessment 164	HIGH
Site Assessment 165	HIGH
Site Assessment 166	HIGH
Site Assessment 167	HIGH
Site Assessment 168	HIGH
Site Assessment 169	HIGH
Site Assessment 170	HIGH
Site Assessment 171	HGH
Site Assessment 172	HIGH
Site Assessment 173	HIGH
Site Assessment 174	MEDIUM
Site Assessment 175	HIGH
Site Assessment 176	LOW
Site Assessment 177	LOW
Site Assessment 178	LOW
Site Assessment 179	MEDIUM
Site Assessment 180	MEDIUM
Site Assessment 181	HIGH
Site Assessment 182	HIGH
Site Assessment 183	LOW
Site Assessment 184	LOW
Site Assessment 185	HIGH
Site Assessment 186	HIGH
Site Assessment 187	HIGH
Site Assessment 188	HIGH
Site Assessment 189	LOW
Site Assessment 190	HIGH
Site Assessment 191	LOW
Site Assessment 192	HIGH

Name	Conservation Value
Site Assessment 193	MEDIUM
Site Assessment 194	HIGH
Site Assessment 195	MEDIUM
Site Assessment 196	HIGH
Site Assessment 197	LOW
Site Assessment 198	HIGH
Site Assessment 199	LOW
Site Assessment 200	HIGH
Site Assessment 201	MEDIUM
Site Assessment 202	HIGH
Site Assessment 203	MEDIUM
Site Assessment 204	MEDIUM
Site Assessment 205	LOW
Site Assessment 206	LOW
Site Assessment 207	HIGH
Site Assessment 208	MEDIUM
Site Assessment 209	HIGH
Site Assessment 210	MEDIUM
Site Assessment 211	LOW
Site Assessment 212	LOW
Site Assessment 213	LOW
Site Assessment 214	MEDIUM
Site Assessment 215	HIGH
Site Assessment 216	MEDIUM
Site Assessment 217	MEDIUM
Site Assessment 218	LOW
Site Assessment 219	HIGH
Site Assessment 220	HIGH
Site Assessment 221	HIGH
Site Assessment 222	HIGH
Site Assessment 223	LOW
Site Assessment 224	LOW

Name	Conservation Value
Site Assessment 225	HIGH
Site Assessment 226	HIGH
Site Assessment 227	MEDIUM
Site Assessment 228	LOW
Site Assessment 229	LOW
Site Assessment 230	HIGH
Site Assessment 231	MEDIUM
Site Assessment 232	MEDIUM
Site Assessment 233	MEDIUM
Site Assessment 234	LOW
Site Assessment 235	?
Site Assessment 236	HIGH
Site Assessment 237	HIGH
Site Assessment 238	HIGH
Site Assessment 239	LOW
Site Assessment 240	HIGH
Site Assessment 241	MEDIUM
Site Assessment 242	HIGH
Site Assessment 243	HIGH
Site Assessment 244	MEDIUM
Site Assessment 245	HIGH
Site Assessment 246	HIGH
Site Assessment 247	HIGH
Site Assessment 248	HIGH
Site Assessment 249	MEDIUM
Site Assessment 250	HIGH
Site Assessment 251	LOW
Site Assessment 252	LOW
Site Assessment 253	HIGH
Site Assessment 254	MEDIUM
Site Assessment 255	HIGH
Site Assessment 256	LOW

Name	Conservation Value
Site Assessment 257	LOW
Site Assessment 258	HIGH
Site Assessment 259	HIGH
Site Assessment 260	HIGH
Site Assessment 261	HIGH
Site Assessment 262	MEDIUM
Site Assessment 263	MEDIUM
Site Assessment 264	HIGH
Site Assessment 265	MEDIUM
Site Assessment 266	MEDIUM
Site Assessment 267	MEDIUM
Site Assessment 268	HIGH
Site Assessment 269	HIGH
Site Assessment 270	HIGH
Site Assessment 271	HIGH
Site Assessment 272	HIGH
Site Assessment 273	HIGH
Site Assessment 274	HIGH
Site Assessment 275	LOW
Site Assessment 276	HIGH
Site Assessment 277	LOW
Site Assessment 278	LOW
Site Assessment 279	LOW
Site Assessment 280	HIGH
Site Assessment 281	HIGH
Site Assessment 282	HIGH
Site Assessment 283	HIGH
Site Assessment 284	HIGH
Site Assessment 285	HIGH
Site Assessment 286	HIGH
Site Assessment 287	HIGH
Site Assessment 288	MEDIUM

Name	Conservation Value
Site Assessment 289	HIGH
Site Assessment 290	LOW
Site Assessment 291	HIGH
Site Assessment 292	HIGH
Site Assessment 293	HIGH
Site Assessment 294	MEDIUM
Site Assessment 295	HIGH
Site Assessment 296	MEDIUM
Site Assessment 297	MEDIUM
Site Assessment 298	HIGH
Site Assessment 299	HIGH
Site Assessment 300	LOW
Site Assessment 301	LOW
Site Assessment 302	HIGH
Site Assessment 303	LOW
Site Assessment 304	HIGH
Site Assessment 305	MEDIUM
Site Assessment 306	LOW
Site Assessment 307	LOW
Site Assessment 308	?
Site Assessment 309	?
Site Assessment 310	HIGH

APPENDIX 5 – CONSERVATION VALUE BY ROAD

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
		km	km	%	km	%	km	%	km	
ADAMS STREET	No	0.931	0.931			23.54	0.219	76.46	0.711	
ADELONG CEMETERY ROAD	No	0.790	0.790					100.00	0.790	
ADELONG FALLS ROAD	No	0.425	0.425			100.00	0.425			
ADELONG RACECOURSE ROAD	No	0.656	0.656	100.00	0.656					
ALBURY STREET	No	0.637	0.637	72.51	0.462	27.49	0.175			
ALFRED STREET	No	1.002	1.002			60.94	0.611	39.06	0.391	
ALLAWAH ROAD	No	1.382	1.382					100.00	1.382	
ALPINE WAY	Yes	15.577	31.153	3.65	1.138	4.72	1.471	91.63	28.545	
ALTA VILLA ROAD	No	0.545	0.545			41.92	0.228	58.08	0.316	
ARDROSSAN ROAD	No	4.334	4.334			10.84	0.470	89.16	3.864	
ARGALONG POST OFFICE ROAD	No	1.594	1.594	100.00	1.594					
ARGALONG ROAD	No	19.946	19.946	33.39	6.660	40.19	8.016	26.42	5.270	
ARRAGONS ROAD	No	0.914	0.914	84.01	0.768	15.99	0.146			
BACK ARRAGONS ROAD	No	0.727	0.727			47.19	0.343	52.81	0.384	
BACK KUNAMA ROAD	No	6.253	6.253	87.89	5.496	12.11	0.757			
BACK NACKI CREEK ROAD	No	4.304	4.304					100.00	4.304	
BACK SANDY GULLY ROAD	No	3.709	3.709	43.53	1.615	11.68	0.433	44.78	1.661	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
BAGO FOREST ROAD	No	4.827	4.827	100.00	4.827					
BANGADANG ROAD	No	2.391	2.391	73.19	1.750	26.81	0.641			
BASSETTS LANE	No	0.634	0.634					100.00	0.634	
BATLOW CEMETERY ROAD	No	1.522	1.522			56.72	0.863	43.28	0.659	
BATLOW ROAD	Yes	60.345	120.691	35.90	43.328	17.24	20.802	46.86	56.560	
BELLS CREEK ROAD	No	0.869	0.869	72.31	0.629			27.69	0.241	
BIG HILL FLAT ROAD	No	1.869	1.869					100.00	1.869	
BLACK CREEK ROAD	No	1.511	1.511	8.48	0.128			91.52	1.383	
BLACK RANGE ROAD	No	2.896	2.896	55.49	1.607	32.74	0.948	11.77	0.341	
BLUEBERRY FARM ROAD	No	2.576	2.576					100.00	2.576	
BOAT RAMP ROAD	No	0.853	0.853					100.00	0.853	
BOGGY CREEK ROAD	No	2.523	2.523	5.43	0.137	47.37	1.195	47.20	1.191	
BOGONG STREET	No	2.153	2.153	34.06	0.733	10.97	0.236	54.97	1.184	
BOMBOWLEE AVENUE	Part of Road	2.065	2.476	6.45	0.160			93.55	2.316	
BOMBOWLEE CREEK ROAD	Yes	10.906	21.812	6.51	1.419	10.15	2.214	83.34	18.179	
BOOTHS ROAD	No	2.591	2.591					100.00	2.591	
BOUNDARY STREET	No	0.886	0.886					100.00	0.886	
BOWMANS LANE	No	0.724	0.724					100.00	0.724	
BRADLEYS DRIVE	No	2.398	2.398	100.00	2.398					

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
BRAY STREET	No	0.554	0.554			73.21	0.405	26.79	0.148	
BRINDABELLA ROAD	Part of Road	27.752	28.024	98.34	27.560	1.33	0.374	0.32	0.090	
BRINDABELLA VALLEY ROAD	No	7.937	7.937	33.35	2.647	33.52	2.660	33.13	2.630	
BROADLEAF PARK ROAD	Yes	10.296	20.592	45.34	9.337	7.99	1.644	46.67	9.610	
BRUMAU ROAD	No	0.266	0.266					100.00	0.266	
BRUNGLE CREEK ROAD	No	17.405	17.405	11.95	2.081	1.87	0.326	86.17	14.998	
BRUNGLE ROAD	Yes	17.735	35.465	11.14	3.951	22.61	8.018	66.25	23.496	
BRUNGLE SCHOOL ROAD	No	0.234	0.234			100.00	0.234			
BURNSIDE ROAD	No	1.546	1.546					100.00	1.546	
BUTLERS LANE	No	2.769	2.769					100.00	2.769	
BYATT STREET	No	0.786	0.786					100.00	0.786	
CALIFAT ROAD	No	6.965	6.965	13.12	0.914	10.44	0.727	76.44	5.324	
CAMDEN PARK ROAD EAST	No	1.368	1.368	38.99	0.533	34.16	0.467	26.85	0.367	
CAMDEN PARK ROAD WEST	No	1.081	1.081	100.00	1.081					
CEMETERY ROAD	No	0.439	0.439	38.54	0.169	21.59	0.095	39.87	0.175	
CHAFFEY CLOSE	No	0.313	0.313					100.00	0.313	
CHISHOLM STREET	No	0.475	0.475					100.00	0.475	
CHURCHILL STREET	No	0.094	0.094					100.00	0.094	
CLARKES HILL ROAD	No	1.143	1.143	34.38	0.393	65.62	0.750			

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
CLOVERDALE ROAD	No	0.535	0.535			54.30	0.291	45.70	0.245	
COCKATOO ROAD	No	1.887	1.887	20.90	0.394	7.81	0.147	71.29	1.345	
COPPABELLA ROAD	No	8.061	8.061	23.01	1.855	26.23	2.115	50.75	4.091	
COTTAMS ROAD	No	2.212	2.212			45.74	1.012	54.26	1.200	
COURABYRA ROAD	Yes	12.904	25.807	36.51	9.421	12.57	3.244	50.92	13.142	
CRACE LANE	No	7.942	7.942	73.54	5.841	24.52	1.947	1.94	0.154	
CRAVEN ROAD	No	4.629	4.629	9.57	0.443	52.38	2.424	38.05	1.761	
DARBALARA ROAD	No	1.179	1.179					100.00	1.179	
DEANS ROAD	No	1.673	1.673					100.00	1.673	
DOG TREE ROAD	No	2.458	2.458	21.89	0.538	9.10	0.224	69.02	1.696	
DOWELLS LANE	Yes	0.316	0.632					100.00	0.632	
DOWNFALL ROAD	No	0.395	0.395	100.00	0.395					
DUNNS ROAD	No	3.191	3.191	25.31	0.808	14.94	0.477	59.76	1.907	
EAST BLOWERING ROAD	No	4.956	4.759	88.98	4.235			11.02	0.525	0.196
EAST BURRA CREEK ROAD	No	2.964	2.964					100.00	2.964	
EAST GILMORE ROAD	No	14.349	14.349	5.61	0.806			94.39	13.544	
EAST GRAHAMSTOWN ROAD	No	2.455	2.455					100.00	2.455	
EAST OURNIE CREEK ROAD	No	2.809	2.809	6.51	0.183			93.49	2.626	
ELLERSLIE ROAD	No	12.600	12.600	0.99	0.125	22.56	2.843	76.44	9.632	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
ELLERSLIE WOOLSHED ROAD	No	5.549	5.549	44.60	2.475	12.43	0.690	42.96	2.384	
ELLIOTT WAY	Yes	21.179	42.357	95.73	40.547	2.85	1.208	1.42	0.603	
FAIRVIEW ROAD	No	13.245	13.245	11.83	1.568	13.09	1.733	75.08	9.945	
FERGUSONS ROAD	No	0.822	0.822			22.88	0.188	77.12	0.634	
FITZGERALDS ROAD	No	0.504	0.504			100.00	0.504			
FOLEYS LANE	No	1.139	1.139					100.00	1.139	
FOORDS LANE	No	1.034	1.034					100.00	1.034	
FOREST ROAD	No	1.552	1.552					100.00	1.552	
FORSTERS ROAD	No	1.292	1.292					100.00	1.292	
GADARA LANE	No	2.777	2.777			44.76	1.243	55.24	1.534	
GADARA ROAD	No	7.368	7.368			19.52	1.439	80.48	5.930	
GEDYES ROAD	No	0.915	0.915			45.85	0.419	54.15	0.495	
GILMORE MILL ROAD	No	0.520	0.520					100.00	0.520	
GLENROY HILLS EAST ROAD	No	0.378	0.378					100.00	0.378	
GLENROY HILLS ROAD	No	2.240	2.240					100.00	2.240	
GLENROY HILLS WEST ROAD	No	0.797	0.797					100.00	0.797	
GLENROY LAKE ROAD	No	2.716	2.716	100.00	2.716					
GLENROY ROAD	No	1.251	1.251	100.00	1.251					
GOCUP FARMS ROAD	No	2.388	2.388	49.44	1.181	50.56	1.207			

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
GOCUP ROAD	Yes	16.364	32.728	24.32	7.959	19.54	6.394	56.15	18.375	
GOLDEN GROVE ROAD	No	0.550	0.550	76.46	0.420	23.54	0.129			
GOLDEN GULLY ROAD	No	0.638	0.638					100.00	0.638	
GOOBARRAGANDRA ROAD	No	18.019	18.019	86.72	15.626	10.57	1.905	2.71	0.489	
GRADYS ROAD	No	0.532	0.532			100.00	0.532			
GRAHAMSTOWN ROAD	Yes	13.563	27.127			6.50	1.763	93.50	25.363	
GREENHILLS ACCESS ROAD	No	3.547	3.547			13.34	0.473	86.66	3.074	
GREENHILLS ROAD	No	3.301	3.301	85.70	2.829			14.30	0.472	
GREVILLEA PLACE	No	0.119	0.119			100.00	0.119			
HARGREAVES CLOSE	No	0.649	0.649					100.00	0.649	
HARROW STREET	No	0.327	0.327					100.00	0.327	
HEATLEYS ROAD	No	0.707	0.707					100.00	0.707	
HERRINGS ROAD	No	0.885	0.885					100.00	0.885	
HILLTOP ROAD	No	1.231	1.231	51.03	0.628	29.69	0.365	19.28	0.237	
HILLTOPS ROAD	No	0.569	0.569					100.00	0.569	
HOLBROOK ROAD	Yes	0.503	1.006	13.88	0.140			86.12	0.867	
HONEYSUCKLE LANE	No	0.641	0.641			100.00	0.641			
HORSE CREEK ROAD	No	4.050	4.050	2.18	0.088			97.82	3.962	
IKES MOUNTAIN ROAD	No	1.653	1.653	30.86	0.510	26.99	0.446	42.15	0.697	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
INDI NORTH ROAD	No	2.710	2.710					100.00	2.710	
INDI ROAD	No	8.354	8.354	10.57	0.883			89.43	7.471	
INDI SOUTH ROAD	No	0.404	0.404					100.00	0.404	
JARVIS LANE	No	0.752	0.752			100.00	0.752			
JEPSEN AVENUE	No	0.591	0.591					100.00	0.591	
JINGELLIC ROAD	Yes	40.608	81.215	30.74	24.964	2.83	2.297	66.43	53.954	
JONATHONS CREEK ROAD	No	1.125	1.125	15.55	0.175	8.55	0.096	75.90	0.854	
KEENANS ROAD	No	1.587	1.587			5.96	0.095	94.04	1.492	
KELLS LANE	No	1.416	1.416	100.00	1.416					
KEOGHS ROAD	No	1.925	1.925	3.69	0.071	34.14	0.657	62.18	1.197	
KILLARNEY ROAD	No	0.223	0.223	100.00	0.223					
KILLIMICAT STREET	No	0.389	0.389					100.00	0.389	
KUNAMA ROAD	No	1.201	1.201	35.58	0.427			64.42	0.774	
LACMALAC ROAD	Yes	10.181	20.362	3.10	0.632	18.61	3.789	78.29	15.941	
LITTLE HORSE CREEK ROAD	No	1.782	1.782					100.00	1.782	
LITTLE RIVER ROAD	No	8.783	8.783	36.01	3.163			63.99	5.620	
LOWER BAGO ROAD	Part of Road	14.420	24.742	33.05	8.176	14.11	3.490	52.85	13.076	
LOWER BOGGY CREEK ROAD	No	1.254	1.254	3.98	0.050			96.02	1.204	
LOWER MANNUS CREEK ROAD	No	2.742	2.742					100.00	2.742	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
LOWTHERS LANE	No	2.056	2.056	44.74	0.920	55.26	1.136			
LYNE STREET	No	0.775	0.775	12.28	0.095			87.72	0.680	
M2 POWER STATION ROAD	No	2.532	2.532					100.00	2.532	
MACKS ROAD	No	1.207	1.207					100.00	1.207	
MAGINNITYS GAP ROAD	No	10.127	10.127	93.47	9.466			6.53	0.661	
MANNUS CREEK BRANCH ROAD	No	2.194	2.194					100.00	2.194	
MANNUS CREEK ROAD	No	6.243	6.243					100.00	6.243	
MANNUS FLATS ROAD	No	3.722	3.722					100.00	3.722	
MANNUS FOREST ROAD	No	0.936	0.936	24.66	0.231	75.34	0.705			
MANNUS GLENROY ROAD	Yes	9.144	18.289	18.48	3.380	14.88	2.722	66.64	12.187	
MANNUS LAKE ROAD	No	5.944	5.944					100.00	5.944	
MANNUS WEST ROAD	No	2.797	2.797					100.00	2.797	
MARAGLE CREEK ROAD	No	7.445	7.445	33.23	2.474			66.77	4.971	
MARAGLE ROAD	Part of Road	16.577	27.499	7.67	2.108	10.73	2.949	81.61	22.441	
MASONS HILL ROAD	Yes	1.607	3.214	35.49	1.141	31.29	1.006	33.23	1.068	
MATHEWS ROAD	No	0.022	0.022					100.00	0.022	
MATTHEWS ROAD	No	1.419	1.419			53.94	0.765	46.06	0.654	
MCCLELLANDS LANE	No	0.652	0.652					100.00	0.652	
MCEACHERN LANE	No	1.106	1.106	100.00	1.106					

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
MCGRUERS ROAD	No	0.932	0.932			100.00	0.932			
MEADOW CREEK ROAD	No	2.840	2.840	37.35	1.061	47.64	1.353	15.01	0.426	
MERCURY LANE	No	0.222	0.222					100.00	0.222	
MILES FRANKLIN DRIVE	No	7.398	7.398	41.58	3.076	3.06	0.226	55.37	4.096	
MILLERS ROAD	No	0.254	0.254					100.00	0.254	
MINES ROAD	No	1.038	1.038			62.55	0.649	37.45	0.389	
MINJARY ROAD	No	1.005	1.005			100.00	1.005			
MOODYS HILL ROAD	No	4.807	4.807	47.32	2.275			52.68	2.533	
MORGANS RESERVE ROAD	No	4.077	4.077			100.00	4.077			
MOUNT GARLAND ROAD	No	5.730	5.730					100.00	5.730	
MOUNT HOREB ROAD	No	1.249	1.249					100.00	1.249	
MUNDEROO CREEK ROAD	No	0.268	0.268					100.00	0.268	
MUNDEROO NORTH ROAD	No	4.016	4.016	69.81	2.804	18.88	0.758	11.30	0.454	
MUNDEROO OURNIE ROAD	Yes	19.660	39.321	24.16	9.502	5.05	1.987	70.78	27.832	
MUNDEROO ROAD	No	13.799	13.799	71.81	9.910			28.19	3.890	
MUNDONGO ROAD	No	2.244	2.244			100.00	2.244			
MURRAYS CROSSING ROAD	No	3.111	3.111	29.00	0.902	38.89	1.210	32.11	0.999	
MURRAYS ROAD	No	1.478	1.478	46.91	0.693	53.09	0.785			
NEYLANS LANE	No	0.644	0.644					100.00	0.644	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
NIMBO ROAD	No	3.670	3.670	19.37	0.711	40.35	1.481	40.28	1.479	
OLD GUNDAGAI ROAD	No	2.904	2.904			10.10	0.293	89.90	2.611	
OLD TARADALE ROAD	No	13.254	13.254	18.51	2.454	31.91	4.230	49.58	6.571	
OLD TUMBARUMBA ROAD	No	11.648	11.648	100.00	11.648					
ORRS LANE	No	0.619	0.619					100.00	0.619	
OURNIE HILL ROAD	No	1.353	1.353	44.90	0.607	55.10	0.746			
PADDYS FLATS TRACK	No	1.047	1.047	78.42	0.821			21.58	0.226	
PADDYS RIVER FALLS ROAD	No	1.826	1.826	60.21	1.099	39.79	0.726			
PEARCES ROAD	No	0.997	0.997			56.62	0.564	43.38	0.432	
PEELS CREEK ROAD	No	1.100	1.100			47.91	0.527	52.09	0.573	
PERCIVALS LANE	No	0.335	0.335			37.51	0.126	62.49	0.209	
POSSUM POINT ROAD	No	6.348	6.348					100.00	6.348	
POSSUM POINT STATION ROAD	No	1.478	1.478			14.15	0.209	85.85	1.269	
POSTHUMERS ROAD	No	2.255	2.255					100.00	2.255	
POUND CREEK ROAD	No	4.214	4.214			43.81	1.846	56.19	2.368	
POWER STREET	No	1.094	1.094	48.98	0.536			51.02	0.558	
QUARRY ROAD	No	0.566	0.566	100.00	0.566					
QUIDONG ROAD	No	3.079	3.079	26.13	0.804			73.87	2.275	
QUILTYS LANE	No	0.709	0.709	32.74	0.232	19.31	0.137	47.95	0.340	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
RAMSAY ROAD	No	2.051	2.051	35.80	0.734			64.20	1.317	
RED HILL ROAD	No	4.173	4.173			15.09	0.630	84.91	3.543	
REEF HILL LANE	No	0.365	0.365					100.00	0.365	
REKA ROAD	No	4.810	4.810	70.66	3.399	20.68	0.995	8.65	0.416	
RESERVOIR LANE	No	0.380	0.380			100.00	0.380			
RIFLE RANGE ROAD	No	0.409	0.409			100.00	0.409			
RIMMERS LANE	No	0.465	0.465					100.00	0.465	
RIVER ROAD	No	32.752	32.752	11.71	3.834	14.34	4.697	73.95	24.221	
RIVERCREST ROAD	No	0.973	0.973	100.00	0.973					
ROCKY GULLY ROAD	No	1.562	1.562			50.36	0.787	49.64	0.775	
ROSELLA LANE	No	0.101	0.101			100.00	0.101			
ROSEWOOD HILLS ROAD	No	1.116	1.116			35.65	0.398	64.35	0.718	
RYANS ROAD	No	0.529	0.529					100.00	0.529	
SALEYARDS ROAD	No	2.331	2.331	100.00	2.331					
SALEYARDS SPUR ROAD	No	0.236	0.236	100.00	0.236					
SANDY GULLY ROAD	No	4.325	4.325			58.05	2.511	41.95	1.815	
SCHOOL LANE	No	0.176	0.176					100.00	0.176	
SHARPS CREEK ROAD	No	7.917	7.917					100.00	7.917	
SHARPS ROAD	No	2.000	2.000					100.00	2.000	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
SMARTS ROAD	No	2.441	2.441			100.00	2.441			
SPRING CREEK ROAD	No	1.345	1.345					100.00	1.345	
STANTONS ROAD	No	1.516	1.516					100.00	1.516	
STEWARTS ROAD	No	3.473	3.473	23.43	0.813	53.14	1.845	23.43	0.814	
STURT CLOSE	No	0.664	0.664					100.00	0.664	
SWAMPY PLAINS CREEK ROAD	Yes	4.797	9.593	1.70	0.163	2.13	0.204	96.17	9.225	
TARADALE ROAD	Yes	16.217	32.434	25.82	8.373	16.83	5.458	57.35	18.602	
THE GLEN ROAD	No	0.717	0.717					100.00	0.717	
TINTALDRA ROAD	No	9.242	9.242					100.00	9.242	
TODDS ROAD	No	0.616	0.616					100.00	0.616	
TOOMA ROAD	Yes	62.761	125.526	32.60	40.924	4.31	5.408	63.09	79.195	
TOWNSEND STREET	No	0.387	0.387					100.00	0.387	
TOWONG FLAT ROAD	No	1.443	1.443					100.00	1.443	
TOWONG ROAD	No	3.169	3.169					100.00	3.169	
TUMBARUMBA CREEK ROAD	No	4.141	4.141			15.57	0.645	84.43	3.496	
TUMBARUMBA ROAD	Yes	21.237	42.475	25.23	10.716	8.30	3.527	66.47	28.231	
TUMUT PLAINS ROAD	No	9.105	9.105	7.71	0.702			92.29	8.403	
TWOMEYS LANE	No	0.899	0.899					100.00	0.899	
UNION JACK ROAD	No	1.944	1.944	19.88	0.386	27.14	0.528	52.97	1.030	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
UPPER BOGGY CREEK ROAD	No	4.298	4.298	69.59	2.991	13.35	0.574	17.06	0.733	
WALLACE TRAIL ROAD	No	0.290	0.290					100.00	0.290	
WALLS CREEK ROAD	No	0.697	0.697	100.00	0.697					
WALLS CREEK ROAD EAST	No	0.260	0.260					100.00	0.260	
WALTEELA ROAD	No	13.109	13.109	8.19	1.074	12.68	1.662	79.13	10.373	
WATERFALL FARM ROAD	No	5.862	5.862	16.53	0.969	11.19	0.656	72.28	4.237	
WEBBS ROAD	No	3.046	3.046			54.51	1.660	45.49	1.386	
WEE JASPER ROAD	Yes	37.135	74.288	30.91	22.959	18.48	13.726	50.62	37.603	
WELAREGANG ROAD	No	13.888	13.888	8.66	1.202	0.87	0.121	90.47	12.565	
WELUMBA CREEK NORTH SPUR ROAD	No	0.751	0.751			45.00	0.338	55.00	0.413	
WELUMBA CREEK ROAD	No	9.986	9.986			14.34	1.432	85.66	8.554	
WELUMBA CREEK SOUTH SPUR ROAD	No	1.310	1.310			19.02	0.249	80.98	1.061	
WELUMBA HILL ROAD	No	2.517	2.517	10.67	0.268			89.33	2.248	
WEREBOLDERA ROAD	No	0.737	0.737					100.00	0.737	
WEST BLOWERING ROAD	No	4.044	4.044	50.92	2.059	22.33	0.903	26.75	1.082	
WEST BURRA CREEK ROAD	No	4.181	4.181			81.49	3.408	18.51	0.774	
WEST GILMORE ROAD	No	14.642	14.642	4.73	0.692			95.27	13.950	
WESTBROOK ROAD	No	6.391	6.391			35.42	2.264	64.58	4.128	

Road Name	Road Assessed Both Sides	Total Road Length	Total Road Length Assessed	High Conservation Value		Medium Conversation Value		Low Conservation Value		Not Assessed
WESTWOOD ROAD	No	5.968	5.968	6.15	0.367			93.85	5.601	
WHATMANS LANE	No	0.635	0.635	30.54	0.194			69.46	0.441	
WILLIGOBUNG MIDDLE SPUR ROAD	No	1.612	1.612	63.45	1.023	36.55	0.589			
WILLIGOBUNG NORTH SPUR ROAD	No	3.242	3.242	57.60	1.867			42.40	1.374	
WILLIGOBUNG ROAD	No	4.809	4.809	8.44	0.406	51.38	2.471	40.18	1.932	
WILLIGOBUNG SOUTH SPUR ROAD	No	1.646	1.646	42.87	0.705	32.58	0.536	24.55	0.404	
WILLOW SPRINGS ROAD	No	5.910	5.910			19.66	1.162	80.34	4.748	
WILLOWDEEN LANE	No	0.222	0.222					100.00	0.222	
WITHERS LANE	No	0.841	0.841					100.00	0.841	
WOLSELEY PARK ROAD	No	1.526	1.526			24.20	0.369	75.80	1.157	
WONDALGA ROAD	Yes	12.018	24.036	20.02	4.813	12.54	3.015	67.44	16.209	
WOODLEIGH ROAD	No	1.244	0.046			100.00	0.046			1.198
YAVEN CREEK ROAD	No	37.750	37.750	16.94	6.396	7.66	2.893	75.39	28.461	
YELLOWIN ROAD	No	1.315	1.315					100.00	1.315	
TOTAL		**1,215.341**	**1,650.944**	**27.88**	**460.221**	**12.58**	**207.628**	**59.55**	**983.095**	**1.395**

APPENDIX 6 – CONSERVATION VALUE MAPPING