




## GLEN INNES SEVERN COUNCIL Roadside Management Guidelines

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**GLEN INNES SEVERN COUNCIL**

**ROAD MANAGEMENT GUIDE**

**Compiled by Euan Belson (2002)**

**Updated by Ian Trow and Stringybark Ecological (2019)**



This guide was originally produced by Greening Australia North West NSW and Euan Belson (Severn Shire Council) in 2002. The current update was carried out by Ian Trow (Glen Innes Severn Council) and David Carr and Rachel Lawrence of Stringybark Ecological.

While reasonable care has been taken in preparing this report to ensure the information is true and correct, the authors give no assurance as to the accuracy of any information in this report.

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## **Acknowledgements**

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The original groundwork for this Roadside Management Report was undertaken with the greatest professionalism and dedication by Mr. Peter Croft in conjunction with the Glen Innes Group of the Australian Plant Society. All plates in the report are thanks to Peter's photographic talents. These images are much appreciated.

David Nixon, Guy Robinson and Max Woods made important contributions to the original report. Where property access was needed, we were most grateful for the assistance of landholders. We recognise the value provided by the NSW Roadside Assessment Council's guidelines and thank NSW National Parks and Wildlife Service for plant record data and GIS mapping.

Our thanks go to Greening Australia Northwest in Armidale and Euan Belson from the then Severn Shire Council for their efforts in producing the first edition of this report.

Finally, our thanks go to Stringybark Ecological for updating the report to the 2019 (2nd) edition. The 2019 update was supported by the Local Government NSW Council Roadside Reserve Environmental Grant program (CRR).

# 1 Introduction

## 1.1 Overview of the Glen Innes Severn Local Government Area

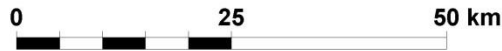
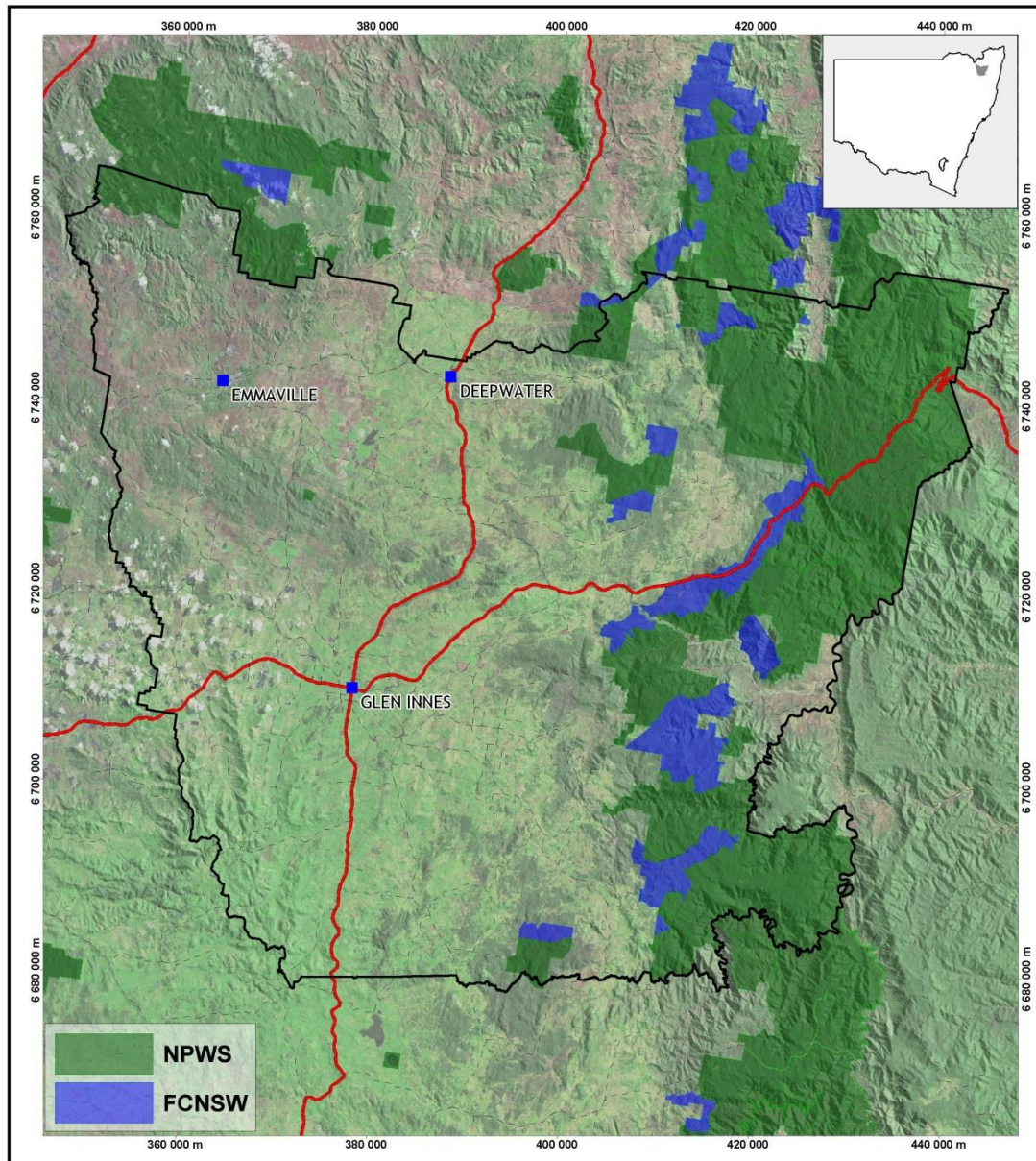
The Glen Innes Severn Local Government Area (LGA) covers approximately 557 sq. km. It encompasses an area from the escarpment in the east and extends towards the western extremity of the Northern Tablelands (Fig.1).

The Glen Innes Municipality was located roughly in the middle of the LGA occupying 6.7 sq.km. (1.2% of Glen Innes Severn LGA) and is the largest township in the area with a population of 6100. Other towns include Emmaville, Deepwater and Glencoe.

There are over 1200 km of road reserves and 165 individual roads within the Glen Innes Severn LGA.



# Glen Innes Severn Shire Council



Datum/Projection: GDA94/MGA56  
Plan Date: 11 MARCH 2019



**Figure 1** The Glen Innes Severn Local Government Area

### 1.1.1 Flora

The northeast region of NSW is one of the areas of highest botanical diversity in Australia. The varying topography, climate and geology have resulted in a diverse array of plant communities in the area, which include rainforest, moist open forest, dry open forest and woodland (Fig. 2). However, more than half of the Glen Innes Severn LGA (55.4%) has either been cleared or is disturbed (NVIS\_4, 2012).

Significant portions of valuable roadside vegetation are found throughout the Glen Innes Severn LGA. In the east there are many National Parks (including the Washpool-Gibraltar Range World Heritage Area). In other areas there are remnant patches of Box Gum Grassy Woodlands from three distinct vegetation communities. These are all Threatened Ecological Communities (TEC's). Details of these communities are in Appendix 1. Additionally, two distinct bands of vegetation form corridors around the Emmaville region, extending eastward to the Great Dividing Range. Near Glen Innes, a significant belt of remnant vegetation lies the south west of the township along Blue Hills and Black's Roads. By preserving vegetation along roadsides, the continuation of corridors for the preservation of native plants and animals is possible.

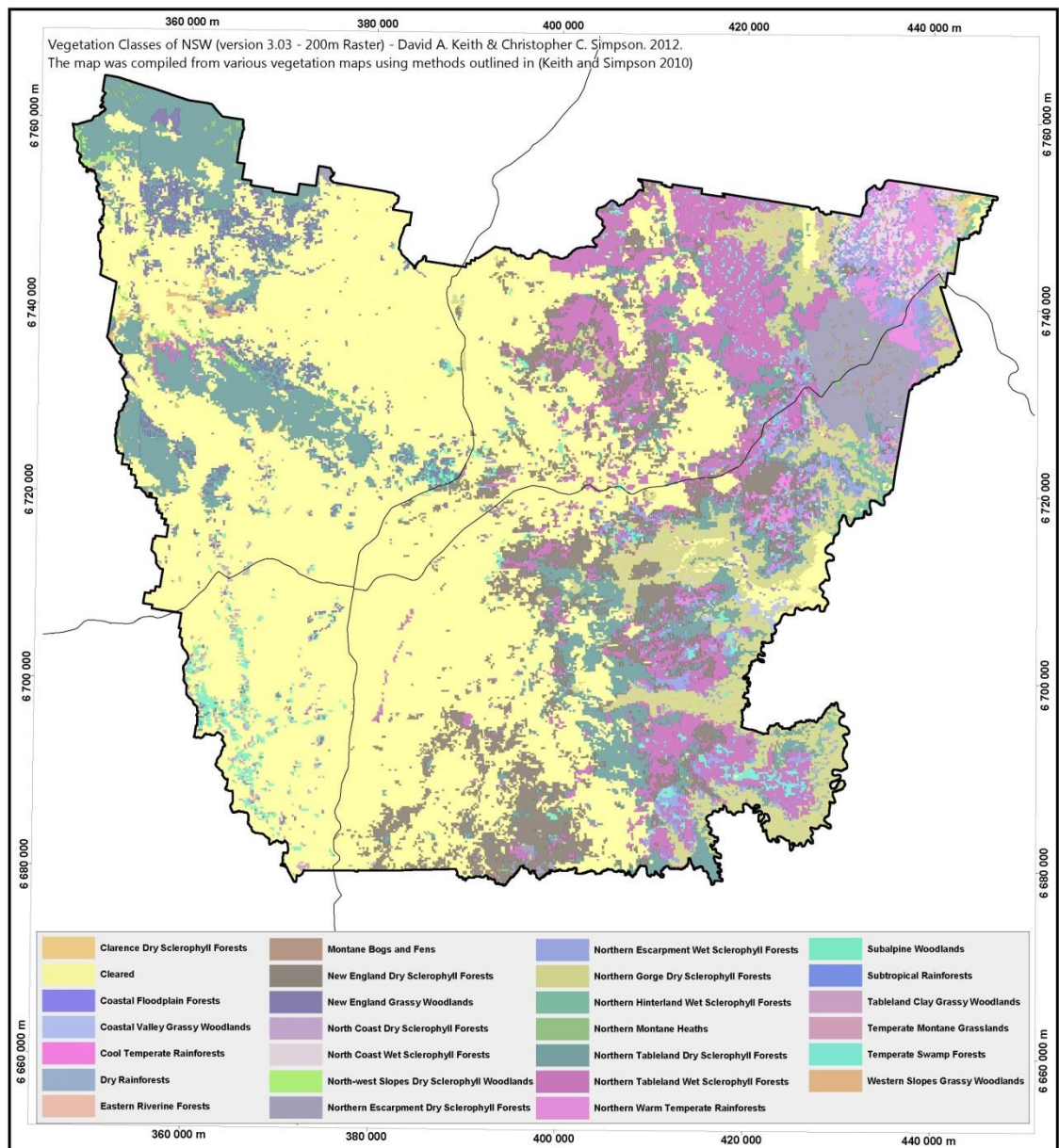
Each vegetation system is valuable in its own right contributing to the biological diversity within the region. **Table 1** indicates the importance of each.

**Table 1. The primary importance of vegetations systems in the area**

Warm Temperate Rainforest including Subtropical Rainforest	High diversity and a rich mix of plant communities, significant fauna habitat
Moist Eucalypt Forest	High diversity and a rich mix of plant communities, significant fauna habitat
Dry Open forest	High diversity and make up a NE – NW wildlife corridor
Woodland	Woodland areas also contain high levels of diversity and many are Threatened Ecological Communities (TEC's)
Grassland*	Many grassland areas also contain high levels of diversity and many are Threatened Ecological Communities (TEC's). Some native grasslands remain after trees have been cleared from grassy woodland or forest.
Heathland	Scattered occurrences in shallow infertile soils in east of region.

Further details are given in Appendix 2

## Glen Innes Severn Shire Council - Keith Class v3.0.3



0 25 50 km

Datum/Projection: GDA94/MGA56  
Plan Date: 11 MARCH 2019



**Figure 2** Map of structural vegetation systems within Glen Innes Severn LGA (Full descriptions in Appendix. 2)

## 1.1.2.Fauna

Due to the great range of habitats resulting from the varying geology, altitude, climate and vegetation there is a great diversity of variety of native animals occurring in the area. The road reserves offer animals a place to nest, feed, shelter and move. Animals use tree hollows and bark, standing dead trees, shrub and grassy understoreys, moist gullies, rock outcrops, fallen decaying logs, swamps and dams. Roadsides provide food resources such as seeds, fruits, insects and nectar.

A range of native frog species occurs in the Glen Innes Severn Council area including the rare New England Bell Frog, whilst special reptiles include the Border Thick Tailed Gecko and the Stevens Banded Snake.

Significant species of birds include the Regent Honeyeater, Square-Tailed Kite, Turquoise Parrot, Powerful Owl, Sooty Owl, Masked Owl, Rufous Scrub Bird, Olive Whistler and Glossy Black Cockatoo.

Native mammals include the Koala, Tiger Quoll, Rufous Bettong, Fawn-footed Melomys, Squirrel Glider, Yellow-bellied Glider, Long-nosed Potoroo, Parma Wallaby, Red-legged Pademelon, Brush-tailed Rock Wallaby and ten species of Bats including the Northern Long-eared Bat.

A table in Appendix 5 sets out endangered and vulnerable species animals listed under the NSW Biodiversity Conservation Act (2016) and the EPBC Act (1999). These listed animals are protected under the Act.

## 1.2 The Value of Roadsides

Roadsides are especially valuable today as reserves for native vegetation and wildlife: they are often the only areas where native vegetation remains in otherwise cleared environments (**Plate 1**).

Vegetation along roadsides helps prevent wind and water erosion, and contributes to the control of salinity, whilst individual plants provide seed to re-vegetate sites on cleared farmland.

Roadsides can enrich the landscape providing visual relief for residents and visitors. They also have cultural significance exhibiting heritage landmarks, bridges, specially planted trees and Aboriginal sites.

The conservation of roadsides is important, however there are competing interests regarding the management of these areas. Design and maintenance for road safety is the priority consideration whilst roadsides are often used to convey public utilities such as water and electricity. Secondary utilities include stock grazing, bee-keeping and bush fire control. Many road reserves in Glen Innes Severn Council area run parallel to Travelling Stock Routes (TSRs) and it is rarely clear where the boundary lies between the two.



The aim of this guide is to show how a balance can be achieved between maintaining road safety and services, and preservation of the roadside environment.



**Plate 1** Rare plants *Acacia pubifolia* & *A. williamsiana* - Gulf Road.

## 2 Roadside Management Guide

### 2.1 Steps Involved in Roadside Management

There are three distinct phases to roadside management (NSW Roadside Environment Committee 1996):

#### *1. Assessment*

The Severn Shire Council and Glen Innes Municipal Council received a grant from the National Landcare program to undertake a roadside assessment in 1998. This was conducted by the Australian Plants Society and led by Mr Peter Croft.

The assessment examined 1140 km of roads (165 roads) in the then Severn Shire, covering over 3.5% of the land area. It examined 130 km of roads in the Municipality. Features of the type and condition of vegetation, fauna habitat, significance as a wildlife corridor, geology, physical condition and cultural value for each road were recorded on proforma assessment sheets. Localised maps and colour photographs show further details of roadside conditions.

Source data is contained in four assessment volumes and summarised in a scientific report for the Severn Shire (now Glen Innes Severn Council), with a single report covering

the Municipality. These provide the greatest amount of roadside detail and are available from local libraries, National Parks and Wildlife Service and Glen Innes Severn Council.

Stringybark Ecological updated these roadside assessments in 2018-2019. Priority was given to reviewing roads assessed as having high conservation value in 1999, but some medium value roads were also reassessed. Threatened ecological communities have been included in roadside assessment methods, meaning that many areas of grassy woodland that were considered of medium conservation value are now recognised to be of high value. Some grassy woodlands support endangered species such as Austral Toadflax (*Thesium australe*), Small Snake Orchid (*Diuris pedunculata*) and *Dichanthium setosum*. Others are threatened by invasive species such as African Lovegrass, Coolatai grass, Whisky grass, Chilean Needle Grass and Ox-eye Daisy if not managed correctly.

The 2018-19 assessment used the Rapid Assessment Method (RAM) developed for rapid roadside assessment across roads and TSRs throughout NSW (Davidson, 2018). Assessments were carried out using paper forms or digital tablets linked to ArcGIS Collector App. The ArcGIS Collector App carries out assessments at random points on a roadside whereas the paper-based surveys assess stretches of roads between two points.

The RAM uses three criteria to assess the conservation value of a roadside: Conservation Status, Landscape Context, and Condition. The three scores are added and used to assign a conservation value (Low, Medium, High).

*Conservation Status* considers the presence of threatened ecological communities, significant wetlands and threatened species. *Landscape Context* considers the degree of clearing of the vegetation community and the size, shape and connectivity of the roadside vegetation. *Condition* considers the presence of large trees, the naturalness of the vegetation and groundcover and the presence of weeds.

This reassessment was funded through the Local Government NSW Council Roadside Reserve Environmental Grant program (CRR).

## ***2. Planning***

This guide represents part of the planning phase towards roadside management. It allows the Glen Innes Severn Council to adopt new policies and further develop works practices for roadside management to help sustain production activities and facilitate nature conservation. It will also aid other agencies such as the Local Land Services in their responsibilities.

Overall, 45 recommendations have been made to improve management of the conservation values of roadside reserves.

## ***3. Implementation***

Putting plans into action results in better roadside management. The adoption of a roadside management code of practice within Local Council departments and other relevant agencies makes the difference on the ground.



Training for council employees, agency staff and the community is available through Stringybark Ecological and other ecological consultants. Training may also be available from time to time through Local Government NSW.

## 2.2 Purpose of the roadside management guide

This guide is primarily designed to assist the Glen Innes Severn Council, Northern Tablelands Local Land Services, electricity authorities, telephone maintenance staff, RMS staff, and others in the community to manage the roadside environment. It contains guidelines for managing special sites, and roadsides classified as having medium and high conservation value.

The guide deals not only with the specifics of roadside maintenance planning and techniques, but also provides the principles and reasoning behind these techniques.

**nb.** Much of the content within this guide was derived from resources obtained from the Roadside Environment Committee's Website. See:

<https://www.rms.nsw.gov.au/about/what-we-do/committees/roadside-environment-committee.html>

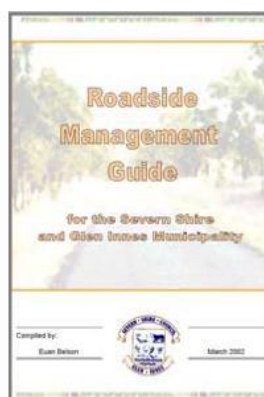
## 2.3 How to use this guide

Before using this guide, it is recommended users first scan over the glossary (page 49) to familiarise themselves with the terms used.

This guide is one of three sources of information that resulted from the exhaustive field study of the Severn Shire and Municipal roadsides during 1998.



Roadside Assessment Reports (Field)



Roadside Management Guide



Roadside Classification Map (available as hardcopy or in electronic form - MapInfo)

When planning to undertake roadwork, use the *Roadside Classification Map* (Appx. 8 & Appx. 9) or the *Roadside Classification Map Database* to identify whether the road section concerned falls within a High or Medium Roadside Conservation area (see below).

If the road section does fall within one of these areas, use this guide, referring to the *Main Reference Table* (Appendix. 6) to identify important features of specific roadside locations.

More detailed advice is provided in the section titled Road Works Policy and Codes of Practice (Ch 3). This provides managers and ground staff with tips and techniques on how best to carry out the work in terms of conserving roadside vegetation communities.

Further detail on what is actually present at each site is found in the *Summary of Roadside Attributes* (Appendix 6), the “*Updated 2019 roadside assessment data*” and in the original “*Roadside Field Assessment Report*” volumes (p.33) available from Glen Innes Severn Council or local libraries. Roadside locations are referenced using the site codes found in this *Main Reference Table* and can be located using Glen Innes Severn Council’s *GIS database*.

## 2.4. Roadside classifications

Roads have been rated high, medium or low according to their plant species diversity, value as wildlife habitat, and previous disturbance. Management decisions and plans should be based on the rating of particular sites.

### **HIGH CONSERVATION VALUE (HCVR)**

Near natural sites with minimal weed infestation, usually with a threatened ecological community.

These areas provide good habitat for wildlife. Native species diversity is high, and all layers of the ecosystem are relatively intact or have the potential to be intact (i.e. tree, shrub and groundcover layers). The presence of plants of varying size and age is evidence of natural plant regeneration. These areas include the three grassy woodland Threatened Ecological Communities (see Appendix 1). e.g. **Plate 2**.



**Plate 2.** Gwydir Hwy

## **MEDIUM CONSERVATION VALUE (MCVR)**

These areas are partially modified and degraded due to weed invasion, grazing or removal of understorey plants. May have threatened ecological community but be narrow or poorly connected.

There is a likely regeneration of native trees, shrubs and/or grasses and good potential for wildlife habitat. These areas have the potential to evolve into high conservation value areas with appropriate management. Replanting projects should focus on medium conservation value areas as a priority e.g.

### **Plate 3**



**Plate 3** Tablelands Rd (#286)

## **LOW CONSERVATION VALUE (LCV)**

These areas are highly modified and dominated by exotic plants and weeds.

Few native plants are present and natural regeneration is absent or poor (**Plate 4**). Wildlife habitat value is very low. Successful revegetation in these areas is highly dependent on rigorous weed control for at least one year.



**Plate 4** New England Highway

**CAUTION:** Although woody vegetation is probably absent, **native grasses and forbs** may make up the roadside cover raising the road section to a MCVR or HCVR.

## 2.5 Main Reference Table

The Main Reference Table represents a distillation of detailed survey data sourced from the Roadside Assessment Field Reports. A sample of the Main Reference Table found in Appendix 6 is shown in Table 2 below.

All roads of high and medium conservation value are listed and given a Site Reference from which any significant features are listed together with the recommended management options. A coding reference is given to each site in Table 3, indicating what sections of the Roadside Management Guidelines are relevant. For example:

**Table 2 Main Reference Table (sample)**

<i>Road name</i>	<i>Road number</i>	<i>Conservation Value Presence/name of TEC/TS</i>	<i>Veg<sup>n</sup> formation</i>	<i>Major weed species present</i>	<i>Main species present</i>
Cadell St	405	HCVR (WB-YB-BRG-WL)	DSF – S/G subF	Agave, African Lovegrass, Prickly	OS, Eucalyptus melliodora,

Information in a similar format can be automatically accessed using a geographic information system (GIS) by clicking on the relevant section of road.

**Table 3 Codes for referencing management options**

---

<b>W</b>	Woodland community
<b>O</b>	Open forest community
<b>M</b>	Moist open forest community
<b>R</b>	Rainforest community
<b>P</b>	Rare Plants
<b>C</b>	Cultural
<b>A</b>	Rare animals
<b>I</b>	Important vegetation community
<b>D</b>	Site in need of maintenance due to land degradation
<b>N</b>	Site in need of maintenance due to noxious weed outbreaks
<b>V</b>	Potential site for revegetation works
<b>S</b>	Surveyor's tree
<b>H</b>	Habitat

---

## 2.6 Significant Roadside Environment Areas (SREA's)

Significant Roadside Environment Areas (SREA's) are listed in Appendix 7 and describe those warranting special management. They are either categorised as medium or high in importance and contain any of the four following environmental features:

### 2.6.1 Threatened Ecological Communities

Distinct from individual plant species, some roadsides support significant vegetation communities. There are four Threatened Ecological Communities known along roadside in the Glen Innes Severn Shire. These are:

***White Box Yellow Box Blakely's Red Gum Woodland.*** This is an endangered ecological community under NSW legislation and a critically endangered community under commonwealth legislation. It can range from open woodland to a forest formation. Intact sites contain a high diversity of plant species, including the main tree species, additional tree species, some shrub species, several climbing plant species, many grasses and a very high diversity of herbs. The community also includes a range of mammal, bird, reptile, frog and invertebrate fauna species. Intact stands that contain diverse upper and mid-storeys and groundlayers are rare. The field identification guidelines for this community can be found at: <https://www.environment.nsw.gov.au/resources/threatenedspecies/EECWhiteboxLowRes.pdf>

***Ribbon Gum Mountain Gum Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion.*** This is an

endangered ecological community under NSW legislation. It is characterised by a tree layer consisting of *Eucalyptus viminalis* (Ribbon Gum), *E. dalrympleana* subsp. *heptantha* (Mountain Gum), *E. pauciflora* (Snow Gum or White Sallee) and occasionally *E. stellulata* (Black Sallee) that is usually 20 metres tall and reaches up to 30 metres on resource-rich sites. The mid layer is a sparse and diverse range of shrubs and small trees and the ground layer is native grasses and herbs. This community is important habitat for the nationally vulnerable plant species *Thesium australe* (Austral Toadflax). The field identification guidelines for this community can be found at:

<https://www.environment.nsw.gov.au/resources/threatenedspecies/EECRibbonGumLowRes.pdf>

***New England Peppermint (Eucalyptus nova-anglica) Woodland on Basalts and Sediments in the New England Tableland Bioregion.*** This is a critically endangered ecological community under NSW and commonwealth legislation. This woodland community is dominated by trees of New England Peppermint *Eucalyptus nova-anglica* and occasionally Mountain Gum *E. dalrympleana* subsp. *heptantha*, and is usually 8-20 metres tall. The woodland has a predominantly grassy understorey with few shrubs. The species present at a site will vary according to



recent rainfall or drought condition and the degree of disturbance (including fire). The field identification guidelines for this community can be found at:

<https://www.environment.nsw.gov.au/resources/pnf/10519NewEnglandPeppermintGuidelines.pdf>

***Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps Bioregions.***

This is an endangered ecological community under NSW and commonwealth legislation. Montane Peatlands and Swamps comprises a dense, open or sparse layer of shrubs with soft-leaved sedges, grasses and forbs. It is the only type of wetland that may contain more than trace amounts

of *Sphagnum* spp., the hummock peat-forming mosses. Small trees may be present as scattered emergents or absent. It also typically has an open to sparse layer of shrubs up to 1.5m tall. The field identification guidelines for this community can be found at:

<https://www.environment.nsw.gov.au/resources/pnf/10519NewEnglandPeppermintGuidelines.pdf>

Links to detailed information about these TEC's are also provided in Appendix 1.

These communities are endangered largely because they have been heavily modified for agriculture. They continue to be threatened by ongoing clearing, unsustainable grazing by livestock, pasture improvement, eucalypt dieback and invasion by exotic weeds.

## 2.6.2 Threatened animal species

Bushland remnants also harbour a variety of rare animals and these are summarised in Appendix 5. 46 threatened animal species are recorded from the Glen Innes Severn LGA. The endangered Regent Honeyeater has been discovered on The Gulf road where it relies on remnant stands of Mugga Ironbark (Plate 7). Turquoise Parrots, listed as vulnerable, have also been discovered in this area.

The Mugga Ironbark (*Eucalyptus sideroxylon*) **Plate 7** provides an essential food source to the Regent Honeyeater (*Anthochaera phrygia*). This bird is critically endangered in NSW and nationally. Conservation of the Regent Honeyeater will also benefit a large suite of other threatened and vulnerable woodland birds. There is remnant habitat for the Regent Honeyeater in the Glen Innes Severn Shire.



**Plate 7** Mugga Ironbark (*Eucalyptus sideroxylon*) along the Kings Plains Road.

### 2.6.3 Threatened and rare plants

Seventy nine species of threatened plants have been recorded in Glen Innes Severn Council area and a further 7 possibly occur. Some of these are frequently found on roadsides and are vulnerable to damage or loss from road maintenance or construction works. These species are protected under the NSW Biodiversity Conservation Act (2016), the Commonwealth Environment Protection and Biodiversity Conservation Act (1999). Grassy woodlands, Gulf Rd and parts of the Gwydir Highway are especially rich in rare species.

Thirty rare plant species (Rare or Threatened Australian Plants – ROTAPs) have been recorded as part of the Roadside Survey and include the Eucalypts, Acacias (Plate 5), parasitic plants (Plate 6), herbs and grasses (Appendix. 3). ROTAPs are not all protected by legislation but care should be taken to prevent damage to them.



**Plate 5** *Dichanthium setosum*,



**Plate 6** *Thesium australe*, vulnerable,  
lives off the roots of native grasses

## 2.6.4 Aboriginal and European heritage sites

Significant European and Aboriginal heritage sites (SREA's) have also been located in the Glen Innes Severn LGA. Evidence of Aboriginal occupation is borne out by campsites, art sites, scarred trees (Plate 8), carved trees and quarry sites. Physical remains of European settlement are sparse but can be found in the form of surveyor's trees (Plate 9), old fences, huts, mining relics and water races.

General information about Aboriginal places of significance can be found at:  
<https://www.environment.nsw.gov.au/nswcultureheritage/PlacesOfSignificance.htm>



**Plate 8** An Aboriginal scarred tree  
- Kings Plains Road.



**Plate 9** A surveyor's tree  
- Kings Plains Road.

## 2.6.5 European cultural heritage sites

Physical remains of European settlement are sparse but can be found in the form of surveyor's trees (Plate 9), old fences, huts, mining relics and water races.

Links to information about European Cultural Heritage can be found at:

<https://www.environment.nsw.gov.au/topics/heritage>

## 2.6.6 Summary of heritage areas in the Glen Innes Severn LGA

Twenty-seven roadside areas have rare plants, animals or cultural heritage sites present (Appendix 7). Thirty-five roads in the LGA have areas of Threatened Ecological Communities along them. Many of these have more than one type of TEC and they are present in multiple areas (Appendix 7).

## 3 Roadside Policy and Codes of Practice

### 3.1 Rare or threatened species

There are two separate legislations (NSW and Commonwealth) that provide guidelines for the protection of threatened species. These are:

1. The NSW Biodiversity Conservation Act (2016)
2. Environmental Protection and Conservation Act 1999 (EPBC)

Under these Acts the law protects plants, animals and communities listed as ‘Critically Endangered’, ‘Endangered’, ‘Vulnerable’ or ‘Threatened’. It is illegal to pick, remove or damage plants, animals, communities or their habitat. Specific penalties apply for doing so.

Before the Biodiversity Conservation Act (2016) came into force, the system used to classify all rare species of plants was the ROTAP (Rare or Threatened Australian Plants) listing. This system is still used to classify many scarce Australian plants. However, the law does fail to protect plants not listed under the Biodiversity Conservation Act (2016). Species still classified under the ROTAP system need special attention and should be conserved. ‘Rare’ species may be represented by a relatively large population in a very restricted area or by smaller populations spread over a wider range. ‘Threatened’ plants are species at serious risk of disappearing from the wild within one or two decades if present land use and other causal factors continue to operate, or species at risk of disappearing from the wild over a longer period through continued depletion. See Appendix 3 for a listing of the ROTAP categories.

Many species of Australian plants are locally rare. While there is not a legislative system to categorize these species, any plants listed as or known to be “Locally Rare” should be preserved for sustaining local provenance of native species and the biodiversity of the local area. A total of 45 ROTAPS have been recorded in the Glen Innes Severn LGA. Of these, 30 have been recorded as existing along roadsides, reinforcing the importance of roadsides as reserves. Appendix 4 lists the ROTAPS that have been found along roads in the Glen Innes Severn LGA.

Rare and threatened species are also protected under commonwealth law (EPBC 1999). The EPBC list of threatened flora can be found at:

<http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora>

The EPBC list of threatened fauna is found at:

<http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl>



## 3.2 Threatened Ecological Communities

‘Threatened’ communities are a naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat. The structure, composition and distribution of threatened communities are determined by environmental factors such as soil type, position in the landscape, altitude, climate and water availability. Threatened Ecological Communities are protected under the BC and EPBC Acts and are described in section 2.6.1 and Appendix 1.

*Many of the Threatened Ecological Communities in the GISC LGA are grassy woodlands, with well-spaced trees and a ground layer dominated by native grass. The ground layer is extremely fragile and costly and difficult to replace if removed or damaged.*

## 3.3 General considerations

### *Respect any existing native vegetation*

- Native trees, shrubs and ground covers (grasses, native herbs, etc.) together create a stable and diverse environment. They combine to provide valuable food and shelter for wildlife.
- Good vegetation cover will prevent erosion of topsoil and the subsequent movement of sediment.
- It is much cheaper and easier to protect existing trees, shrubs and ground covers than it is to replace them.
- Established native vegetation communities reduce the spread of weeds and require little maintenance

**Key words:** Wildlife, erosion, weeds, maintenance

### *Particularly respect rare and endangered plants, animals and communities*

- To maintain the existing diversity of species it is vitally important that rare and endangered species are protected during road construction and maintenance
- There are legal penalties regarding the harming of certain flora or fauna in NSW (Biodiversity Conservation Act 2016)
- The Roadside Assessment surveys (1998 and 2018) have mapped the location of these species for future management

- Species of trees and shrubs that have been classified as rare or uncommon in the Shire are listed in Appendix 4

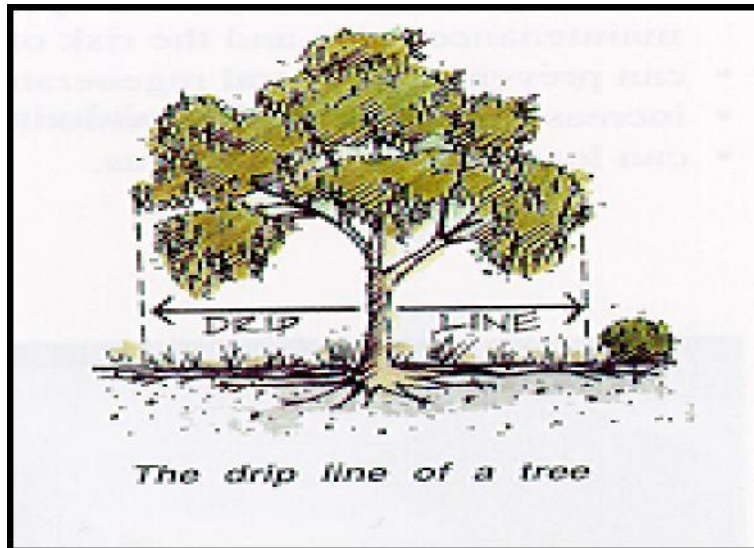
**Key words:** Rare and endangered species, penalties

*Only disturb what you have to*

- The Supervisor should walk the site with field staff before works commence to ensure that the works plan is fully understood
- Identify the different weeds and native plants in the construction area
- If rare plants or animals are known to exist, record their exact location, make the road crew aware, and section off with barrier tape. Keep this information confidential to protect rare plants from collectors
- Keep all vegetation disturbances to a minimum. Protect native vegetation that is to remain undisturbed by marking with tape or stakes
- If a tree is to be lopped or removed, do so with minimum disturbance to the surrounding soil and vegetation. ***Do not prune trees by breaking branches off with heavy machinery***
- Avoid working within the drip line of trees and shrubs whenever possible, to reduce damage to the roots, trunk and limbs (Fig. 3). Keep fill material clear of the drip line
- Soil depth should not be increased when spreading fill within the drip-zone of trees as this can suffocate and kill the trees
- Avoid parking machinery on native plants, or within the drip line of trees and shrubs
- In areas of native vegetation, do not “tidy up” or grade around the base of trees after completion of works. Unnecessary disturbance to the soil can kill adjacent vegetation and encourages weeds.
- If introduced grasses and weeds are present in abundance, removal by scraping away weeds and the topsoil layer may be beneficial if there is an immediate planting with native species

**Key words:** Works plan, rare and endangered species, minimum disturbance





**Figure 3** Drip line of a tree

### *Be mindful of regeneration*

- Avoid disturbing, traveling over or slashing native regeneration of any kind. If regrowth of plants is encroaching on road shoulders and requires removal for safety reasons, avoid soil grading as this may increase the problem. Spot spray instead
- Slash or mow only to the back of a table drain

**Key words:** Regrowth, spot spray

### *Be mindful of dead and fallen timber*

- Standing and fallen dead timber is an important component of healthy functioning woodland ecosystems. It provides habitat for many invertebrates and microorganisms that are a food source for other animals, provides shelter for some plants, aids in intercepting rainfall and as it breaks down over time puts carbon back into the soil. Hollows in dead trees are also important wildlife habitat
- However, where a dead tree on the side of the road presents a safety hazard it should be lopped or removed
- Avoid cleaning up dead timber unnecessarily though. Retain stumps and dead trees, fallen timber and understorey plants where possible. They provide habitat and shelter for native animals, especially the hollows. In addition
- Fallen timber also helps to reduce erosion and slow water run-off
- Dead timber should not to be removed from roadsides for firewood

**Key words:** Habitat and shelter, water run-off, firewood

*Be careful when removing vegetation*

- Before ANY vegetation is cleared along roadsides, it is vital to gain permission from the Northern Tablelands Local Land Services. This body regulates legislation associated with clearing of vegetation in accordance with the Biodiversity Conservation Act (2016)
- The Biodiversity Conservation Act applies to vegetation management that is undertaken on roadsides. Although Local Councils operate under an exemption for works undertaken as per Section 88 of the Roads Act 1993 and under consent granted under Division 3 of Part 9 of the Roads Acts 1993, they still have responsibilities under the Biodiversity Conservation Act.
- Organise native plant seed collection from road construction sites before works start. Local Landcare, seed collectors or native plant groups can be asked for advice or to do this task
- Clear only the minimum amount of vegetation required for road construction, that is, within the construction zone or marked for safety purposes. Timber removal will be subject to a Review of Environmental Factors (REF) for the project
- Timber which is lopped or felled can be cut and trucked to a designated stockpile site where the public can utilise the timber. If only a few trees are affected they can be left on the roadside for habitat purposes. This will also be specified in the REF for projects relating to road reserves
- Lopped or felled timber may alternatively be chipped and later spread as mulch at sites requiring revegetation. Branches from cleared shrubs and trees may be distributed over areas requiring revegetation
- Cleared vegetation and other material can be burned, provided weeds in the area are not present. Fire often encourages germination and growth of various wattles and native pea species

**Key words:** Local Land Services, Biodiversity Conservation Act (2016), Review of Environmental Factors

*Be aware of Aboriginal places of significance  
or European cultural sites*

- Areas significant to Aboriginal people may or may not have visual evidence of Aboriginal occupation, (e.g. scarred trees and stone artefacts)
- The primary piece of legislation which protects Aboriginal cultural heritage in NSW is the **National Parks and Wildlife Act 1974 (NPW Act)**. Under the NPW Act it is an offence to harm (destroy, deface, or damage) or desecrate an Aboriginal object or Aboriginal place, or in relation to an object, move the object from the land on which it has been situated. If you find an Aboriginal object you should report it to us. Find out more on **Regulation of Aboriginal cultural heritage**
- European heritage sites include surveyor's trees, old wells, bridges, mining relics and huts and are protected under the **Heritage Act 1977**

**Key words:** Office of Environment and Heritage, Aboriginal places of significance, Heritage

### 3.3 Stock piles and compound sites

#### ***On Significant Roadside Environment Areas (SREA's):***

- New stockpile or compound sites should NOT be located within SREA's or areas identified as MCVR or HCVR. Relocate existing stockpiles as soon as possible.

#### ***On High Conservation Value Roadsides (HCVR's):***

- Stockpile sites should not be located on HCVRs. Utilise existing stockpile areas and old unused road surfaces
- The boundary of each stockpile site should be defined (surrounded by an earth bund) to control vehicular access and prevent gradual expansion of the site into surrounding vegetation

#### ***On Medium and Low Conservation Value Roadsides (MCVR's & LCVR's):***

- It is preferable that stockpile and compound sites be located on land already cleared of trees and shrubs. The boundary of the site should be defined by earth bunds, and be free of noxious weeds
- Equipment maintenance should be undertaken within the bunded area
- Liquid fuel and chemicals should be stored in a lockable, floored structure, which is surrounded by an earth bund able to contain at least 110% of the volume of the largest container stored in the structure
- Compound sites should be rehabilitated on completion of works, i.e. returned to a stable state that existed before works with potential for native vegetation regeneration

### 3.4 Table drains and mitre drain maintenance for roads

- Tree and shrub growth can be cleared from table drains and mitre drains. However, keep any disturbance of vegetation and soil to a minimum
- Table drains should not be unnecessarily widened
- Maintenance grading of table drains on sloping land can create erosion problems, especially if the soil type is dispersible and susceptible to erosion. **In such cases where the table drain is grassed and in a stable condition it should not be graded.** If required, the table drain can be slashed for fire prevention purposes

### 3.5 Erosion and sediment control

Roadside drainage and erosion control works should be pre-planned with relevant earthworks and structural works surveyed and marked. A concept plan for revegetation should be in place and will be referred to in the Review of Environmental Factors (REF) prepared for the project. The REF should be consulted before any clearing takes place. There should be provision to maintain or replace groundcover as soon as possible.



**Plate 10** Incipient erosion along a roadside. Areas like this should be targeted for roadwork maintenance to overcome erosion and to stabilize the site ready for revegetation

### 3.5.2 Earthworks

- Only disturb vegetation designated for removal
- Only disturb topsoil within the designated works zone
- Stockpile topsoil and re-spread as soon as possible
- As well as providing a good seedbed for the sown seed, the topsoil often contains native grass and herb seed that will readily germinate
- Avoid stockpiles interfering with native vegetation
- Avoid bringing in topsoil or fill from other areas, as this can introduce weeds
- Provide a silt barrier for stockpiles not used within ONE week
- Never push fill into adjacent gullies, this causes sedimentation down stream
- It is preferable to sow down disturbed areas as soon as earthworks have been completed i.e. while soil material is still friable and has no surface seal.
- Never use Rhode's Grass or African Love Grass as a cover crop after works.
- Seed mixtures should contain quick growing preferably native species that are known **not** to spread and totally dominate the surrounding area.

## 3.6 Fire prevention and management

The local Fire Control Officer should be consulted on all matters relating to fire prevention on roadsides.

One reason Glen Innes Severn Shire keeps table drains clear of trees and shrubs is that these areas often provide an effective firebreak. This is achieved by keeping a stable cover of grass along drains.



### 3.6.1 Roadside firebreaks

Wherever possible, firebreaks should be constructed on adjoining land that has already been cleared.

As a guide, firebreaks should only be constructed on LCVR's and Council permission is advisable. Be mindful that the width of the road plus the table drain forms a much more effective firebreak than narrow firebreaks cut through trees, especially where crowns are touching. Roadside firebreaks should avoid collecting and channelling stormwater run-off, thereby minimising erosion. Note, that minimum soil disturbance is recommended where there are high densities of Cypress-pine as problems arise with massive regeneration. (Seek advice from NSW State Forests)



**Plate 11.** Strathbogie Road – Burning grass for future grazing. Be extremely careful when deciding to burn a roadside area. Consult Landcare or National Parks and Wildlife Service if specialist advice is needed on how the ecosystem will respond.

## 3.7 General maintenance

### 3.7.1 “Tidying up” vegetation

“Tidying up”, by grading around trees after road works, removes shrubs and groundcovers and damages the trunks of trees. Leaving vegetation undisturbed wherever possible during construction minimises the need for costly ground repairs and weed control later on.

### 3.7.2 Removing and pruning roadside trees

Trees on roadsides should be preserved and careful pruning is preferable to tree removal. Well-pruned trees may enhance roadside appearance, reduce community complaints and preserve tree health.

Do not prune trees by breaking off branches using heavy machinery

#### ***Before removal or pruning, consider:***

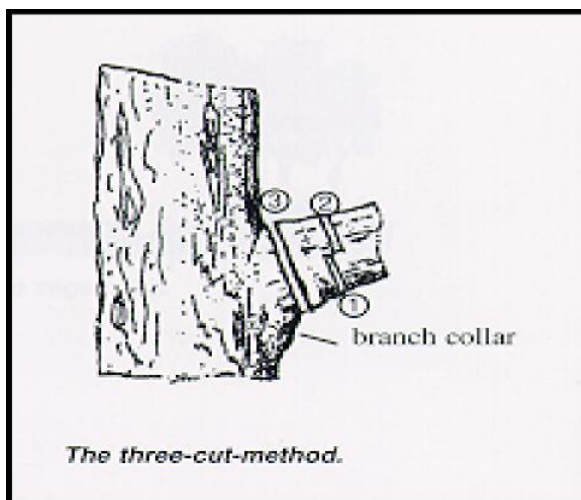
- Safety of staff, property and road users.
- The significance of the tree: does it have a ROTAP or cultural status?
- Whether a formal environmental assessment is required for removal.

Avoid the burning or dumping of wood. Retain logs for small animal shelters wherever possible. Where felled timber is excessive it can be cut for domestic firewood, or used by adjoining landholders for fencing material. Any light material should be chipped for mulch.

To avoid bark injury below the cut, use the three-cut method on all but the smallest branches (Fig. 4)

1. The undercut.
2. **The upper cut** (to remove the branch).
3. The final trim cut.

Cut close to, but not flush with the main trunk or limb. Always cut on the outside of the branch collar - this assists the tree in wound healing (callusing) and provides a protective barrier against decay



**Figure 4** Tree pruning method

## 3.8 Management for cultural and community benefit

### 3.8.1 Aboriginal and European heritage

#### Aboriginal Cultural Heritage

Aboriginal Cultural Heritage refers to places and items that are of significance to Aboriginal people because of their traditions, observances, lore, customs, beliefs and history. It provides evidence of the lives and existence of Aboriginal people before European settlement through to the present.

Aboriginal Cultural Heritage is legally protected under the **National Parks and Wildlife Act 1974**.

For further information:

<https://www.environment.nsw.gov.au/licences/achregulation.htm>

To ensure that an activity or development will not impact on Aboriginal or European cultural heritage:

- Consult with the local Aboriginal community, usually via the Local Aboriginal Land Council
- Train staff in identifying areas of Aboriginal heritage

It may be necessary to employ a member of the local Aboriginal community to monitor works in sensitive areas, such as river and creek crossings. This will ensure that any significant sub-surface materials present can be identified. If any artefacts are found during any works then all work must stop immediately and contact the Office of Environment and Heritage.

#### European Cultural Heritage

- Mark areas clearly for the protection of Surveyor's trees, or other sites of European cultural heritage

For more information about European Heritage sites visit:

<https://www.environment.nsw.gov.au/topics/heritage>

### 3.8.2 Firewood collection

It is illegal to collect firewood along roadsides or in Travelling Stock Routes and Reserves. These areas are ‘Government Crown Land’ where legislation specifies that no wood is to be collected. There is a demonstrable need to change community attitudes towards firewood collection in road reserves (**Plate 12**).



**Plate 12** Tree that has been illegally felled

There are a number of reasons that firewood should not be collected from roadside reserves. Firstly, it is illegal to fell trees (see above). Secondly, dead standing and fallen timber is an important component of healthy forest and woodland plant communities. On standing dead trees, hollows are important wildlife habitat for a range of species. Fallen timber can also be important shelter for wildlife including echidnas who live and shelter under fallen logs. The decaying timber is a food source for a range of insects that are important for feeding birds and other native animals. It also intercepts rainfall and helps to prevent erosion and is a slow release form of carbon into the soil.

### 3.8.3 Public services

Roadside reserves are important areas for maintaining a network of telecommunication, power, water and gas supplies. It is important that line installers are aware of the best places to lay lines.

- Lines are best laid on LCVR's for both cost and conservation purposes.
- Cleared roadsides offer better routes for overhead power lines.
- Revegetation below power lines is best achieved using Acacia, native shrubs and sedges such as Lomandra.
- Consult Council and local landholders prior to any vegetation removal

### 3.8.4 Community involvement

Involving the community where possible helps raise awareness as to the value of roadsides. Opportunities exist for Landcare groups and schools to become involved in seed collection, planting, weed control, surveying and rubbish clean-ups.

## 4. Roadside Management Techniques

### 4.1 Revegetating roadsides

#### 4.1.1 Stabilising the site directly after road works

To reduce erosion of disturbed areas an adequate cover needs to be established as soon as possible after works are completed. Use native grass or sterile grass cover (varieties bred to set non-viable seed), which will be replaced by native species over time.

Revegetate disturbed areas with native grass seed. There are a number of resources available for information on revegetating with native seeds. See:

<http://www.florabank.org.au/files/documents/Guideline%20No.%209%20-%20Using%20native%20grass%20seed%20in%20revegetation.pdf>

Local native vegetation experts such as ecological consultants, seed collectors and nurseries that stock local plants can assist with accessing native grass seed.

Avoid using species that set viable seed as they can spread into surrounding native vegetation. *Phalaris* is particularly invasive, especially in moist areas: it tends to choke table drains and often presents a fire hazard.

Avoid leaving bare ground as this is easily invaded by noxious weeds such as African Lovegrass, Coolatai grass, Whisky grass and Chilean Needle Grass.

#### 4.1.2 Establishing native vegetation regeneration

In areas that have had little disturbance, the native vegetation should eventually restore itself to a stable state.

In areas where natural bush regeneration is not occurring, it is best to establish native species using **locally** sourced seed or seedlings. These can be propagated by local nurseries or sown directly. Successful direct sowing may require special seed preparation, such as abrasion: it is advisable to seek specialist advice.



### 4.1.3 Notes for Direct Seeding

Roadsides provide a good source of seed for collection. The following guidelines are designed to help successful regeneration.

#### DO'S:

- Use plants that are as close-by as possible (local)
- Collect seed from healthy vigorous plants, as they are well adapted locally
- Collect seed using secateurs or a long-handled pole-pruner
- Collect from at least ten well-spaced plants to ensure genetic diversity
- Ensure that you have permission to collect the species you have in mind
- Label collected seed clearly (Species, collectors name, location, date)
- Dry out seed if storing, to avoid fungal damage
- Store seed in sealed containers in a cool, dry place, add a pinch of derris dust to kill insects

#### DON'TS

- Take all the seed off one individual plant, as this prevents natural seeding. - Collect from isolated plants, and avoid self-pollinated plants.

Take note of the Florabank Guidelines for seed collection ([www.florabank.org.au](http://www.florabank.org.au))

### 4.1.4 Notes for sowing seeds on roadsides

**Direct seeding machine** - a quick and simple method where resulting plant growth can look more natural than planted tube stock. Co-operate with a local community group to collect seed from adjoining bushland areas, or contract a seed collector to harvest seed from the site before works take place. Spray any introduced grasses or weeds on the site. Compacted soil may need to be scarified to create a suitable seedbed. Direct seeding machines may be available for hire through local networks. Ask your local Landcare office.

**Hand broadcasting seed** - mainly used on very steep sites which are not accessible to the mechanical direct-seeder, or where it is difficult to plant tube stock. Collect local seeds if possible and consult organisations like Landcare, ecological consultants or local nurseries for additional information. A roughened seedbed will catch water for the seedling and reduce erosion. Avoid spreading topsoil that contains weed seeds on the site. Native seed may also be incorporated into erosion control matting or mulch. Native seed has been successfully broadcast onto steep road batters using Hydro-mulching machines.

**Brush matting** – laying down cut branches prevents erosion and spreads seed. Species that retain seed on the plant and shed it when the plant dries out are most suitable: these include tea-trees, eucalypts, and hakeas, she-oaks and cypress pines. Soil should be roughened (ripped or scarified). Branches can be cut from adjoining native vegetation, taking care not to completely strip individual plants. The branches and dead leaves provide an ideal germination area for the seed, protecting it from heat, frost and erosion.

#### 4.1.5 Notes for planting tube stock (seedlings)

This method is labour intensive, but provides rapid results.

Weed control is critical, both before and after planting. Spray any introduced grasses and weeds with glyphosate and rip the site to approximately 50cm. Rip as early as possible - six months or more before planting, to allow moisture to penetrate the rip lines. Plant tube stocks when soil is moist, and place a tree guard around each tree or shrub. Maintain weed control for the first two years. Mulching around tube stock will help reduce weeds and water loss but adds to costs and labour requirements.

#### 4.1.6 After-planting care

Careful weed control is essential for successful rehabilitation of roadsides (see page 27). However, in all situations, stock must not be allowed onto planted or seeded areas. If there is any danger of stock passing through the site, the area should be protected by adequate fencing. Contact the Northern Tablelands Local Land Services to check on the likelihood of grazing.

### 4.2 Signage

Special care is needed by road maintenance or construction staff, and by service authorities when working in Significant Roadside Environmental Areas (SREA's). These areas may not be obvious and special signs help alert ground staff to take precautions. Local Government or the Roads and Maritime Services may need to be contacted before work can begin.

Signs may also provide useful information to members of the public, and also promote the efforts being made by roadside managers.

“Significant Roadside Environment Area” signs are available from the NSW Roadside Environment Committee and should be erected by, or in consultation with Local Government or the Roads and Maritime Services.

It is recommended that signs are erected in areas where travellers are likely to stop, such as rest or information areas, National Park entrances, and areas where it is quite obvious that revegetation works have been carried out.



**Plate 13.** New England Highway signage

## 4.3 Weeds and Exotics

### 4.3.1 Common weeds of the Glen Innes Severn LGA

Weed management strategies for the Northern Tablelands Local Land Service area have recently been revised. The Northern Tablelands Regional Strategic Weed Management Plan 2017-2022 is available at:

[https://northerntablelands.lis.nsw.gov.au/\\_data/assets/pdf\\_file/0007/722869/NT-RegionalWeedMgmtPlan-WEB-June17.pdf](https://northerntablelands.lis.nsw.gov.au/_data/assets/pdf_file/0007/722869/NT-RegionalWeedMgmtPlan-WEB-June17.pdf)

Weeds of concern fall into five categories. These are: (1) PREVENTION - weeds that are not found in some parts of the state and prevention of the biosecurity risk posed by these weeds is a reasonably practical objective (none of these were found in the 2018 survey of roadside vegetation); (2) ERADICATION – weeds that are present in limited distribution and abundance in some parts of the state. Elimination of the biosecurity risk posed by these weeds is a reasonably practical objective (none of these were found in the 2018 survey of roadside vegetation); (3) CONTAINMENT - weeds that are widely distributed in some parts of the state. While broad scale elimination is not practicable, minimisation of the biosecurity

risk posed these weeds is reasonably practicable. Weeds in this category along Glenn Innes Severn LGA roadsides include Scotch Broom – *Cytisus scoparius* subsp. *scoparius* and Serrated tussock – *Nasella trichotoma*, (4) ASSET PROTECTION - These weeds are widely distributed in some areas of the State. As Weeds of National Significance, their spread must be minimised to protect priority assets. Weeds in this category along Glenn Innes Severn LGA roadsides include:

- Chilean Needle Grass – *Nasella neesiana*
- Blackberry – *Rubus fruticosus* (excludes exempt commercial cultivars, as defined by NSW DPI)
- Sweet Briar - *Rosa rubiginosa*
- Privet - *Ligustrum* spp
- St. John’s Wort - *Hypericum perforatum*

Several other weeds occurring along Glen Innes Severn LGA roadsides are on a list of “additional species of concern”. These include the following:

- Coolatai - *Hyparrhenia hirta*
- African Lovegrass - *Eragrostis curvula*
- Whiskey Grass - *Andropogon virginicus*
- Phalaris - *Phalaris aquatica*
- Cocksfoot - *Dactylis glomerata*
- Paspalum - *Paspalum dilatatum*
- Sweet Vernal Grass - *Anthoxanthum odoratum*
- Ox-eye Daisy - *Leucantheum vulgare*
- Firethorn - *Pyracantha* spp

Many areas of the roadside vegetation in the LGA is exotic, therefore a number of other weeds are likely to be present on roadsides but do not fall into the four categories above. These include (but are not limited to):

- Hemlock - *Conium maculatum*
- Johnson Grass - *Sorghum halepense*
- Longstyle Feather Grass - *Pennisetum villosum*
- Hawthorn - *Crateagus* spp (**Plate 14**)
- Apple Trees - *Malus* spp
- Willow - *Salix* spp
- Purple Top - *Verbena bonariensis*



**Plate 14** Hawthorn fruits help Currawongs over-winter on the Tablelands. It is important to control these berry producing weeds to stop population explosions of these birds.

### 4.3.2 Weed Control

Prevention is better than cure: the lesser the degree of disturbance, the lesser the degree of weed invasion

***Where active control of weeds is required:***

- pull out small weed seedlings by hand
- spot-spray small clumps of weeds
- rope wick wiping is a good method to use when there are young native plants regenerating under a weed species
- trim smaller trees with secateurs or a chain saw and paint the cut stump with undiluted or three-quarter strength glyphosate
- stem-inject larger trees with glyphosate drilling holes approximately 10 cm apart around the trunk of the tree, below the branches and inject a few drops of glyphosate into each hole
- burning should only be used on plants that do not regenerate rapidly after fire
- slashing roadsides is not recommended, it may cause many weed species to spread

## 4.4 Priority sites for protection, revegetation and weed control

### 4.4.1 Protection of Threatened Ecological Communities

- These are areas of high conservation value and should be prioritised for protection
- There should be no removal (or ‘tidying up’) of standing or fallen dead timber
- Disturbance of the ground layer should be minimised as the ground layer is a very important component of these communities
- Any areas that are at risk of developing erosion should be protected from further erosion and encroachment of invasive species

**nb. IT IS NOT APPROPRIATE TO PLANT SHRUBS IN GRASSY WOODLANDS**



4.4.2 Sites that should have priority for revegetation works are areas that:

- show signs of developing erosion or salinity problems
- contain ROTAP's or are known habitats for rare, vulnerable or endangered fauna
- lack vegetation structure and need ground, shrub or tree layers added
- contain weeds and are MCVR's
- are part of a wildlife corridor
- are identified in local Catchment Plans for revegetation (NTLLS & Landcare)

## 5 Recommendations

### 5.1 Recommendations for sustaining Threatened Ecological Communities

1. Erect signage on some HCVR roadsides for educational purposes and to assist in protection and increase awareness of the value of these areas.
2. Ensure Council road staff can recognise Threatened Ecological Communities, particularly grassy woodlands.
3. Work with landholders to minimise damage to roadside vegetation when clearing for new fences.
4. Enforce rules around the removal of timber (including fallen timber) from these areas for firewood.
5. Include information about the importance of standing and fallen dead timber for the ecological functioning of these communities – including as wildlife habitat.
6. Do not allow the planting of shrubs into grassy woodlands.
7. Control Chilean Needle Grass (*Nassella neesiana*) as a priority to prevent spread. Putting effort into controlling this grass is likely to have more impact than effort into controlling the other already well established and widely distributed invasive grasses.
8. Ensure roadside management staff are trained to recognise Chilean Needle Grass, Serrated Tussock, African Lovegrass, Whiskey Grass and Coolatai Grass. Control new infestations on roads where they have not previously occurred.
9. Do not use heavy machinery and excavator blades to prune roadside vegetation

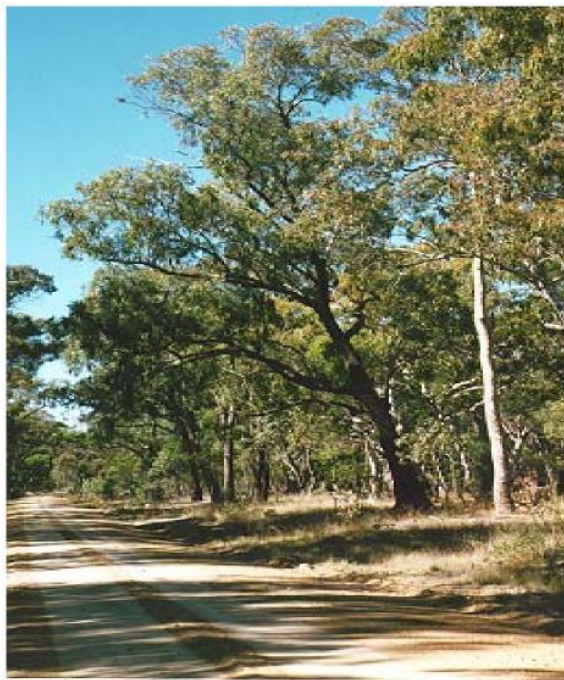
### 5.2 Recommendations for sustaining rare plant populations

10. Develop a weed management plan in conjunction with NPWS and RMS for weed control along the road reserves in Gibraltar Range and Washpool National Parks.
11. Consider adopting *Telopea aspera*, the Gibraltar Waratah, (which only occurs in the Glen Innes Severn LGA), as the floral emblem of the LGA.
12. Mark out the population of *Acacia pubifolia* and *A. williamsoniana* along the Gulf Road for grader operators.
13. Restrict slashing of the Torrington/Emmaville Road to the least width possible. Slash from Torrington downhill to try to prevent African Lovegrass from spreading further onto the Mole Tableland and into the neighbouring State Recreational Area (SRA).
14. Assist all planners and outside staff working on roadsides (e.g. Council and NTLLS) to become familiar with or have access to pictures and a key of the rare plants occurring in the Glen Innes Severn LGA.

## 5.3 Recommendations to conserve wildlife

15. Maintain and enhance roadsides that are parts of corridor linkages as they provide vital movement routes for wildlife in the local region
16. Continue linking rehabilitation plantings to the major east-west corridor just north of Glen Innes, especially from Chaffey's Hill to the northwest of Glen Innes township, in partnership with NTLLS and Landcare.
17. In areas where remnants form short corridors as islands, link these remnants to provide wildlife habit.
18. Continue encouraging landholders to plant native trees and shrubs on properties bordering significant vegetation corridors
19. Ensure *Eucalyptus sideroxylon* (Mugga Ironbark), *Eucalyptus melliodora* (Yellow Box) and *Eucalyptus albens* (White Box) are protected from disturbances like clearing. These are major food sources for the critically endangered Regent Honeyeater, especially the Mugga Ironbark. *Eucalyptus melliodora* (Yellow Box) and *Eucalyptus albens* (White Box) are integral components of the White Box Yellow Box Blakely's Red Gum Woodland TEC and should be protected through the protection of remnant areas of these woodlands.
20. Prevent the removal of dead and fallen timber, especially for firewood

**nb.** The protection of TEC's will assist in protecting the wildlife that is a part of those communities



**Plate 15** HCVR value roadside vegetation along the Emmaville -Torrington Road

## 5.4 Addressing the issue of road-kills

Healthy native vegetation communities along roadsides encourage wildlife; this in turn increases the likelihood of road-kills. However, the value of remnant vegetation along roads for maintaining populations of various species of native fauna still outweighs the numbers of road-kills. In order to help maintain safety for motorists and minimize road-kills:

21. A risk assessment is needed to determine the significance and likelihood of road-kills.
22. Local Council and RMS should establish warning signs in areas where there is known significant wildlife traffic close to the road, especially rare species.
23. Reduce the speed limit in areas where repeated road-kills and accidents occur, this may require developing a register or database.
24. Investigate technology to warn wildlife of vehicle approaches on 'hot spot' corners.

## 5.5 Recommendations to control weeds

25. Continue the spraying of Blackberry and Briar throughout the Shire.
26. Remove and/or spray wild fruit trees along Shire roads.
27. Begin control campaigns for hawthorn, firethorn and cotoneaster and promote the replacement of native vegetation, especially shrubs.
28. Attempt to stop the spread of exotic grasses by using herbicides, preventing ground disturbance, sowing native species and using strategic grazing if and when appropriate.
29. Ensure stockpiles of gravel and roadworks material are not placed in or near areas of HCVR or MCVR as weeds and erosion associated with these stockpiles can impact on these communities.
30. Use the proven technique for the control of grasses by rope wick applicator on: Whisky Grass, African Lovegrass, Coolatai Grass, Serrated Tussock and Chilean Needle Grass.
31. Continue to support St John's Wort biological control trials (GISC)
32. Continue and expand the 'Native Shrub for Privet' exchange programme (GISC & Australian Plant Society).
33. Start a long-term program to control privet invasion.
34. Control exotic fruit trees and develop an awareness program to make people aware of the negative impacts of throwing fruit out of vehicle windows.

## 5.6 Other Recommendations

### 5.6.1 Firewood collection

There is an ongoing need to change community attitudes towards firewood collection in road reserves and TSRs. This could be achieved by:

35. Working with NTLLS on a joint awareness and regulation program.
36. Signing reserves to prevent wood collection.
37. Enclosing a note concerning the issue with rate notices.
38. Developing a community watch program to 'adopt-a-roadside' and to report illegal wood collecting.
39. Encourage wood lot establishment for firewood supply on private properties.
40. Continue providing public collection areas for wood that has been cleared along roadsides during roadwork activities.

### 5.6.2 Roadside grazing

41. Roadside grazing should be seen as a short-term emergency food-supply and not a long-term right. This should also apply to Travelling Stock Reserves and Routes managed by Local Land Services as many of these roadside reserves and areas are also TECs.
42. Grazing should not be allowed along any roads containing rare or endangered species of plants or animals or rare vegetation communities.
43. Roadsides with good stands of native vegetation that are actively regenerating and weed free should not be grazed.
44. Grazing areas should be allocated to roadsides that lack native vegetation but have introduced pasture grasses and weeds (roadsides containing native stands of grasses are as important to protect as those carrying trees and shrubs).
45. Roadsides planted out with trees should not be grazed unless trees are large enough to withstand stock damage.





**Plate 16:** Box Gum Grassy Woodland has a ground layer of tussock grasses and wildflowers.



## 6 Roadside Management Summary

It is important to tailor the particular style of roadside management to the type of roadside.

**High Conservation Value Roadsides (HCVR's) can have threatened ecological communities or can** be habitat for rare species of plants and animals. The vegetation is self-regenerating and has plants of a range of ages. HCVR communities will have either two or three distinct layers. *Two layers*: layer 1 - grasses and herbs, layer 2 trees; *three layers*: layer 1 - grasses and herbs, layer 2 – shrubs, layer 3 - trees. Occasionally TEC's will only have a grassy/herb layer as the trees have been historically removed. However, if the ground layer is intact and has a diverse range of native species, appropriate trees will regenerate if the area is protected.

In addition to valuable wildlife habitat, cultural sites such as Aboriginal scarred trees and surveyor's trees may be found along them.

High conservation roadsides should not be disturbed and careful planning is needed before engaging in road works.

**Medium Conservation Value Roadsides (MCVR's)** contain partially modified areas of native vegetation, which may be degraded due to weed invasion, grazing or removal of understorey (shrubby) plants. There is likely to be some regeneration of native vegetation.

Medium conservation roadsides should be targeted for revegetation and weed control, they often act as corridors link up with high conservation areas.

**Low Conservation Value Roadsides (LCVR's)** are areas that have been extensively cleared. Species of plants inhabiting the site are mostly exotic and there is little evidence of natural regeneration.

These areas have the potential for grazing during drought, power and phone line installations, roadwork stockpile sites and for machinery parking. They may be quite difficult to revegetate due to weed competition.

Decisions regarding future roadside activities are best made on the basis of existing roadside classifications

## 7 Glossary of terms and references

<b>Abbreviation</b>	<b>Term</b>
<b>BCA</b>	Biodiversity Conservation Act, 2016 (NSW)
<b>EPBC</b>	Environment Protection and Biodiversity Conservation Act, 1999 (Comm.)
<b>GISC</b>	Glen Innes Severn Council
<b>HCVRs</b>	High Conservation Value Roadsides
<b>MCVRs</b>	Medium Conservation Value Roadsides
<b>LCVRs</b>	Low Conservation Value Roadsides
<b>LGA</b>	Local Government Area
<b>LLS</b>	Local Land Services
<b>NPWS</b>	National parks and Wildlife Service
<b>NTLLS</b>	Northern Tablelands Local Land Services
<b>REFs</b>	Review of Environmental Factors
<b>REC</b>	Roadside Environment Committee
<b>ROTAPs</b>	Rare or Threatened Australian Plants
<b>RMS</b>	Roads and Maritime Services, NSW
<b>SRA</b>	State Recreational Area
<b>SREAs</b>	Significant Roadside Environment Areas
<b>TECs</b>	Threatened Ecological Communities

## 8 Contact list

Director of Development, Planning and regulatory Services  
Glen Innes Severn Council (Church Street)  
PO Box 61  
Glen Innes NSW 2370  
Ph (02) 6730 2365 Fax. (02) 6732-3643

Peter Croft  
Glen Innes Australian Plants Society  
National Parks and Wildlife Office  
68 Church Street  
PO Box 281  
Glen Innes NSW 2370  
Ph. (02) 6732-5133 Fax. (02) 6732-5130

*Local Landcare Facilitators – for information regarding  
local Landcare groups:*

GLENRAC  
PO Box 660  
Glen Innes NSW 2370  
Ph. (02) 6732-3443

*For vegetation clearing permits and information about landholder programs to manage  
native vegetation :*

Northern Tablelands Local Land Services  
15 Vivian St  
Inverell, NSW, 2360  
Ph: (02) 6720 8300

Glen Innes Local Aboriginal Land Council  
181 Lang St  
Glen Innes, NSW, 2370  
Ph: (02) 6732 1200

*Assistance and practical training to complement this management guide:*

NSW Roadside Environment Committee  
Contact – Mr Neil Dufty  
Executive Officer, NSW Roadside Management Committee  
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Roadside Assess. of Native Vegetation (GIMC)



## 10 Further Reading

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### *Key and reference guide for Native and Introduced plant species:*

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