URALLA SHIRE COUNCIL

State of the Environment Report

UINT/21/11194

2017 - 2021

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1. Introduction

1.1. State of the Environment Reporting-overview

The NSW *Local Government Act 1993* requires all councils to produce a State of the Environment (SoE) Report as part of their reporting requirements.

A State of the Environment (SoE) Report is an important management tool that aims to provide the community and the local council with information on the condition of the environment in the local area to assist decision making. The State of the Environment Reporting is undertaken every four years to coincide with council elections. This report covers a five year period due to the term of Council being extended by an additional 1¼ years (elections delayed by the pandemic).

As per Section 428A (3) of the Local Government Act 1993, the State of the Environment Report is meant to:

(a) Establish relevant environmental indicators for each environmental objective;

(b) Report on, and update trends in, each such environmental indicator; and

(c) Identify all major environmental impacts (being events and activities that have a major impact on environmental objectives).

This report covers the period 2017 – 2021 and showcases how successfully Uralla Shire Council is progressing towards achievement of the environmental goals in the Community Strategic Plan (CSP), and in doing so helps identify new pathways and actions (where required) toward achieving improved environmental outcomes across the Shire. The report showcases the responses which Council, in partnership with our residents, community groups and other agencies, is implementing.

1.2. SoE Themes

To help us understand the achievement of CSP goals, the Report examines data and trends for various environmental indicators based on the following broad themes:

- Waste Management
- Biodiversity and vegetation management
- Sustainable roads and shared paths
- Water and Sewerage

These environmental themes are consistent with the goals that have been identified in Uralla Shire CSP 2017-2027 and the Delivery Plan 2017-2021. Topics within each theme provide detailed information about the status of projects and activities aimed at promoting environmental management in the Shire.

This report acknowledges that without partnerships with our community and state / federal agencies, Council would be unable to provide the levels of environmental management that it currently maintains.

2. Uralla Shire Council- Profile

2.1. Overview

Uralla Shire is located on the Northern Tablelands of New South Wales and in 2016 recorded a total population of 6,300. Uralla Township (population 2,750) is the main urban area. The Shire covers approximately 3,230 km^2 and includes a number of smaller villages and localities including Bundarra in the north-west, Invergowrie in the east, Kingstown in the west and Kentucky in the south.

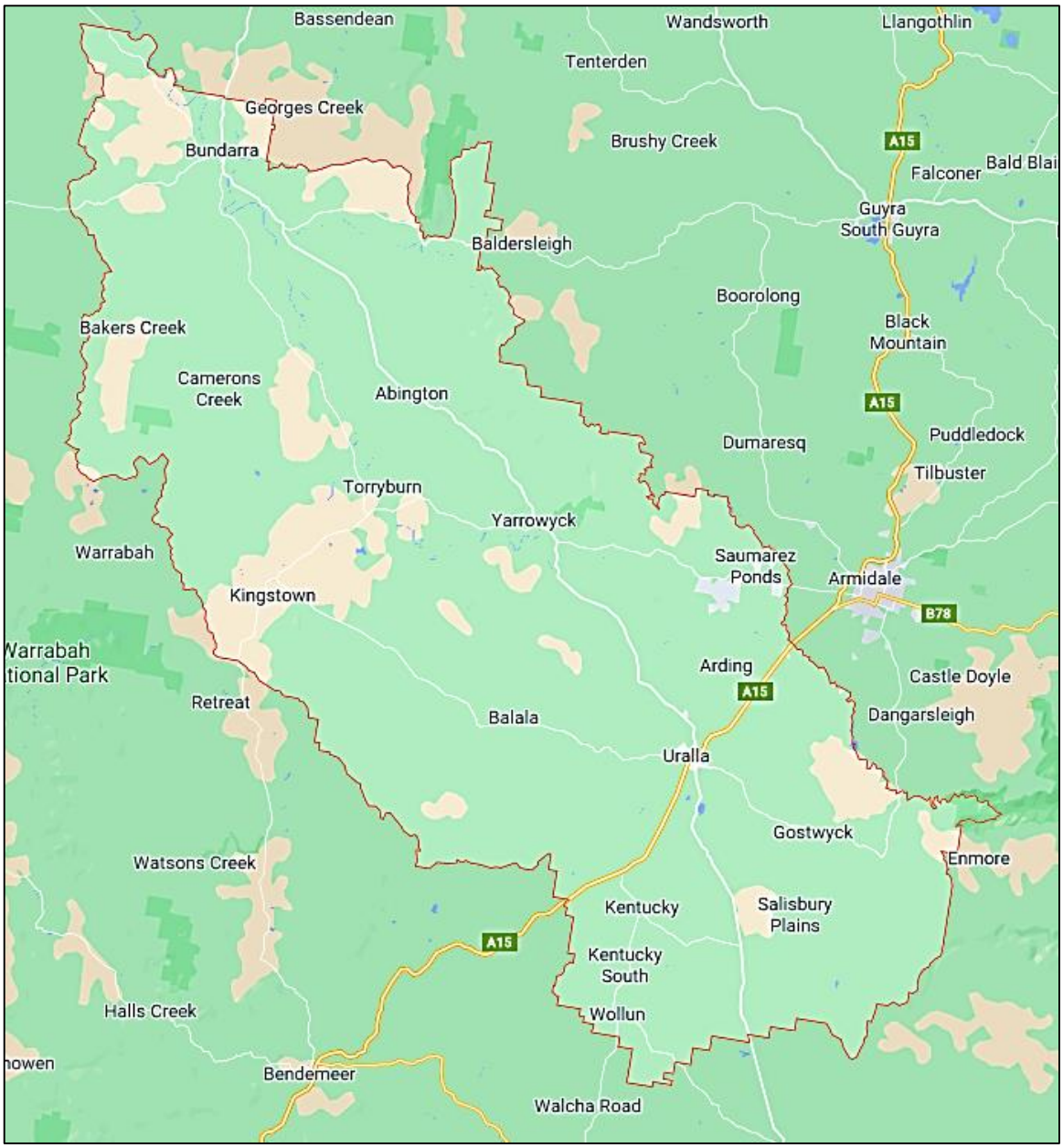

Figure 1: Location Map of Uralla Shire Council (*Source: Google Maps)*

Uralla has been inhabited by the Anaiwan people for around 9000 years, as evidenced by local archaeological finds. European settlers arrived in the region from the 1830s, having been attracted to the region by its favorable climate and geography to support livestock grazing. It was this early impression of European landscapes that gave the region its "New England" moniker.

Uralla Shire is a source of rich biodiversity, cultural heritage and agricultural production. The region supports a number of national parks, state heritage sites and nature reserves, with world heritage listed forests of the Oxley Wild rivers National Park within the Council area. Uralla Shire is fortunate to support a number of bioregions rich in unique plant and animal species. As an example, the habitat supporting the critically endangered Regent Honeyeater (*Xanthomyza phrygia*) is largely confined to fragments of Box Gum and Ironbark woodlands that occur in the west of the Shire.

The nature of economic activity in Uralla Shire is traditionally based on agricultural products, however this is changing as tourism and service industries gather momentum. With support from Council, Uralla is fast gaining a reputation for high-quality locally sourced produce – the "paddock to plate" concept has been a central focus to encourage tourists to visit Uralla.

Other small-scale industries such as metal manufacturing have been a focal point for developing skilled labour through training and apprenticeships, and by these means continue to offer local employment opportunities. Council will continue to support these activities in order to increase employment opportunities and provide a platform for new industries to emerge.

2.2. Natural environment

2.2.1. Climate

The New England Region experiences a dry sub-humid temperate climate. Summers are relatively short and mild and winters are long and cold. Mean monthly maximum temperatures generally vary from 25.9 °C in January to 11.3 °C in July. Mean monthly minimum temperatures generally vary from 14.8 °C in January to 2.1 °C in July (Table 1).

Median rainfall is approximately 800mm per annum in Uralla and 763mm per annum in Bundarra with approximately 60% falling in summer and 40% in winter. The drought of 2018 and 2019 resulted to the lowest rainfall (less than 250 mm) on record and followed six years of below-average rainfall.

Table 1: Weather averages for Uralla

Parameter	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. Temperature °C	20	19	17.2	13.7	9.9	7.2	6.2	7.4	11.3	14.3	16.6	18.6
Min. Temperature °C	14.8	14.2	12.6	9.3	5.5	3.6	2.1	2.6	5.9	8.8	11.3	13.2
Max. Temperature °C	25.9	24.6	22.6	19	15.2	11.9	11.3	13	17.2	20.3	22.4	24.3
Precipitation / Rainfall mm	106	89	61	39	41	49	43	41	50	74	102	111

- *Source: Climate data.org*

2.2.2. Rivers

Uralla Shire in on the northern edge of the Murray Darling Basin. Rivers and creeks flowing west and south flow directly into this system via the Gwydir River, while rivers to the east of the divide flow into the Macleay. Water quality issues for downstream communities on these systems begin within the Uralla Shire headwaters of these rivers. Key threats include weed management, modification of channels, sedimentation and chemical use. On site sewerage management is particularly relevant to catchment water quality health.

2.2.3. Wetlands

Uralla is home to a number of wetlands which form a complex of at least 58 surviving wetlands distributed around the New England Tablelands (Bell *et al.,* 2008). This group of wetlands is known as the 'Upland wetlands of the drainage divide of the New England Tablelands Bioregion'.

Upland wetlands are important habitat for birds, including international migrating species, mammals, reptiles and fish. Notable upland wetlands include Dangar's Lagoon, Racecourse Lagoon, Thomas Lagoon, Barleyfield's Lagoon, Kentucky and Taylors Lagoons.

Species known to be present at Racecourse Lagoon include the eastern water rat, dragonfly, tiger snake, yellow-spotted bell frog, eastern snake-necked turtle, Australian grebe, and Latham's Snipe. International visitors include red-necked Phalarope from the Arctic and Marsh Sandpipers from Austria. Many of these species have been sighted in the nearby Dangar's lagoon, including different bird species such as Great Crested Grebes, Blue-billed Ducks, Whiskered Terns, Swamp Harriers, Whistling Kites and Nankeen Night Herons.

Very few of the wetlands of this type have any formalised protection. Regionally the number of wetlands lost as a consequence of changes to their hydrology, landscape disturbance, landscape clearing, feral animals (e.g. rabbits, foxes, mosquito fish/gambusia), and weeds (e.g. blackberry), changes in rainfall patterns, aquifer extraction, and poor management. The majority of remaining wetlands are highly modified, and their vegetation communities are under threat (Bell *et al*., 2008).

The NSW Scientific Committee believed that listing the wetlands as an Endangered Ecological Communities was warranted given that "*they are likely to become extinct in nature in NSW unless factors threatening their survival or evolutionary development cease to operate*".

In 2005 Racecourse lagoon was included in a listing for the 'Upland wetlands of the New England Tablelands and Monaro Plateau', under the Environment Protection and Biodiversity Conservation Act, 1999. This was due to "*their restricted distribution and vulnerability to ongoing threats."* Their listing *"recognises that their long-term survival is under threat"* and aims to *"prevent further decline, and assist community and land manager efforts toward the recovery of the ecological community*."

2.2.4. Threats to ecological communities in the Shire

After land clearing, exotic plant and animal invasion is the single biggest threat to the conservation of biodiversity, and this applies equally in Uralla Shire. There is a continual increase in the number and variety of invasive weed species that are entering the New England Tableland Bioregion through multiple vectors, including road, rail and riparian corridors. Furthermore, the Shire is experiencing increasing ecological stress through changes in plant distributions as a result of harmful and/or negligent land-use practices and climate change. There is evidence provided by authorities and landholders of new weed incursions that have previously been confined to warmer, more humid coastal locations. As an example, Fireweed (*Senecio madagascariensis*), a weed of national significance, has been sighted in and adjacent to the Kentucky - Nowendoc rail corridor south of Uralla (NEWA pers comms 2017).

Through planning and development, Council can have a very direct impact on the rate of clearing and the ongoing management of remnant vegetation communities. Council develops bush regeneration plans to align with current legislative guidelines, most notably the *Biodiversity Conservation Act 2016 (NSW)* and the *Biosecurity Act 2015 (Cth)*. Council also develops and maintains collaborative agreements with landholders and other stakeholders where common interest adds support to the objectives of weed and pest animal control.

2.3. Waste and recycling

Waste production and management issues are directly related to population growth and our economic prosperity. That is, the more affluent we become the more waste we produce.

Waste refers to the organic and inorganic things we dispose of: everything from cotton buds to the scraps from our kitchen, the objects we find in the depths of our garage, to the weeds we pull from our garden.

The environmental and health impacts of waste occur across the life cycle of those wasted things. In understanding the full impact of waste we should think about the environmental impact of the extraction process for the minerals and resources used to make the product; the environmental impact of transporting those materials through the different stages of production and the amount of energy and water that went into manufacturing it at each stage. A full appreciation of the impact of waste is not complete without considering what we do with the bits of those products that we throw away. The waste disposal process itself has implications for land, water and air quality; and there is an increasing environmental and economic cost to local communities who bear the burden of waste management and disposal.

2.4. Stakeholders

Partnership with stakeholders is essential to our ability to achieve positive environmental change. It makes creative, financial and logistical sense to combine our resources. Many projects that Council is involved with over time have originated from community ideas or partnerships. Our partners include community groups; schools, education centres, regional councils; state and federal departments as well as businesses. Many residents also participate and volunteer their time on projects. Indeed, many of the project ideas and activities undertaken over recent years have been generated from within the community.

Council works primarily with urban-based residents and groups in implementing conservation and rehabilitation projects on public lands. Key project sites include Alma Park, Uralla and Rocky Creeks, Mt Mutton, The Glen, Bundarra Nature Park, Racecourse Lagoon and Wooldridge Fossicking Reserve.

The support provided by the Council to any project varies from staff time to help with funding applications, project design/planning or communication on behalf of a group. Where possible, Council provides direct contributing funding, and/or in-kind support with machinery and/or materials. The bush regeneration team has made significant contributions to a number of Rivercare and Landcare-funded projects. Often, Council will assist to maintain the works within the project. Uralla Shire Council also works in partnership with the New England Weeds Authority to control noxious weeds across the Shire.

During the reporting period, Covid-19 pandemic affected conservation and rehabilitation project activities that were to be undertaken by the Council in partnership with stakeholders and volunteer community groups.

3. Waste Management

CSP Goal: Reuse, recycle and reduce waste
Strategies:

- Promoting recycling and reuse and providing regular and efficient waste and recycling services.
- Providing education to the community on ways to minimise the waste produced by households.
- Implementing initiatives to reduce illegal dumping and provide community education to prevent litter

3.1. Overview

Waste management refers to the practice of collecting, transporting, processing or disposing of, managing and monitoring various waste materials. It is important to improve sustainability in this respect so that every bit of waste can be managed efficiently rather than simply depositing it in landfills.

Waste management is a major responsibility for councils and is significant for social, environmental and economic factors.

The sustainable waste management practices being promoted by Uralla Shire Council are:

- **Avoid-** By identifying ways of carrying out a function or task without using materials that generate waste. An example is sending information electronically instead of on paper.
- **Reduce**- Using less in the first place and avoiding waste. An example of this is purchasing in bulk to reduce packaging.
- **Reuse**- Using the same item more than once and extending the useful life of products and equipment before replacing an item.
- **Recycle**- Purchasing products that contain recycled materials or those that have or can be re-manufactured. Recycling saves energy, keeps materials out of landfills and provides raw materials for new products.

Council aims to increase recycling rates and reduce waste to landfill in line with State targets

Council's priorities include:

- Ensuring that at least 50% of Uralla's total waste is recycled.
- Reducing the volume of print paper purchased by 10%.

3.2. Waste management services

Uralla Shire Council currently offers the following waste services:

- Kerbside waste in 140L bins.
- Kerbside recycling in comingled 240L bins.
- Drop off recycling points at Uralla, Bundarra and Kingstown waste management facilities.
- Recycling station at Kentucky.
- Kerbside commercial recycling collection.
- Voluntary kerbside garden organics collection in Uralla Township.
- Participation in the annual chemical collection, batteries, oil, e-waste, ferrous and non-ferrous metal, delivered non-putrescible garden organic waste, wood waste, Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM), tyres (all sizes), mattresses, dead animal disposal, and asbestos disposal (Uralla Landfill only).

Council does not charge for green waste, metal waste or Op-Shop suitable items.

Council operates a licensed landfill in Uralla, an unlicensed landfill in Bundarra and a waste transfer station in Kingstown.

Council undertakes all kerbside collection services for the Shire and has the contract for Walcha Council domestic kerbside collection services. All recyclable material collected at kerbside and from commercial services in Walcha and Uralla is processed in Uralla.

The Uralla Shire Landfill and Community Recycling Centre operates a small Op-Shop, owned and run internally by Council. Computer Bank New England (CBNE) are a not-for-profit organisation that recover materials from all forms of e-waste. CBNE integrate their activities into the National Computer & Television Recycling Scheme and assist Waste Services by loading PCs and TVs into stillages ready for collection.

Estimates of the quantities of waste received at Uralla, Bundara and Kingstown waste facilities are provided in Table 2:

Table 2: Solid waste collected at USC facilities, 2019/2020

Waste category	Volume of waste (tonnes)		
	Uralla Landfill and Recycling Facility	Bundarra Transfer Station	Kingstown Transfer Station
General Waste	1439.5	41.64	24.06
Mixed Recycling	733.15	11.99	16.05
Cardboard Recycling	134.58	11.39	5.63
Steel Recycling	1189.94	209.29	23.63
Green waste	1155.66	82.56	-
Commercial and Industrial	117.62	-	-
Construction & Demolition	793.61	-	-

- *Source: USC WARRP Annual Report 2019/2020*

Figure 2: Waste management facilities at USC

Case Study: Regulation of Underground Petroleum Storage Systems (UPSS)

Underground petroleum storage systems (UPSS) refers to the entire system of underground tanks, pipes, valves and other equipment designed to store and handle petroleum products

The UPSS Regulation 2019

Image courtesy of EPA NSW

Under the Protection of the Environment Operations (Underground Petroleum Storage System) Regulation 2019, the regulation of UPSS sites was transferred from the NSW Environment Protection Authority (EPA) to Local Councils on 1st September 2019. Local councils are enforcing compliance with the Regulation for sites within their local areas.

The Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 aims to ensure all UPSS are constructed, operated and maintained to prevent fuel leaks. It also requires close monitoring for fuel leaks so that they are detected and fixed early, minimising contamination.

Compliance inspections

As part of the commitment to the Regulation, the Council will be inspecting all UPSS sites annually to ensure compliance in order to protect the health of the environment and the public. Council will generally contact the person responsible for the UPSS prior to a compliance inspection, however inspections may occur without prior notice where there is a concern over the operation of the system, or in response to complaints.

Leak Notification Requirements

The person responsible for the UPSS must immediately notify the council of a leak or spill, whether through loss monitoring of tanks and piping, inventory control, discrepancy or loss investigation, or some other method. Notification must be done within 7 days when:

- A leak from a UPSS, verified in accordance with loss detection or incident management procedures that is causing or threatens material harm to human health or the environment.
- There is evidence at the site of free-phase hydrocarbons in surface water and/or groundwater.
- There is evidence that offsite migration of hydrocarbons could occur, is occurring, or has occurred.

Decommissioning of UPSS

Where a UPSS has not been used to store fuel for two or more years or where it is not intended to be used to store fuel again, it is deemed to be abandoned and must be decommissioned using industry best practice.

Removal of the tank is the preferred option for dealing with disused or unwanted UPSS, however depending on the site, it may be impractical or undesirable to remove some UPSS, such as those located in the basement of a building or where removal will have an impact on other structures. In these situations, the disused UPSS should be emptied and decommissioned in situ (left underground) by filling the tank with a concrete slurry, sand or foam.

4. Biodiversity and Vegetation Management

CSP Goal: To preserve, protect and renew our beautiful natural environment
Strategies:

- Protect and maintain a healthy catchment and waterways
- Raise community awareness of environmental and biodiversity issues

4.1. Overview

Uralla Shire crosses a geographic transition from the New England Tablelands landscape in the east to the edge of the Western Slopes and Plains. This complex and beautiful landscape (known as the New England Tableland Bioregion) covers physical, social and administrative boundaries that characterise specific environmental assets and issues. The region is botanically significant due to its high plant species diversity and high level of endemism. As an example, a third of the region's eucalypts are endemic to the bioregion, 68 species of plant are listed under the schedules of the Threatened Species Act, 30 are listed as endangered, and 39 are listed as vulnerable.

A considerable proportion of the New England Tableland Bioregion (57.95%) has been cleared of its native canopy vegetation, making it the fourth highest cleared region in NSW. Clearing has been spread across most of the different types of vegetation found within it. These landscapes are underrepresented in the National Parks and Nature Reserves system meaning that any remaining healthy native vegetation communities on either public or private land are of particular importance.

Portions of the Shire remain well timbered: a well-timbered woodland country still remains on Crown lands and some freehold country in the western area of the Shire. In keeping with geographical variations, different parts of the Shire are dominated by different communities. The central Shire is dominated by White Box (sometimes also Grey Box), with Mugga Ironbark on stony rises, and Yellow Box and Blakely's Red Gum on lower slopes. The timbered country north along the New England Highway is dominated by Yellow Box, Blakely's Red Gum, Rough-barked Apple and Apple Box; with New England Stringybark, New England Peppermint, Ribbon Gum, and Mountain White Gum in the hills.

Council is obligated to protect and conserve biodiversity on public lands under its management. Such lands include wetland, riparian, and native bushland ecosystems, along with parks and roadside reserves.

Threats to biodiversity in USC:

- Vegetation and habitat loss (natural and deliberate): terrestrial and aquatic
- Weed and pest infestation
- Feral animals- predation, competition and disease transmission
- Climate change
- Drought and bushfires

Water stressed tree at Alma Park, 2019

Dangar's lagoon after a fire in 2019

4.2. Weed invasion and control

Invasion by weeds is one of Australia's most serious and expensive land degradation problems. A weed is generally characterised as a plant growing where it is not wanted or where it was not originally present that will cause an impact on agriculture, human health or the environment. A weed is declared noxious because its control will provide a benefit to the community over and above the cost of implementing control programs.

The Biosecurity Act 2015 streamlines and modernises the way weeds are managed in NSW as it:

- Embeds the principle of shared responsibility for biosecurity risks (including weeds) across government, community and industry.
- Applies equally to all land in the state regardless of whether it is publicly or privately owned.
- Is premised on the concept of risk so that weed management investment and response is appropriate to the risk.
- Supports regional planning and management for weeds as recommended by the Review of Weeds Management in NSW.

The Biosecurity Act 2015 requires that any person dealing with plant matter must take measures to prevent, minimise or eliminate the biosecurity risk (as far as is reasonably practicable).

Uralla Shire Council is a member of the New England Weeds Authority (NEWA), a single purpose County Council which is a Local Control Authority for priority and invasive weeds under the NSW Biosecurity Act, 2015.

NEWA's major role is to assist in reducing the impacts from weeds declared noxious in the New England & Northern Tablelands region. Weeds treated by NEWA are Serrated Tussock, Chilean Needle Grass, St John's Wort, Paterson's Curse, Vipers Bugloss, Blackberry/Sweet Briar, Giant Parramatta Grass, African Lovegrass, Cape/English Broom, Grass, Lantana and Privet.

Strategies adopted by NEWA include:

- Identification and management of high-risk weed species and the pathways they utilize within the region;
- Formulation of weed detection systems to improve the capacity to find new weeds early;
- Ensuring they have the resources and procedures in place to undertake strategic weed control measures and rapid response against new weed incursions;
- Continual analysis of weed management programs to ensure they are directing resources to where benefits will be the greatest; and
- Increasing the community commitment and involvement in proactive weed management and control approaches.

NEWA conducts an extensive spraying program across the region's roads, as well as on private and public lands. NEWA provides advice on weed control and weed identification, undertakes private works on request, and answers general inquiries from the public. NEWA also offers their expertise to Council staff and often advises on projects.

During 2017-2021, the following weeds were controlled/removed in USC LGA:

- Privet weed removal and treatment at Rocky Creek, Uralla
- Total grass control in rural roads, urban areas and Uralla/Bundarra Cemeteries.
- Chilean Needle Grass in Invergowrie.
- St John's Wort, Saffron Thistle Paterson's Curse, Vipers Bugloss, Blackberry and Sweet Briar on rural roads.
- St John's Wort in Uralla Township.
- St John's Wort, Blackberry and Sweet Briar on rural roads and waste stations.
- Blackberry, Sweet Briar, Eucalypt and Wattle Suckers on rural roads and water supply dams.
- Blackberry, Sweet Briar, Eucalypt and Wattle Suckers in urban areas.
- Tiger Pear in Bundarra Township.

Privet weeds at Rocky Creek, Alma Park

NEWA staff removing privet weeds along Stoney Creek at Uralla Caravan Park

4.3. Bush regeneration

Bush regeneration is the process of restoring natural ecosystems to a state where they can support their regenerative processes. Council staff identifies and aims to control the influence of threatening processes such as invasive species (plant and animal) and erosion, as well as supplement natural recruitment processes with planting or seeding.

The aim is to support an ecosystem to maintain itself as close to its expected condition as possible. That is, with as many of the natural plant and animal species expected for that community while preventing any further loss in the health of that community

Some of the activities that affect bush regeneration are disturbance history at some sites, the current use of a site, the changing nature of our climate, and the inevitable continued arrival of weeds and pest species.

What is desirable is to recognise the remaining ability (resilience) of an ecosystem to maintain itself in as close to a healthy condition as possible. Significant contributions of time and energy are made to bush regeneration by the community. Both state and federal governments provide funds for various bush regeneration and biodiversity conservation programs. Bush regeneration is applied to different types of sites in the Shire, from remnant terrestrial bush to wetlands. These sites can generally be considered to have 'high conservation value'. Examples are Bundarra Nature Park, Mt Mutton Reserve, Wooldridge Recreation Reserve, Racecourse Lagoon, and a series of High Conservation Value roadside vegetation sites.

Uralla Shire Council manages its Bush Regeneration Strategy under key statutory instruments including:

- *The Environment Protection and Biodiversity Conservation Act 1999 (Cth);*
- *Local Government Act 1993 (NSW);*
- *Biodiversity Conservation Act 2016 (NSW);*
- *Biosecurity Act 201 (Cth)5;* and
- *Crown Land Management Act 2016 (NSW).*

Uralla Shire Council recognises shared responsibility for the management and actions affecting weeds that are agriculturally damaging and invasive with the regenerative capacity to move rapidly across boundaries. Council's bush regeneration management objectives acknowledge a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk, and that any person who knows (or ought to know) of any biosecurity risk has a duty as far as is reasonably practicable to ensure the risk is prevented, eliminated or minimised.

Case Study: Wooldridge Recreation and Fossicking Reserve

The Wooldridge Recreation and Fossicking Reserve is located near the Uralla township and forms part of the historical gold mining precinct adjacent to the town. The Reserve (Crown Reserve No. R91185) was gazetted for Public Recreation on 7 July 1978.

The scenic and environmental quality of the reserve, with the mix of a small river with permanent water flows and bushland, provides a peaceful and varied setting for fossicking, picnicking, fishing, swimming, walking, environmental and heritage education (e.g. school excursions), bird watching, photography and camping.

The Reserve has a diverse native groundcover (grasses and wildflowers) everywhere except on the riverbanks. The dominant tree species varies depending on where you are in the Reserve: the upper parts of the reserve are Box-Gum Woodland (an Endangered Ecological Community) while different parts of the reserve may represent other Endangered Ecological Communities. The dominant tree in the lower parts is Mountain Gum with some other trees including New England Peppermint, with Sweet Bursaria and Tea Tree as common shrubs.

The successful management of the reserve is a high priority for the Council. Key strategies include continuing weed control, supplementary planting, replacing woody debris, additional fencing and signage to manage behaviour, as well as more education and community events.

Z-NET Uralla Elephant in the Woodland Biodiversity Assessment

Between 2018 and 2020, Z-NET undertook an assessment to benchmark two local sites where firewood collection is being undertaken by campers (Fossicking Reserve) and opportunistically by locals (Rock Abbey Road*).*

Both sites have very low levels of bare ground, but live plant cover is approximately half of the benchmark value. The gaps between live plants are covered by leaf litter which protects the soil from erosion and drying out. Leaf litter is prone to blowing or washing away, leaving bare soil. At Wooldridge Fossicking Area it appears that past disturbance has resulted in the lower plant cover.

At Rock Abbey Rd the low cover of live plants is most likely due to dense canopy cover resulting in intense competition with the trees for light and water. Past disturbance from road maintenance (drain cutting) has also affected live plant cover. Given the narrowness of the road reserve thinning of the trees is not a viable management option. The leaf litter at the Rock Abbey site is deeper and less likely to blow away than at the Wooldridge site.

At both sites, live plant cover significantly increased while leaf litter decreased between years. This shows the value of leaf litter in protecting the soil when live plant growth is reduced due to drought. Bare ground was never significant in either year due to the presence of leaf litter. Leaf litter was largely made up of twigs, dead tree leaves and dead grass stalks, showing the value of having some trees in the paddock during droughts.

Future management should aim to prevent grazing and keep vehicle traffic off woodland areas. Firewood should not be harvested from these sites as Coarse Woody Debris (CWD) levels are well below benchmark conditions.

Biodiversity assessment at Wooldridge Fossicking Area on Rocky River, 2020

5. Sustainable Roads and Shared Paths

CSP Goal: A safe and efficient network of arterial roads and supporting infrastructure; and town streets, footpaths and cycle ways that are adequate, interconnected and maintained.
Strategies:

- Provide an effective road network that balances asset conditions with available resources and asset utilisation.
- Provide a network of town and village streets that balances asset conditions with available resources and asset utilisation.
- Facilitate the enhancement and expansion of accessible walking and cycling networks where strategically identified and interconnected with other transport and recreation facilities.

5.1. Overview

Uralla Shire Council is responsible for the maintenance of 452Km of sealed roads and streets, 477km of unsealed roads, 42 road bridges, 36 culverts, 9 flood ways and 4 pedestrian bridges.

Council is continually reforming, grading and resealing many of its local roads to improve drainage, road safety and traffic movement. All local roads are maintained by Council using funds made available by the Commonwealth and NSW State Governments as well as locally raised revenue.

5.2. Upgrade of roads from unsealed to sealed

Since 2017, the council has upgraded more than 15 km of unsealed roads to sealed (Table 3).

Table 3: Roads sealed by USC at LGA between 2017 and 2021

Road Project	Year	Key milestones	Status
Retreat Road (2 km)	2021	Road widened and Sealed to 7m wide	Completed
Hawthorne Dr (5.15 Km from Rocky River Road	2020	Road widening and Sealing to 7m wide	Ongoing
Bingara Road (6.6 Km)	2020	Road widened and Sealed to 7m wide	Completed
Mt Mitchell Road (1.7 Km)	2019	Road widened and Sealed to 6m wide	Completed
Tulong Road (1.15 Km from Pinegrove Road intersection)	2017	Construction and seal for 1.15km	Completed
Section of Saumarez War Services Road (0.2 Km to 0.55 Km)	2017	Sealed for 350m	Completed
Jacksons Road (650m from Arding Road intersection)	2017	Construction and seal 640 metres	Completed

5.3. Construction of footpaths/cycle ways

Council completed construction of more than 1.5 km of footpaths/cycle ways in various streets across the Shire area (Table 5).

Table 4: Footpaths constructed by USC at LGA between 2017 and 2021

Name	Year	Width (m)	Length(m)
Bendemeer St - Tomline St (Shop) to Court St (around pub)	2019/2020	3.7	50
Hill St - Queen St to Uralla St (Alma Park main entrance)	2019/2020	3	20
Bendemeer St - Oliver St (museum boundary) to Court St	2018/19	3.7	32
Bendemeer St - Oliver St (museum boundary) to Court St LT	2018/19	3.8	105
Bendemeer St - Souter St (shop boundary) to Oliver St (L shape around Shop)	2018/19	4.1	51
Invergowrie Rd - Mount Mitchell Rd to Bilga Rd (Invergowrie Store)	2018/19	1.2	600
Court St - Bendemeer to Public Toilets at caravan park	2018	1.5	116.5
Alma Park - Roadway to toilet block (liberty swing pathway)	2018	1.5	25
King St - Bridge St to Queen St	2017/18	2.4	200
Maitland St - Hill St to King St RT	2017/18	2	210
Maitland St - Salisbury St to Hill St RT (WO 1276)	2017	1.2	115
Hill St - Bridge St to Maitland St (minor repairs in front of the post office)	2017	3.5	40

The construction of the above paths has provided improved access for cyclists and pedestrians. Council is continuing to pursue funding to extend the active commuting network which will link key community locations.

6. Water and Sewerage

CSP Goal: To secure sustainable and environmentally sound water-cycle infrastructure and services

Strategies:

- Maintain and renew water network infrastructure to ensure the provision of secure, quality and reliable drinking water supplies.
- Maintain and renew the sewerage network infrastructure to ensure the provision of efficient and environmentally sound sewerage services.
- Ensure adequate stormwater and drainage infrastructure is provided, maintained and renewed.

6.1. Water supply status and trends

The security of a consistent, reliable and high-quality water supply is paramount to every community's development and wellbeing.

The communities of Uralla and Bundarra both have a reticulated water supply. Dwellings outside the two main urban areas do not have access to a reticulated water supply. Uralla's reticulated water is supplied by a 500ML storage dam located on Kentucky Creek about 5km southwest of Uralla. Water is treated by conventional sedimentation and sand filtration treatment plant with a capacity of 5 ML per day and distributed by a system comprising three service reservoirs with a total capacity of 5 ML, one pumping station, 11km of transfer and trunk mains and 27km of reticulation mains.

Bundarra residents source water from a pump well adjacent to a 120ML capacity depression in the Gwydir River known as Taylors Pond and it is pumped approximately 600m to the treatment works. The water treatment plant has a capacity of 0.8 ML per day (plus a 20% hydraulic loading) and uses conventional sedimentation and sand filtration similar to the Uralla plant. Following treatment, potable water is pumped to two service reservoirs located on the northern and western extremities of the village. The system is not robust and is vulnerable to periods of low flow in the Gwydir River. Additionally, upstream irrigators can place stress on the town water supply.

Council has an obligation to ensure that water supplies are suitable for their intended uses. The *Australian Drinking Water Guidelines 2011* are the key standards against which NSW Health and local Councils assess drinking water quality.

The key challenges affecting water supply are:

- Water quality;
- Water demand, and
- Prolonged droughts causing risk of water availability.

Water as a community resource needs to be managed on a number of levels to ensure the quality and quantity of supply. These management considerations extend to the supply of water for consumption by humans and to maintaining the health of the water supply catchment.

Average water treated and supplied to Uralla and Bundarra reached a four-year low in 2019/20 (Table 5). The decline was due to the drought conditions of 2018 and 2019 that resulted to the lowest rainfall recorded in the Shire since 1884

Table 5: Annual treated water supplied to reticulation in USC (Volumes in kL)

Year	Uralla	Bundarra
2017/18	294,807	44,355
2018/19	298,240	55,663
2019/20	230,148	38,130
2020/21	235,958	39,990

6.2. Water conservation measures during droughts

Drought management planning is an essential component of the *NSW Government's Best Practice Management of Water Supply and Sewerage Guidelines - 2007.* Council has a Drought Management Plan aimed at minimising the risk of the community running out of water, and ensuring that there is always sufficient water available to satisfy the basic community needs in Bundarra and Uralla.

During drought seasons, Council responds by implementing water restrictions that are informed by remaining storage, weather and climate forecasts as well as the impact the restrictions may have in relation to maintaining compliance with the *Australian Drinking Water Guideline 2011 and Public Health Act (NSW) 2010.* The drought response strategies by Council range from Level 1 (Low) to Level 5 (Emergency), with each level having a set of suggested actions to be undertaken during that phase of the drought, including an associated set of water conservation measures/ restrictions (Table 7 and 8).

In considering the easing of water restrictions, Council takes into consideration water supply demand, projected demand, level and security of bulk water sources, catchment parameters, seasonal conditions, and seasonal outlook.

Table 6: Water conservation measures at Uralla during drought

Drought Response Level	Primary Trigger[1]	Usage Target[2]	Additional Actions
1 Low	Kentucky Creek Dam level falls to 74%	760 kL/day ≤300L/person/day (95% average)	Permanent water conservation measures that can apply include minimising watering during the heat of the day, using a trigger nozzle on hand held hoses and washing down hard/paved surfaces with a high-pressure hose only.
2 Moderate	Kentucky Creek Dam level falls to 62%	720 kL/day ≤275L/person/day (90% average)	Implement Parks and Gardens Water Management Plan and target 30% reduction in water usage.
3 High	Kentucky Creek Dam level falls to 54%	680 kL/day ≤250L/person/day (85% average)	Target 50% reduction in parks and gardens water usage.
4 Very High	Kentucky Creek Dam level falls to 42%	600 kL/day ≤200L/person/day (75% average)	Target 25%overall usage reduction. Investigate availability of tankers to transport potable water from Armidale.
5 Emergency	Kentucky Creek Dam level falls to 35%	400 kL/day ≤150L/person/day (50% average)	Target 50% non-residential usage reduction Implement transport of potable water from Armidale to supplement supply.
	Trigger 1: Day Zero ≤ 100 Days	363 kL/day ≤130L/person/day (43% average)	Target 57% non-residential usage reduction. Target usage ≤130L per person per day.
	Trigger 2: Day Zero ≤ 40 Days	242 kL/day ≤100L/person/day (30% average)	Target 70% overall usage reduction to maintain water supply for emergency firefighting. Target usage ≤100L per person per day.

[1] Secondary triggers may include failure to achieve consumption targets or major water quality incidents.
[2] Usage targets are average annual consumptions and should be adjusted for seasonal variations. Target values are approximate.

Table 7: Water conservation measures at Bundarra during drought

Drought Response Level	Primary Trigger	Usage Target	Additional Actions
1 Low	Taylors Pond level falls to 74%	117 kL/day ≤300L/person/day (95% average)	Irrigation by adjoining rural landholders ceases.
2 Moderate	Taylors Pond level falls to 62%	110 kL/day ≤275L/person/day (90% average)	Target 20% reduction in parks and gardens water usage.
3 High	Taylors Pond level falls to 54%	104 kL/day ≤250L/person/day (85% average)	Target 50% reduction in parks and gardens water usage. Prepare to draw on Warrabinda Pond.
4 Very High	Taylors Pond level falls to 42%	92 kL/day ≤200L/person/day (75% average)	Draw on Warrabinda Pond (if supply available). Investigate availability of tankers to transport potable water from Gilgai.
5 Emergency	Taylors Pond level falls to 32%	61 kL/day ≤150L/person/day (50% average)	Target ≥50% overall usage reduction. Implement transport of potable water from Gilgai to supplement supply.
	Trigger 1: Day Zero ≤ 100 Days	53 kL/day ≤130L/person/day (43% average)	Target ≥57% overall usage reduction. Target usage ≤130L per person per day.
	Trigger 2: Day Zero ≤ 40 Days	40 kL/day ≤100L/person/day (32% average)	Target ≥68% overall usage reduction to maintain water supply for emergency firefighting. Target usage ≤100L per person per day.

6.3. Sewerage

Uralla Shire Council provides a sewerage collection and treatment system for the Uralla township. The sewage generated is collected in the sewer network and transported to the Uralla sewerage treatment plant (STP) on Rifle Range Road. At the STP, wastewater is treated to acceptable discharge standards and released back into the catchment.

Currently, the Bundarra community uses on-site sewer systems (mainly septic tanks). The effluent from these systems is directed into absorption trenches or on-site irrigation, which introduces environmental and health issues to the community and the Gwydir River catchment. In response to this challenge, Council is constructing a wastewater collection and treatment plant for the Bundarra community.

Table 8: Annual inflows of sewage to Uralla Sewage Treatment Plant

Year	Volume of raw sewage (kL)
2017/18	192,490
2018/19	180,665
2019/20	170,389
2020/21	172,898

Case study: Bundarra Sewage Treatment Plant (STP)

Uralla Shire Council has entered into a contract with Ledonne Constructions to construct a new reticulated wastewater and treatment system within the village of Bundarra. The project is anticipated to have a significant beneficial impact on sanitation and public health in more than 171 developed properties within the village.

The project work involves the construction of a sewer reticulation network and rising main within the township, a sewage pumping station to provide sufficient pressure for pumping to the treatment area located outside the urban area to the west of the township, a transfer rising main linking the station and the treatment site, and a sewage treatment plant including ponds, irrigation area, and other associated infrastructure.

The works are jointly funded by Uralla Shire Council and the Restart NSW Water Security for Regions Program, and it is expected that this reticulated wastewater and treatment system will have a significant beneficial impact on sanitation and public health to the community of Bundarra.

The construction contract was awarded in December 2020, with a 12-month construction timeframe.

Figure 3: Ongoing construction works and equipment at the Bundarra Sewage Treatment Plant

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