University of New England Armidale Landscape Management Plan

May | 2023

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University of
New England

Estate and Built Environment

Acknowledgement of Country

The University of New England respects and acknowledges that its people, courses and facilities are built on land, and surrounded by a sense of belonging, both ancient and contemporary, of the world's oldest living culture. In doing so, UNE values and respects Indigenous knowledge systems as a vital part of the knowledge capital of Australia. We recognise the strength, resilience and capacity of the Aboriginal community and pay our respects to the Elders past, present and future.

Estate & Built Environment Enquiries

+02 6773 2065
ef-maint@une.edu.au

University of New England

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Armidale Landscape Management Plan

Estate and Built Environment (EBE)

May 2023

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Contents

1. Introduction

The University of New England (UNE) is committed to best practice and continual improvement in teaching, learning and research, including research training, impact and outreach. This vision is reflected through a commitment to a living campus, based on the principles and practices of biodiversity conservation, traditional knowledge, education, learning, aesthetics and sustainability.

The Armidale campus is at the heart of UNE and this Landscape Management Plan (LMP) guides how we will manage the land on which our campus is built. The plan acknowledges first and foremost the Indigenous heritage of the site, but also the history of how UNE Armidale grew into the vibrant campus that it is today.

1.1. Scope

This LMP is specific to the main UNE campus in Armidale. The surrounding SMART Farms, UNE Sydney, UNE Tamworth, UNE Taree and our regional centres are not included in this plan for the following reasons:

- UNE SMART Farms – consist of large rural land holdings where landscape management forms part of the farms strategic and operational plans. The SMART Farms are not a contiguous site and are disconnected geographically. Vegetation management on the Farms is controlled through government regulations to ensure they meet with governmental and societal expectations. In many cases, landscape management at the SMART farms has a more experimental approach, such as programs to reintroduce endangered and locally extinct fauna under controlled conditions. The SMART Farm landscapes are also utilised for activities including spatially-enabled livestock management; land use sustainability; livestock and pasture grazing; evaluating forage plant genetic performance; and long term soil, vegetation and wildlife monitoring.
- UNE Sydney, Tamworth, Taree and regional study centres – these properties are current leasehold facilities with limited to no landscape aspects. If future developments increase freehold land acquisitions then independent LMP's would be drafted for each location.

1.2. Current Landscape Status

There is currently no formal Landscape Management Plan in place for the Armidale campus. Landscape management is overseen by Estate and Built Environment (EBE) through the Civil Team and a large portion of the works is carried out under a Grounds and Garden Maintenance contract.

There are issues without a unified approach:

- Infrastructure impacted by landscape practices leading to ongoing building maintenance costs, e.g. gutters being blocked by leaves and debris; roots growing under paths, creating trip hazards; and underground infrastructure such as HV lines and sewer being impacted by root structures;
- Limited planning for propagation and planting resulting in ad hoc decisions regarding placement and species of new planting;
- Limited understanding and monitoring of current practices and the impact to the environment; and
- Location of existing infrastructure and planning of infrastructure in high value conservation areas;
- Need to strategically align landscape design and management to Campus Master Planning.

This plan will address the above mentioned issues, strategically aligning landscape development and management with Campus Master planning, thus ensuring a more holistic approach to development and management of the campus landscape.

2. Aims, purpose and function

The purpose of this plan is to outline the principles governing the development of the University's landscape that encompasses a wide range of different uses. As the management of flora and planting principles are key to any successful landscape management, the campus has been divided into a number of botanical precincts. This plan aims to:

- Identify our vision and guiding principles for developing and managing our landscape;
- Protect Indigenous flora, fauna and Aboriginal heritage;
- Define and inform the initial and ongoing propagation and replanting programs for the campus;
- Provide a dynamic, core list of suitable species for each of the management zones to facilitate and inform planning for future plantings;
- Define the landscape zones and associated management principles;
- Protect heritage-listed plantings of trees and shrubs;
- Incorporate landscape management in campus planning, design and development;
- Provide a safe environment, minimising potential risks to people, buildings and property;
- Maintain high quality sporting fields and recreation areas;
- Integrate building and landscape design to provide external meeting and teaching and learning space;
- Establish a campus-wide botanical gardens that integrates with teaching and learning; research and research training, and community;
- Provide students and staff pleasure and protection, and facilitate learning and research
- Communicate widely (including students and staff) regarding information on best-practice management of remnant woodlands at UNE;
- Ensure compliance with regulation and legislation;
- Work towards addressing the United Nations Sustainable Development Goals 3,6, 9, 11, 12,13 and 15.

3. Stakeholders, Roles and Responsibilities

There are a number of key stakeholders involved in the management of UNE's landscape. Roles and responsibilities are outlined below:

Stakeholder	Role	Responsibilities
Director, EBE	Owner of the LMP.	Oversees the implementation of the LMP on campus.
Landscape Advisory Committee (LAC)	Provides a forum for consultation with the University community regarding the development, management and maintenance of the natural bushland and landscape spaces at the Armidale Campus. This committee includes representation from academic and professional staff and students.	• To provide a forum for communication and consultation between EBE and the University community regarding the management of bushland and landscape areas on the Armidale Campus. • To promulgate an understanding by the University community of the bushland and landscape management principles and strategies applied.
EBE Grounds and Civil Team	On the ground implementation of the LMP including landscape maintenance, planting, irrigation, minor civil works, etc.	• Carry out landscaping and maintenance activities, including activities within Heritage areas; • Advise management of any issues pertaining to the landscape.
EBE Ground and Civil contractors	On the ground implementation of the LMP including landscape maintenance, planting, irrigation, minor civil works etc.	• Report to the Civil Coordinator to undertake works in accordance with the LMP
N.C.W. Beadle Herbarium	Staff and volunteers to provide advice regarding species selection and feedback on the Landscape Management Plan.	• As mostly volunteers, there are minimal responsibilities, but opportunities to contribute in a timely fashion.
UNE Life	Manage the sporting fields that make up the Sport UNE facilities (Consett Davis, Bellevue Rugby and Bellevue Cricket grounds).	• Report to EBE on landscaping works, irrigation and new plantings.
Community	UNE will engage with external stakeholders for a variety of revegetation activities associated with UNE's landscape. These groups include: • Armidale Tree Group (ATG, a native plant nursery); • Armidale Urban Rivercare Group (AURG); • UNE Landcare; • Australian Garden History Society; and • Save our Flora	• Provide feedback and suggestions on species selection; • Assist with planting activities; • Assist in the propagation of new plants; • Provide advice and feedback on the management of heritage gardens

4. Consultation

This Landscape Management Plan has been developed in consultation with a range of stakeholders including:

- The UNE Landscape Advisory Committee, that meets several times per year and holds additional separate meetings with key representatives from the N.C.W. Beadle Herbarium;
- Estate and Built Environment, the Grounds and Civil Coordinator's team, through fortnightly meetings and ad hoc meetings;
- School of Environmental and Rural Sciences – Meetings and correspondence relating to the provision of advice regarding Threatened Ecological Communities;
- UNE SMART Farms meetings and correspondence regarding areas specific to the management of their properties: Kirby, Newholme, Tullimba, Clarks, Toombs, Laureldale, Maxwelton and Trevenna Farms;
- Stringybark Ecology (consultant, Koala Management Plan);
- Castlereagh Lachlan Environmental Services (consultant, Bushfire Management Plan);
- Centre for Animal Research and Training meetings and correspondence to provided detail on the requirements for animal housing on campus;
- Respect. Now. Always. UNE; and
- UNE Life via discussions with the Sport UNE Grounds Manager regarding the management of the sporting fields.

Membership of the Landscape Advisory Committee consists of:

- Associate Director, Estate and Built Environment (Chair);
- Aboriginal Cultural Advisor, Estate and Built Environment;
- Director of the N.C.W. Beadle Herbarium;
- Operational Services Manager, Estate and Built Environment;
- Environmental Sustainability Manager, Estate and Built Environment;
- Chair, Academic Board; Professor of Geography & Planning, Faculty of Humanities, Arts, Social Sciences and Education;
- Civil Coordinator, Estate and Built Environment;
- SMART Farms Industry Engagement Manager, School of Environmental and Rural Science;
- Adjunct Associate Professor, Botany;
- Technical Officer, Ecosystems Management - School of Environmental and Rural Science
- Two student representatives.

Consultation was undertaken on an as needed basis through in person discussion, virtual meetings, phone calls and written communication.

An initial and developing species planting list has been provided by academic experts in the field of Botany and from the Herbarium. The species that have been selected are all native, many Indigenous to the site. Botany and the N.C.W. Beadle Herbarium have started to propagate vegetation using seeds sampled on the campus, and seedlings and cuttings from research field work, which will be planted back on the campus in the future, backed up by vouchers (specimens) lodged in the Herbarium, adding value and integrity to plantings.

5. Strategic Alignment

Future Fit is the overarching strategy for the University along with the global drivers of the United Nations Sustainable Development Goals (UN SDG's) and the Talloires Declaration. The LMP sits beneath the Campus Master Plan and Estate and Built Environment (EBE) Sustainability Strategy, which provides a focused and measurable roadmap to achieve leadership in climate adaptation, resilience and innovation.

The University Bushfire Management Plan and Heritage Management Plan inform the LMP; which is to be referred to in conjunction with the Tree Management Plan and Koala Management Plan.

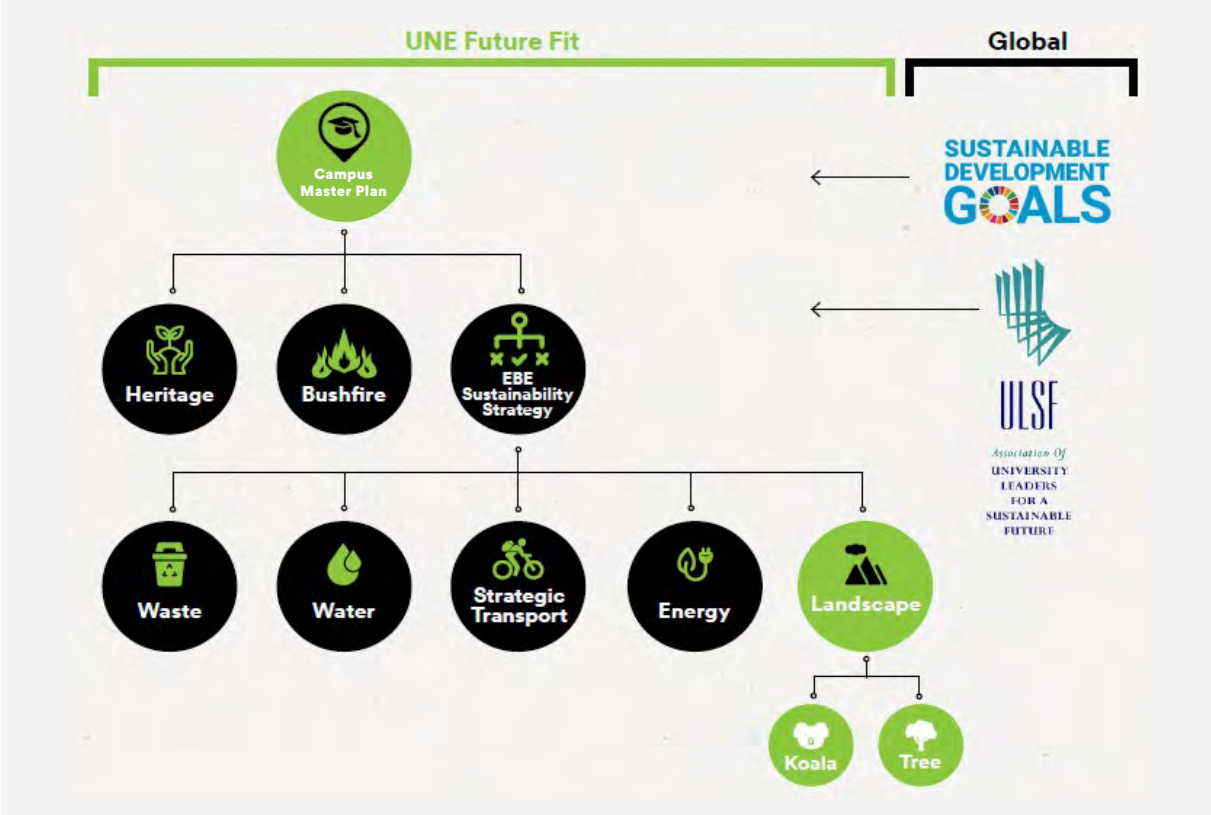


Figure 1: Strategic Alignment

5.1. Future Fit

The Future Fit strategy states: "we believe that the University, our students, and our communities share responsibility for the future of our natural environment, the people, and the prosperity of the regions in which we live and work. We do this together through building a strong university and resilient staff, students and communities".

Through the creation and sharing of knowledge we are empowering the University community to become more sustainable and resilient. By providing a living laboratory and native botanic garden, the campus landscape is central to this goal as it contributes to the informal curriculum and as the University living its values and being a beacon and model citizen for the region.

Sustainability+ **Places+** **People+**

Figure 2: Three pillars from the Future Fit strategy

5.2. United Nations Sustainable Development Goals

This plan aligns with seven of the seventeen United Nations (UN) Sustainable Development Goals (SDG's) as outlined below:

SDG 3: Good Health and Wellbeing

Ensure healthy lives and promote wellbeing for all at all ages

SDG 6: Clean Water and Sanitation

Ensure access to water and sanitation for all

SDG 9: Industries, Innovation and Infrastructure

Build resilient infrastructure, promote sustainable industrialization and foster innovation

SDG 11: Sustainable Cities and Communities

Make cities and human settlements inclusive, safe, resilient and sustainable

SDG 12: Responsible Consumption and Production

Ensure sustainable consumption and production patterns

SDG 13: Climate Action

Take urgent action to combat climate change and its impacts

SDG 15: Life on Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

5.3. Talloires Declaration

This plan aligns with three of the goals of the Talloires Declaration.

2. Create an Institutional Culture of Sustainability

Encourage all universities to engage in education, research, policy formation, and information exchange on population, environment, and development to move toward global sustainability.

5. Practice Institutional Ecology

Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations.

7. Collaborate for Interdisciplinary Approaches

Convene university faculty and administrators with environmental practitioners to develop interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.

5.4. Campus Master Plan

The campus is the outward, physical face of the University and the Campus Master Plan's purpose is to identify the elements required to successfully manage and maintain the assets that provide the unique and diverse personality of the physical spaces. The Campus Master Plan will provide flexibility and adaptability to align with the future aspirations of the university and, the vision and strategies from the University's Strategic Plan and business requirements. The LMP will help inform the Campus Master Plan by providing input related to external spaces and landscape of the UNE campus.

Figure 3: (From left) Bushfire Management Plan (BMP), Tree Management Plan (TMP), Koala Plan of Management (KPoM)

5.5. Bushfire Management Plan

Part of the UNE Campus is located on bushfire prone land as designated by the NSW Rural Fire Service. There are legislative requirements related to the development and maintenance of assets in a bushfire prone area that will be defined by UNE's Bushfire Management Plan (BMP). Requirements outlined in the BMP will, in part, cover aspects related to the LMP and will therefore need to be addressed within the LMP to ensure compliance with these requirements.

5.6. Heritage Management Plan

UNE is owner of assets that contain heritage value and are included on both state and local heritage registers. As owner of these heritage assets, UNE has responsibilities under the Heritage Act 1977 related to maintenance and any proposed development works. Responsibilities extend to the landscaping around heritage assets as defined by the curtilage areas included the relevant Conservation Management Plan. The overarching Heritage Management Plan relates specifically to the LMP as it references the individual conservation management plans and identifies the requirements related to the landscaping within the heritage curtilage for each asset

5.7. Tree Management Plan

The Tree Management plan (TMP) was developed to address the Work Health and Safety of vegetation on campus, specifically managing the risk associated with falling trees or limbs, as identified through regular inspections of the trees by a minimum Level 5 Qualified Arborist; and safely maintaining the electricity infrastructure on campus by ensuring vegetation does not impact the electrical network and associated infrastructure, while wherever possible valuing and protecting Indigenous trees on campus.

5.8. Koala Plan of Management

The Koala Plan of Management (KPoM) was developed to satisfy the conditions for development approval under the NSW State Environmental Planning Policy (SEPP). The KPoM demonstrates the University's support for management of koala populations within UNE's boundaries. The specific elements within this Plan will form an integral part of the Landscape Management Plan which will be the overarching document for protecting and improving bushland areas within the UNE campus.

The plan also aims to enable Koalas to continue to utilise the woodland on the UNE site after a dwelling and associated infrastructure are constructed; and to increase the university's capacity to support a greater number of koalas in the future and at least marginally assist in increasing the overall abundance of koalas on the UNE site.

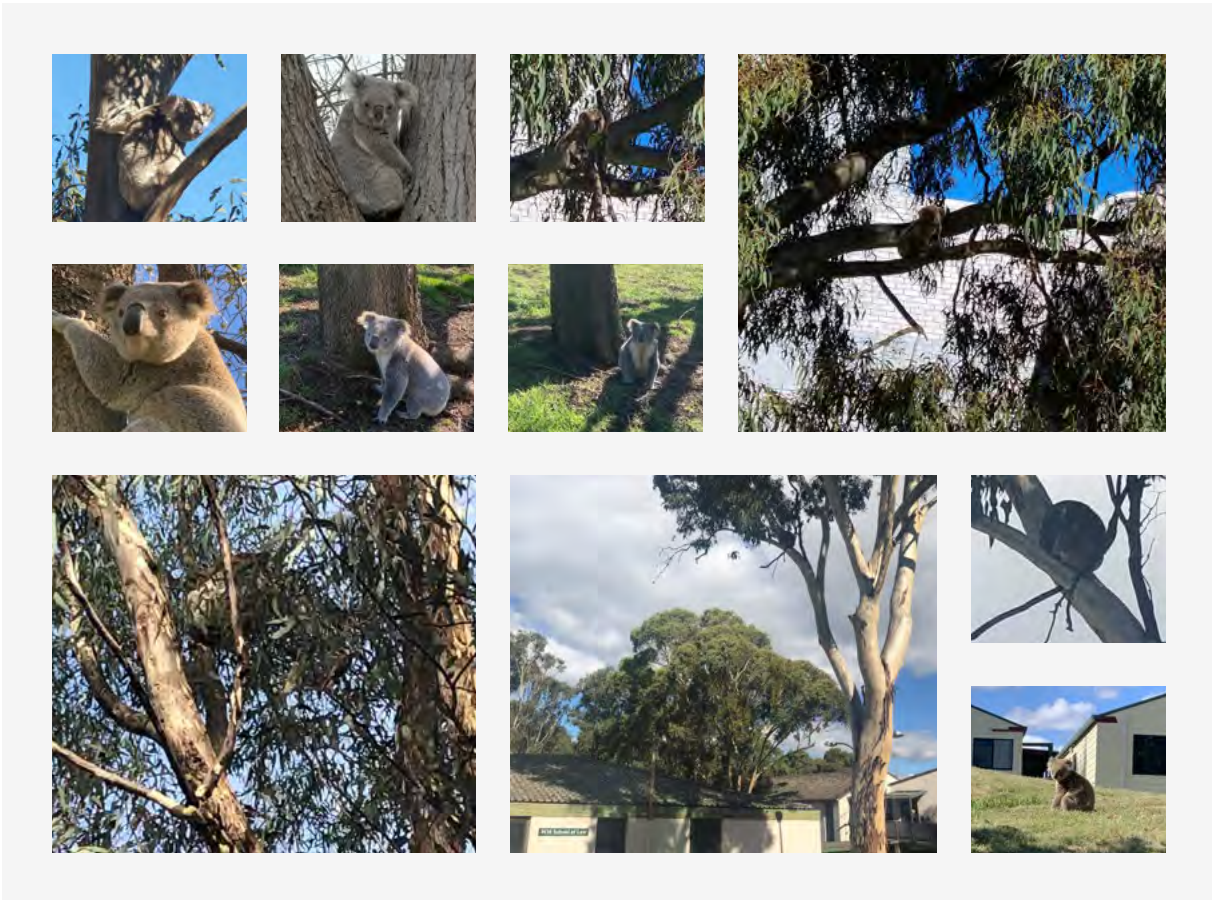


Figure 4: Sightings of Koalas around campus

6. Aboriginal Cultural History and Heritage

For at least 6,000 years, the Anaiwan People (also known as Nganaywanya) occupied the land on which the University is built. Prized lithic materials such as silcrete, basalt and jasper outcrops were in abundance in the area and highly desired by the Aboriginal people for tool making. The Anaiwan People developed extensive trading networks with their neighbours, based on rich plant and animal resources. They lived, hunted and performed ceremonies on this land up until European occupation.

After the Europeans arrived to the Armidale area the Anaiwan people established a semi-permanent camp on Drummond's Hill. From here they established close ties to the large pastoral runs in the area, particularly with the White family. Oral histories indicate that early on, Anaiwan people were employed at Booloominbah as domestic staff, stockmen, maids and gardeners. They have retained this connection to the university to this day as students, academics, professional staff, advisors and graduates.

A story that highlights this long connection to the site was told to the Universities' Aboriginal Cultural Advisor, Steven Ahoy, by his Great-Grand Father, Leonard Desilva, about Steven's Great-Great-Grandfather Frank Archibald:

"When Frank Archibald was a young boy, his uncles were teaching him how to make stone axes at the old campsite up at [what is now] UNE. On this day they were sitting down yarning while knapping at the basalt stone, working it into the desired axe shape, when suddenly out of the blue they noticed a ghostly figure approaching them. Fear overcame the group as they dropped all of their tools and fled to another campsite, now known as the Armidale Lookout. This was Frank's first recorded encounter with a European person".

"During 2015 a Solar Farm was proposed and approved for UNE. As part of the Environmental Impact Statement an Aboriginal Cultural Heritage Assessment was carried out to investigate any connection that the local Aboriginal people have to the site and if there are any sacred sites on the property. During the survey the investigation team located three Basalt stone axes and other artefacts that verified the story passed down to me for generations".

At the time of writing this plan, over 1,600 artefacts have been recorded and registered with the NSW Aboriginal Heritage Information Management System (AHIMS) to ensure they can be protected on Country. Artefacts range from hammer stones, to scar trees, stone axes and camp sites.

"In my heritage, the land, environment and culture are all valued equally and cannot be separated. We believe all entities in the universe are connected and support each other. Everything in the universe revolves around life cycles and the cycles of life revolve around evenly and fairly. To put this simply, in this life time, my actions as a human affect the environment and the environment in return affects me as a human. My deceased ancestors are in the Eternal Dreaming Cycle, meaning they are now reincarnated as living animals, trees, plants, sky features and/or land formations". - Steven Ahoy, 2020

7. Site Description

7.1. Historical Setting

The University in Armidale was originally opened on 30 April 1938 as the New England University College, a decentralised college of the University of Sydney. The New England University College and the Armidale Teachers College were the first two tertiary institutions of their kind to be established outside an Australian metropolitan area.

The core and the nerve centre of the Armidale Campus of the University of New England is the late 19th Century mansion, 'Booloominbah', one of the nation's most magnificent country houses. Booloominbah is one of the largest private country houses built in Australia during the 19th century and amongst the most avant-garde domestic arts and crafts style designs of the time.

Teaching began in 1938 in Booloominbah with the first students and staff living in Booloominbah, Lodge and Sub-lodge. By 1945 there were 180 students attending the university college with 20 staff members. As the number of staff and students grew, there was a need to expand the teaching and living facilities on campus.

The University was seeking to become autonomous as the staff wanted the ability to teach subjects specific to rural needs such as agricultural and veterinary science. The College drafted a bill in 1944 with the intention for the New South Wales government to endorse the College's autonomy. There was an agreement made by the University of Sydney in 1945 for working towards autonomy of the College within seven years. With a number of external factors, such as the Second World War and political events, the timing of autonomy was delayed and the University of New England became fully independent in 1954.

7.2. The Campus Today

Over the years the campus has grown into a sprawling site, with the teaching and academic areas located on the northern portion of the site surrounding Booloominbah. The academic precinct is classified in five zones: north, east, south, west and central. Mary White College also sits within the footprint of the Academic Campus, overlooking the former Deer Park and a conservation zone for an endangered ecological community.

To the north of the academic campus is an area of native bushland with high cultural significance and ecological value. This area has also been classified as a conservation zone and contains an endangered ecological community known as the Ribbon Gum - Mountain Gum - Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion.

The campus is bisected by Dumaresq Creek which flows from nearby Dumaresq Dam into Armidale in an easterly direction. This central portion of the campus is home to the UNE Life sporting facilities, including the large multi-purpose field, Consett Davis, tennis, netball and basketball courts, hockey turfs, carparks and the Sport UNE Aquatic Centre and Gym.

Beyond the hockey turf lies Lake Zot, a recently remediated dam that captures runoff from the central academic campus connected to the lake via a series of underground pipelines and overland drainage channels.

The southern end of the site is known as the Bellevue Campus, comprising six colleges: Austin Page, Drummond Smith, Duval, Robb, St Alberts and Wright. Across the road from the colleges sits Wright Village, a community of self-contained apartments. Additional sporting facilities including a rugby union ground and an AFL field are located adjacent to the colleges.

7.3. 2021 Natural Disaster Event

On Thursday, 14 October 2021 parts of the UNE Armidale academic campus were severely impacted by an extreme weather event Supercell 83-2122, Natural Disaster 979. A tornado cut a 40 km path and a 4km wide swathe through rural, residential and educational domains in Armidale. The resulting damage saw large, mature eucalyptus trees uprooted across the northern part of the campus resulting in the removal of 250 trees, 74 of which were classified as koala habitat.

A total of 25 buildings were damaged, some beyond repair, and as a result a significant portion of the campus was classified as a red “no-go” zone. At the time of preparing this plan the campus is still recovering from the event.

Figure 4: UNE Storm Damage Infographic, 2021

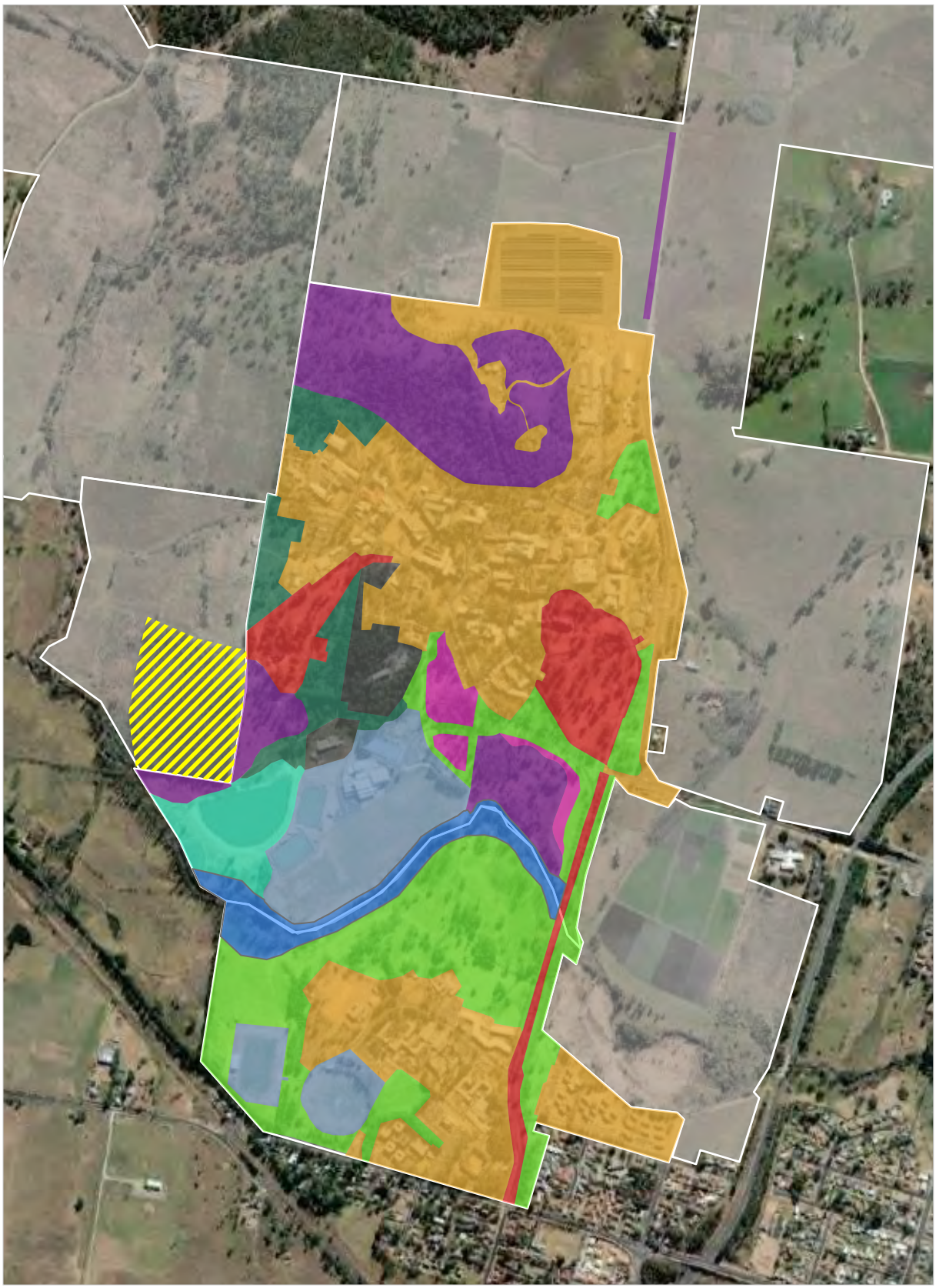


Figure 5: Landscape Management Zones

High Conservation Value; *Extended Natural Regeneration Zones;*
Native Habitat Enhancement Zones; *Lake Zot;* *Green Spaces;* *People and Infrastructure;*
Heritage; *Sports and Recreation;* *Riparian;* *Passive Green Space*

8. Landscape Management Zones

8.1. High Conservation Value

These are areas that are managed for conservation of Indigenous biodiversity, Cultural heritage, habitat significance, and ecological value via natural renewal and regeneration cycles. These sites on the campus and will be conserved, respected and treasured. These areas must not be encroached upon by infrastructure. The management of these sites aim to protect, restore and promote sustainable use of terrestrial ecosystems, in line with SDG 15: Life on Land.

Management Principles

- Access to these areas is to be limited to on-foot only, excluding the use of access roads to utilities infrastructure, maintenance within Asset Protection Zones and emergencies such as bushfires or significant storm events;
- Aboriginal Artefact sites are to be placed in an exclusion zone. The majority of sites will be accessible for education purposes under the supervision on the Aboriginal Cultural Advisor (ACA) or a representative nominated by the ACA; however there are some sites that will be restricted to members of the general community and only accessible to Aboriginal people;
- Boundaries have been set to include remnant vegetation and avoid encroachment via mowing, clearing, and compaction by vehicles;
- Mature trees in these areas are to be left to naturally drop limbs and fall over, with large fallen timber left in situ for habitat where it is deemed safe to do so (e.g. unless it is considered a risk due to bushfire fuel load);
- Manual woody weed control will be undertaken where possible (e.g. cutting the weeds and painting the stem with herbicide), excluding occasions where invasive species have become too large to manually remove, in which case leaving to break down will be appropriate and in other cases, allowing to die and then felling, coarsely cutting and leaving as habitat and to breakdown on site will be appropriate;
- First Nations land management techniques including natural cultivation of bush tucker and bush medicine plants, and Cultural back burning where possible;
- Scarred trees will be maintained such that they are clear of debris to minimise the risk of impact due to bushfires. This may be achieved through a combination of Cultural burning and manual removal;
- Selected Artefact sites and scarred trees will be incorporated into UNE's Archaeological teaching to create awareness and educational opportunities;
- Regular monitoring of known Aboriginal heritage sites and registration of all new artefacts;
- Removal of litter and rubbish such as old fencing materials and structures;
- Bushfire hazard control will be undertaken in accordance with NSW Rural Fire Service recommendations.

Species

The High Value Conservation Zones are classified as Remnant vegetation of the Ribbon Gum—Mountain Gum—Snow Gum Grassy Forest/ Woodland of the New England Tableland Bioregion. The indicative species list for this Threatened Ecological Community, as defined by the Environmental Protection Authority is provided in Appendix A.

8.2. Extended Natural Regeneration Zones

These zones, totalling an area of 4.5 ha, exist adjacent to the existing High Value Conservation areas on campus and are currently managed as green spaces, with regular mowing. The transition of these areas will be undertaken as a pilot study to determine the viability and cost of returning formally green spaces to a natural, native condition.

The aim of natural regeneration is to create conditions that favour the ecosystem's own recovery processes.

Each site is different, and techniques and methods are tailored to suit the ecosystem being restored, therefore the management of these zones may be adapted over time.

Management Principles

- Mowing to be ceased in these areas;
- Signage to be implemented at 10 m intervals along the boundary of these zones to exclude access. Communicate the establishment of the new zones widely to ensure students, staff and visitors do not enter these areas unauthorised;
- An initial assessment of areas to be undertaken to determine baseline conditions using the Guide to Monitoring Ecological Restoration Projects published by the Office of Environment and Heritage NSW Appendix B (this could potentially be undertaking in conjunction with students as a T&L exercise);
- Photo monitoring stations to be identified with GPS coordinates (verified and digitised to UNE Mast map) to ensure that these locations can be used to capture the baseline, and subsequent progress at a recurring timeframe;
- Explore and research employing Aboriginal Cultural burning techniques with TOs in collaboration with UNE botanists/plant ecologists to understand and approximate a traditional fire regime, reduce weeds encourage new growth and provide a learning experience for students;
- Avoid excessive ground disturbance, as this often favours weed regrowth (employ some disturbance where it is needed to trigger native plant regeneration or to treat compacted soil);
- Weed control requirements to be assessed to develop a weed control regime. Methods such as cutting and pasting the stem to be prioritised to reduce the risk of spreading the weeds.

8.3. Native Habitat Enhancement Zones

Armidale has been identified as one of ten climate resilient koala stronghold locations identified in the NSW Koala Strategy 2022, which aims to double the number of koalas in NSW by 2050. The area currently known as the pine forest, located west of the main campus has been identified as an ideal location for native habitat enhancement to improve transport corridors for koalas and other native wildlife. The pine forest will be removed, pending approval, in late 2023, as it is no longer associated with any T&L or research activities. Once removed, the area will be progressively remediated with natives, with a detailed rehabilitation plan will be developed in conjunction with the School of Environmental and Rural Sciences.

This area will provide opportunities for T&L, research and community planting events. The rehabilitation plan will be developed during 2023 and published in a subsequent revision of this plan.

A maintenance program for a period of three years will be contracted to a suitably qualified service provider. Maintenance will include weed control (spot spraying and cut and paste), infill planting to replace dead seedlings, and replacement of mulch as required.

8.4. Lake Zot Teaching and Learning

This "living laboratory" is centrally located between the academic and college campuses, within the Ribbon Gum-Mountain Gum-Snow Gum Open Forest-Tall Open Forest with a Grassy Understorey on Basalt remnant community. Lake Zot is an artificial water body that was remediated in 2020, with the intention of using the lake to supplement irrigation water for Sport UNE, and improve the quality of the lake for ongoing utilisation as a teaching, learning and research resource.

Management Principles

- Any soil disturbance (including weedy shrub removal and manual tree plantings) should be kept to a minimum, or undertaken with care to avoid bringing in weeds to these areas;
- In these areas natural regeneration should take preference over manual plantings, and weedy shrub removal should consider cut and paint methods;
- Widespread manual plantings should be limited to the highly disturbed, lower slope areas (typically immediately surrounding Lake Zot), that are dominated by weedy grasses and have low likelihood of natural regeneration;
- An assessment to determine the distinction between recoverable/good condition understory and weedy-dominated understory is recommended, potentially to be undertaken as a teaching exercise in the School of Environmental and Rural Sciences;
- The floating wetlands are to be regularly monitored by EBE to determine the health of the vegetation and uptake by native fauna. Consideration is to be given for an additional floating wetland, specifically designed for turtle habitat;
- Any proposed use of the lake for recreation or other purposes will ensure that the environmental integrity of the lake is maintained for habitat, and teaching purposes; and that water quality meets the Australian and New Zealand Guidelines for Fresh and Marine Water Quality for recreational water quality and aesthetics (Volume 1; Section 5);
- When the capacity of Lake Zot falls below 55%, irrigation is to be ceased and reassessed by EBE, using climate forecast data and advice from UNE academic experts.

8.5. Green Spaces

Spaces to be managed as semi-natural areas of the campus-wide botanic gardens to allow and encourage access by pedestrians for walking, relaxation and learning.

Management Principles

- Indigenous trees and plants of these semi-natural areas should be retained, protected and valued highly for their ecosystem services;
- Plantings in these spaces generally focus on local and regional species to reduce on-going maintenance costs and enhanced biodiversity values;
- Principles of Crime Prevention Through Environmental Design will be applied;
- Paths and plantings will be considered to reduce the requirement for mown areas, whilst maintaining safe access for students, staff and visitors;
- Limited plantings of other taller Australian native and exotic species will be thoughtfully accommodated in parts of these areas where needed landscaping may include ('Autumn colour') and should achieve botanical diversity.

Detailed specifications for landscaping activities including mowing, trimming, pruning, planting, fertilising, pesticide application and irrigation are provided in Appendix D – EBE Design Standards 80 – Landscaping.

Tree maintenance requirements as follow:

- Minimum Level 5 Qualified Arborist inspection to take place annually, and as required following significant weather events;
- Trees deemed to be "high risk" will be managed in accordance with UNE's Tree Management Plan;
- Annual maintenance of trees in proximity to powerlines and other critical infrastructure will also be managed in accordance with the Tree Management Plan.


LIBRARY

8.6. People and Infrastructure Areas

These areas will be ameliorated by judicious, copious and purposeful plantings to create landscape continuity and integrity across the campus leading to a unique UNE sense of place.

Management Principles

- Foundation planting of local and regional species will tie these areas to the high conservation value areas and green spaces;
- Plantings near buildings, infrastructure, services and paths will be selected for their appropriately height to negate the need for excessive pruning, prevent maintenance issues such as leaf debris in gutters, root interference with buried services and building foundations, and maximise desired vistas and access:
  - Provide a clear break between buildings and gardens;
  - Trim hedges and shrubs to below roof height to prevent accumulation of material in gutters;
  - Remove lateral branches of canopy trees to a height of 2 metres above ground;
  - Restrict planting in garden beds to groundcover plants only, choose non-combustible mulches;
- Backbone, structural plantings will be of locally and regionally indigenous species, with proven ability to survive the campus climatic conditions (refer to Appendix E for species list);
- Drip irrigation systems installed for all new gardens, as needed;
- Opportunities to create outdoor learning and meeting spaces will be incorporated into future landscape projects, including the installation of solar powered outdoor charging undercover facilities;
- Priority will be placed on propagation of plant material on campus and where material is vouchered with specimens lodged in the N.C.W. Beadle Herbarium;
- Network of Australian botanic gardens will be used (and supplied) for additional materials;
- Local nurseries and providers may be used on occasions where provenance of material is known, or in those cases where provenance cannot be determined (e.g. cultigens).

Detailed maintenance requirements for this zone are outlined in Appendix D – EBE Design Standards. Notification of pesticide use shall be carried out in accordance with UNE's Pesticide Use Notification Plan. Trees deemed to be "high risk" will be managed in accordance with UNE's Tree Management Plan.

Oorala Outdoor Learning Precinct

Envisaged as an Outdoor Learning Precinct (OLP), the upgraded environmental and cultural space at Oorala will include a yarning circle and shaded spaces for integrated indoor/outdoor learning experiences. The focus on a cultural space that merges indoor and outdoor learning, encourages new teaching practices with a cultural focus, and in particular, supports opportunities for greater collaboration and teamwork is a key priority.

In consultation with our cultural advisors, local Elders and Oorala stakeholders, the design will incorporate significant historical and cultural reference points to ensure the OLP increases cultural respect, understanding and appreciation of Aboriginal and Torres Strait Islander cultures, knowledge, languages, histories and achievements, particularly related to the place in which Oorala is located.

8.7. Heritage

Gardens of Booloominbah House, Trevenna residence, and Elm Avenue will be maintained in harmony with the natural landscape and according to the original plans and style. Booloominbah is of State heritage significance as one of the largest private country houses built in Australia during the 19th century.

Management Principles

- Landscaping designs must comply with setbacks and heritage curtilages outlined in the conservation management plans and according to the relevant Heritage legislators;
- All new relevant additions must submit a Heritage Impact Statement and Archaeology Report to Heritage NSW for approval for the development application;
- All new design proposals or significant landscape proposals must provide an Arborist's Report outlining the impacts of the design proposal on existing trees and details of replanting and replacements proposed;
- All work must be in accordance with Heritage NSW guidelines. Where an exemption from Heritage NSW has been obtained for the removal and replacement of fauna, any garden work must be documented and recorded for auditing purposes by Heritage NSW. Plantings must be like for like;
- Heritage roses must maintained according to UNE standards (refer to Appendix E);
- Introduced trees in the Booloominbah heritage curtilage, Trevenna grounds and Elm Avenue should be of advanced size and from quality professional nursery stock;
- High profile areas such as the lawns of Booloominbah, traditionally used for University graduation ceremonies will be maintained
- Grass to be maintained at a height of between 50mm – 75 mm;
- Grass will not be cut so short as to leave unsightly marks on the surface of the area or to cause damage to the grass;
- Grass shall be cut in even, parallel, overlapping swathes. Grass cuttings shall be evenly distributed over the cut area avoiding the formation of windrows or heaps;
- Grass will be removed from the areas by blowing, sweeping or raking onto the adjacent grass areas. However, where in the opinion of UNE's Representative this leaves an excessive build-up of grass cuttings, it shall be picked up and disposed of to a legal refuse disposal area.

Species

- Species are to be like for like with the current plantings and will be of the same species unless otherwise directed by Heritage NSW;
- Please refer to Appendix G for species list from the Conservation Management Plan.

8.8. Sports and Recreation

Sport UNE contributes substantially to the wellbeing of the University and the regional community by encouraging regular programs in sport and exercise and maintaining a diverse range of high-quality sporting facilities. From modest beginnings in 1938, Sport UNE has developed into a major sporting facility that sits comfortably amongst the finest in the country, and well above average in most rural and regional areas.

Management Principles

- Sport UNE grounds shall be maintained in a manner that provides safe, functional and aesthetically pleasing facilities;
- Fields will be sustainably managed through the utilisation of Lake Zot as the primary water source for irrigation, with grasses being maintained at the optimal height to maintain soil moisture content;
- Monitoring of grounds and weather forecasting will inform sustainable field maintenance;
- The areas surrounding the sporting fields will be vegetated with native tree species, where appropriate, to provide shade for spectators and enhance the amenity for visitors;
- Irrigation is to be undertaken in accordance with the level of Water Restrictions being imposed by the Armidale Regional Council at any given time;
- All irrigation will take place early morning and late afternoon (i.e. not during the heat of the day);
- Non-potable water will be utilised from Lake Zot and rainwater tanks;
- Mowing height for sporting fields will be undertaken according to the events being played. E.g. cricket and soccer fields are kept shorter to help the ball roll across the field faster and the rugby fields are kept longer to prevent injury to the players;
- Sporting fields are to be fertilised twice a year using an organic fertiliser. Soil testing is undertaken twice per year to determine optimum fertilisation application;
- Fields to be sprayed with insecticide and herbicide when required to prevent diseases. Spraying is kept to a minimum by culturally controlling weeds, aerating the fields, maintaining optimal soil moisture in the soil and cutting the grass at the correct height;
- The Mountain Bike Tracks “Kermit” and Gonzo” are primarily located on UNE property to the west of the main campus, however a small section of “Kermit” falls within the Green Spaces zone. Pruning of this area is to be undertaken annually to keep the mountain bike trails clear. Drainage of water off the trail is to be maintained by ensuring the constructed drainage points remain clear of debris;
- Any maintenance activities other than hand pruning, leaf blowing or removal of debris is to be approved by the UNE Aboriginal Cultural Advisor.

Field Maintenance

- Spring and Summer grasses consist of Kikuyu and Couch; Autumn and Winter species includes a blend of Sports Rye and Kentucky Blue Grass;
- Grasses are sown twice per year in Autumn and in Spring when conditions are optimal;
- Transition of Sports Rye and Kentucky Blue Grass to Kikuyu and Couch will take place when the soil temperature is between 17–27ºC; when soil temperature drops to 12–22ºC the grass will transition back to the Autumn and Winter species for optimum growth.

8.9. Riparian

The riparian zone will consist of the area 40 m from the top of the bank to the north and south of Dumaresq Creek. No in-stream works will take place in this area without the appropriate approvals. The Riparian Zone will include adjacent and nearby low-lying sites subject to periodic inundation during and following heavy or prolonged precipitation and runoff.

Planting in these sites will be focused on local provenance Indigenous plant species of riparian communities. UNE will also work with local organisations such as Landcare and the Armidale Urban Rivercare Group on projects to enhance water quality, improve biodiversity, and continue replacing invasive species with native vegetation.

The areas upstream and downstream will also be subject to these rehabilitation activities, however as they do not fall within the Armidale UNE campus property, this will be managed in conjunction with the SMART Farms in which these areas fall (Trevenna upstream and Toombs downstream).

8.10. Passive Green Space

These areas are not subject to routine maintenance, they are a mix of farmland, bushland and grassed areas. The semi-natural grassed areas are to be maintained with meadow management, without regular mowing, to enable flowering and seeding of grasses and groundcover plants.

9. Safety and Security

The University is committed to providing a respectful, safe and secure learning, living and working environment. This plan supports that commitment through the incorporation of the principles of Crime Prevention through Environmental Design (CPTED) into landscape management. The application of CPTED principles to the built environment and public spaces enhance the safety and security of the community through measures such as:

- Ensuring that landscaping does not obstruct natural surveillance;
- Using vegetation as barriers to deter unauthorised access;
- Restricting access to internal areas or high-risk areas such as loading or service areas;
- Creating a ‘cared for’ image through proper maintenance regimes; and
- Providing well lit pathways.

In addition to these measures, students and staff have access to the UNESafe App and ample safety and security phones.

UNE also utilises signage to warn of potential hazards such as snake sightings, and wildlife signage on internal campus roads. An accessibility review will be undertaken as part of the Campus Master plan.

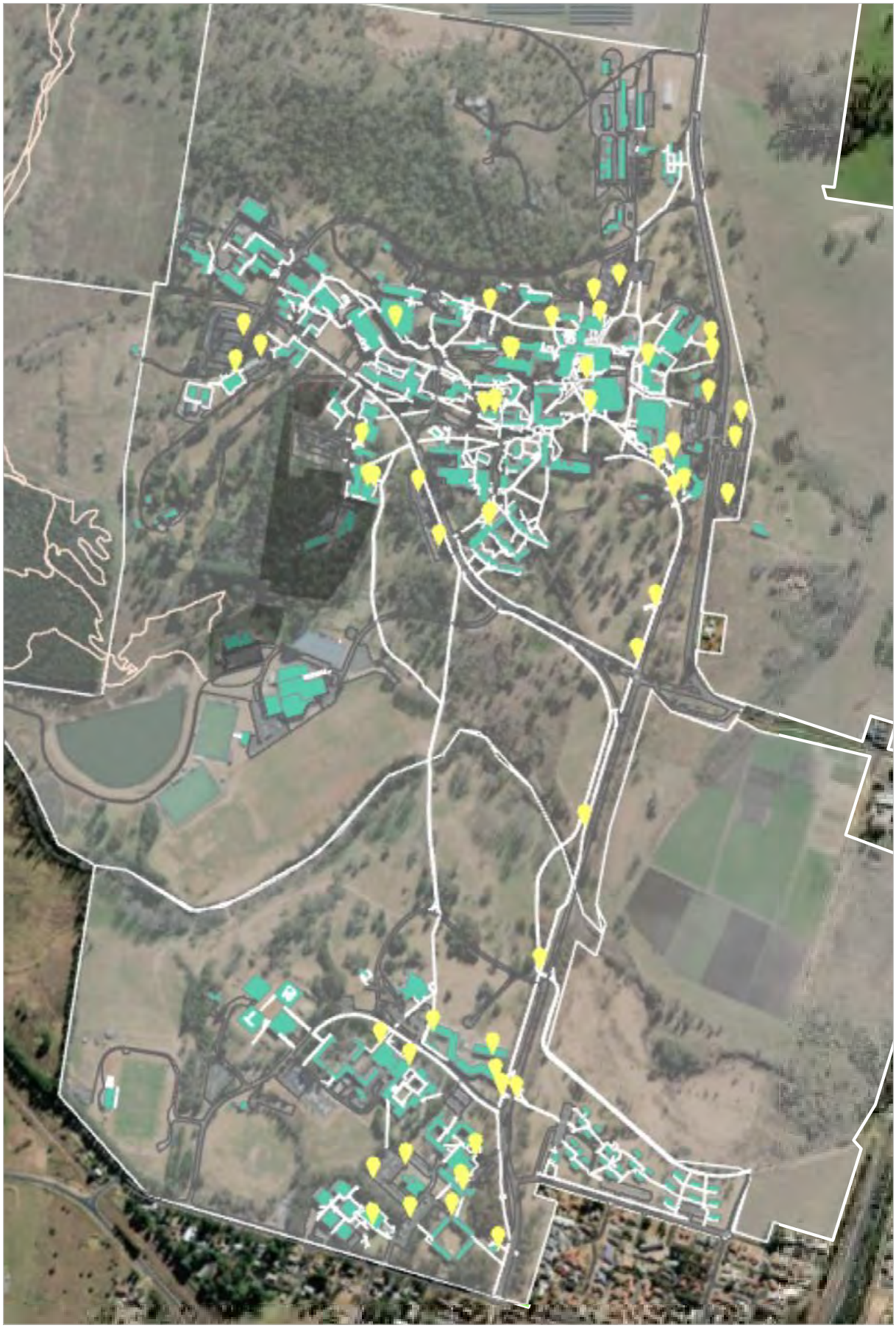


Figure 6: Landscape Management Safety & Security: *Buildings;* *Pathways;* *Safety Phones.*

10. Construction and Minor Capital Works

Under the Protection of the Environment Operations Act 1997 the University has the responsibility to protect the environment from minor construction impacts. This includes any perceived risk of environmental harm, with potential consequences for staff involved in the works and to the university itself. This section will provide guidance for site supervisors and staff conducting on-ground works. This guideline does not cover significant development impact assessment or management.

10.1. Toolbox Talk

The Site Supervisor has the ultimate responsibility for the environmental protection during on-ground works. The supervisor should give a 'tool-box talk' to staff prior to commencing on-ground works at a particular location to identify any sensitive environmental features and any environmental controls that need to be in place during construction. If there is uncertainty about the environmental values of an area to be impacted (e.g. native plants or weeds), the supervisor should contact the University's Environmental Sustainability Manager for further information or adopt the precautionary principle. A precautionary approach requires that the environmental values should be protected until additional information becomes available.

10.2. Environmental Safeguards

Appropriate environmental safeguards should be part of a discussion during the tool-box talk including:

- Erection of temporary sediment fence or bunds downslope or around disturbed soils to prevent runoff carrying sediment into drainage lines. Sediment fences and bunds should be removed once the construction area is stabilised and/or revegetated;
- Prohibition of stockpile spoil, machinery or equipment under trees within the drip-zone;
- Identification of exclusion or 'no-go' zones, such as around planted areas and bushland. If necessary, exclusion zones to be demarcated by temporary flagging tape which would be removed once work is complete;
- In the event of required access to vegetated areas, materials and equipment to be carried by hand to minimise disturbance along the access route;
- Pruning rather than removal vegetation to allow access;
- Prohibition of work during heavy rain because of the risk of runoff/sedimentation; and
- Equipment and machinery maintenance in good working order; undertaking repairs in areas away from vegetation and waterways.

Further information on environmental controls are provided in Managing Urban Stormwater: Soils and construction - Volume 1 (the "Blue Book"), a copy of which is available on the NSW Department of Planning and Environment website.

11. A Living Laboratory: Teaching, Learning and Research Integration

UNE has the unique advantage of having the main Armidale campus situated in a rural, bushland setting. The University is committed to embracing opportunities to integrate teaching, learning and research with the local landscape. The campus is rich with native flora and fauna which provides sample resources for on the ground learning and research projects utilising the campus landscape. More recently EBE's Aboriginal Cultural Advisor has facilitated the use of Aboriginal Cultural sites located on the campus to provide an educational resource for Archaeology students.

Case Study 1: Lake Zot

In 2019 EBE collaborated with colleagues from the School of Environmental and Rural Sciences to undertake a project to remediate Lake Zot. The purpose of the project was twofold:

1. Improve sustainability and reduce reliance on potable water by creating a reliable irrigation source for university grounds; and
2. Enhance the quality of the lake as a teaching and learning resource for students to undertake freshwater ecology sampling techniques and as a field site to discuss environmental catchment management.

The project has also been used as an interactive case study for environmental engineering students, providing an overview of delivering a construction project from inception to completion.

Opportunities to utilise the lake as a training facility for the State Emergency Services are also being investigated.

Case Study 2: Artificial Habitat Hollows

Following the severe thunderstorm event of 14 October 2021, which saw the destruction of hollow bearing trees, EBE proposed creating a network of artificial hollows and engaged staff from the School of Environmental and Rural Science to collaborate on this work. This led to the development of an experimental design for the installation of artificial hollows that aims to contribute to conservation of hollow-dependent vertebrates on the UNE campus, but that also takes advantage of research and teaching opportunities that this long-term project can offer the UNE.

EBE will continue to work closely with our academics to facilitate projects that are beneficial to the local landscape and that can be used to complement teaching and research.

12. Replacement and Carbon Offset Planting

Where trees have been removed due to safety concerns, significant weather events, encroachment on infrastructure or as a result of structural failure, the Landscape Advisory Committee will identify location and species of replacement plantings.

It should be noted that not all trees will be replaced “like for like”, particularly in the case of non-native tree removals, nor will the replacement tree necessarily be in the location of the tree that has been removed. The ratio for replacement planting will be three to one.

12.1. Vegetation Propagation

On campus propagation of heritage replacement trees is to be continued such that in the event of a tree failure or required removal, it can be replaced like-for-like with a mature specimen, as is typically the requirement of NSW Heritage.

The rows of Elm Trees planted adjacent to Elm Avenue are to be available in the event of a tree replacement being required. An audit of heritage trees should be undertaken by EBE to identify other species to be prioritised for propagation.

EBE will continue to engage with N.C.W. Beadle Herbarium staff and volunteers for the propagation and planting of native specimens, Indigenous to the site. Priority should be given to expanding the propagation facilities and establishing an annual propagation and planting schedule.

13. Biodiversity Offsets

Biodiversity offsetting is a practical tool for decision makers allowing them to balance the relative environmental, social and economic merits of development proposals under the Environmental Planning & Assessment Act 1979 (EP&A Act).

If used strategically, offsetting can lead to maintenance of environmental viability, an overall net improvement in environmental sustainability across a region, a net gain in vegetation cover and / or an additional level of security for vegetation that is currently not protected.

There is no mandatory legislative requirement to provide biodiversity offsets, however, they may be triggered at either the local (Armidale Regional Council LEP, DCP and bushland protection policies including tree preservation orders), State (EPA Act 1979 and Threatened Species Conservation Act 1995) and in some instances the Commonwealth level (Environment Protection & Biodiversity Conservation Act 1992). Landowners/ managers like UNE may adopt offset policies that are outside of any legislative requirement to provide offsets as a demonstration of their commitment to the environment.

The University is committed to implement best practice in native vegetation. This will also include exploring the option to provide offsets for impacts to native vegetation. These offsets include ongoing monitoring for the loss of trees on campus as part of conditions of approval and may, subject to more detailed environmental impact assessments of larger projects, be required by State/Federal agencies to offset impacts to areas of native vegetation. The University will implement the hierarchy of controls that follow:

- Avoid – where possible the University will seek alternatives to proposed development or maintenance activities that will result in a negative ecological impact (i.e. redesigning the proposal, or choosing an alternative site);
- Mitigate – where is it not possible to avoid a negative ecological impact, control measures will be employed to minimise the impact, e.g. management of stormwater runoff; or
- Offset – where negative impacts will occur after all avoidance options to have been considered, offsetting shall be used in conjunction with mitigation measures.

14. Monitoring, Reporting and Review

Regular monitoring of the landscape will be undertaken by the EBE Operational Services team to ensure the plan is being adhered to. Updates on landscape will be provided through annual Environmental Sustainability Reports, and via ad hoc updates on the website and UNE Official internal communication. This plan will be reviewed in early 2024, and at least every three years thereafter.

Appendix A: Remnant Vegetation

Remnant vegetation of the Ribbon Gum - Mountain Gum - Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion Species List

Acacia dealbata
Acaena agnipila
Acaena novae-zelandiae
Ajuga australis
Ammobium alatum
Asperula conferta
Brachyscome nova-anglica
Bulbine bulbosa
Craspedia variabilis
Cullen tenax
Cynoglossum australe
Desmodium varians
Dichelachne micrantha
Dichondra repens
Dichopogon fimbriatus
Diuris abbreviata
Elymus scaber
Epilobium billardierianum
Eucalyptus dalrympleana subsp. *heptantha*
Eucalyptus pauciflora
Eucalyptus stellulata
Eucalyptus viminalis
Euchiton gymnocephalus
Exocarpos cupressiformis
Galium ciliare
Geranium solanderi
Glycine clandestina
Hybanthus monopetalus
Hydrocotyle laxiflora
Hypericum gramineum
Lachnagrostis filiformis
Lomandra longifolia
Luzula densiflora
Pimelea linifolia
Poa labillardierei var. *labillardierei*
Poa sieberiana var. *sieberiana*
Poranthera microphylla
Pteridium esculentum
Pultenaea microphylla
Ranunculus lappaceus
Rubus parvifolius
Rumex brownii
Senecio bipinnatisectus
Senecio diaschides
Senecio sp. E
Stellaria pungens
Themeda australis
Thesium australe
Veronica calycina
Viola betonicifolia
Wahlenbergia stricta subsp. *stricta*

Appendix B: Koala Conservation Species Selection

Site 1

Trees (20%)

Eucalyptus viminalis

E. stellulata

Shrubs (80%)

Acacia melanoxylon

A filicifolia

A dealbata

Allocasuarina cunninghamia

Callistomon spp

Leptospernum polygalifolium

Lomandra longifolia

Site 2

Trees (50%)

Eucalyptus melliodora

E. blakelyi

E. bridesiania

E. radiata

E. nicholii

Shrubs (50%)

Acacia dealbata

Acacia brownii

Jacksonia scoparia

Dillwynia sieberi

Hibbertia acicularis

H riparia

Leptospermum brevipes

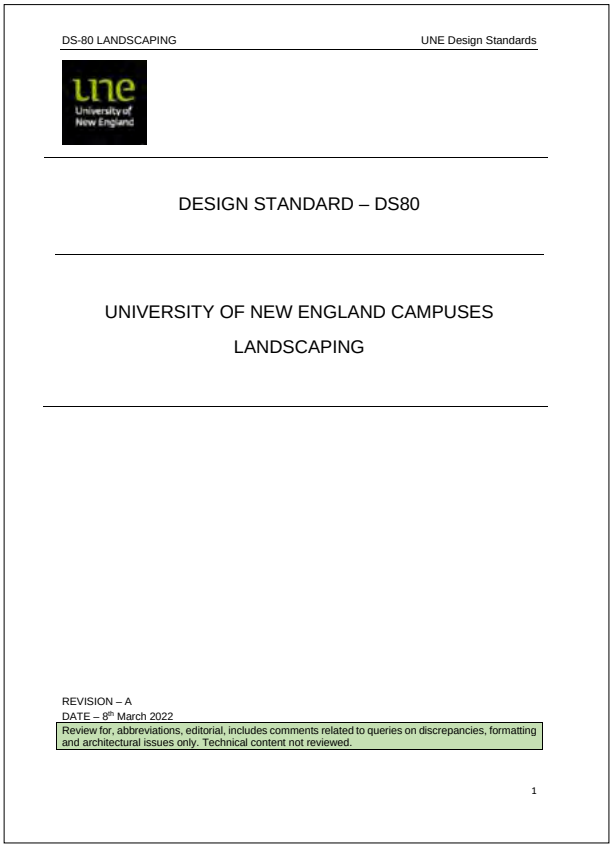
Bursaria spinosa

Appendix C: Lake Zot Teaching and Learning Zone Species

- Overstory: throughout – ribbon gum (Eucalyptus viminalis) and snow gum (E. pauciflora) dominant;
- Overstory: flat sections down low and/or adjacent to creek – ribbon gum (Eucalyptus viminalis), snow gum (E. pauciflora), black sallee (E. stellulata), and New England peppermint (E. nova-anglica);
- Midstory: throughout – fern-leaved wattle (Acacia filicifolia) dominant, with some backthorn (bursaria spinosa). *note species list suggests silver wattle (Acacia dealbata), but this is not correct for Lake Zot;
- Midstory: adjacent to creek – Tantoon (Leptospermum polygalifolium subsp. transmontanum) and native raspberry (Rubus parvifolius).

Appendix D: DS-80 Landscaping Design Standard 2022

Please contact environment@une.edu.au for information on the Landscape Specifications.



DS-80 LANDSCAPING UNE Design Standards

DESIGN STANDARD – DS80

UNIVERSITY OF NEW ENGLAND CAMPUSES

LANDSCAPING

REVISION – A

DATE – 8th March 2022

Review for, abbreviations, editorial, includes comments related to queries on discrepancies, formatting and architectural issues only. Technical content not reviewed.

1

Appendix E: UNE Rose Maintenance Standards

- All roses are to be pruned by qualified and experienced pruners;
- The roses will be pruned annually in the first week of August. This prune is to be no lower than half the height of all bush and hybrid T roses;
- All roses and surrounding soil surfaces to be sprayed with lime sulphur immediately after pruning, before new shoots emerge;
- All rose beds are to be mulched with sugar cane mulch;
- A schedule is to be forwarded to the Superintendent that shows rose spraying at four week intervals from August until April each year. The roses will be sprayed with an approved insecticide and fungicidal spray (diamethoate rogor or similar systematic spray, triforin, mancozeb fungicide) at manufacturers recommended rates. Ad hoc spraying may have to be done in times of infestation;
- There will be no spraying of herbicides around roses - weed control is to be undertaken manually;
- Spent flowers are to be removed from roses weekly to encourage flowering, and to be pruned back to a strong bud not more than half of the new growth;
- Dead/diseased wood is to be removed from roses as required;
- All roses are to be fertilised twice yearly, February and October with a quality complete rose food approved by the Superintendent;
- An additional fertilising of manure or compost (dynamic lifter, blood and bone) is to be applied during May /June this is to be combined into the soil to a depth of 50–75mm deep;
- All climbing roses are to be trained to restrict them from growing straight up, by tying new canes to a horizontal position or by arching them into a fan shape;
- All rose gardens to be kept sufficiently watered and ensure a uniform coverage to all gardens.
- Any roses to be replaced by Service Provider will be of an approved variety and approved by the Superintendent;
- When mulching around roses a 15cm mulch free zone is to be left around the base of the rose. (Avoid collar rot) Organic Sugar Cane Mulch currently used;
- Irrigation systems are to be operated and monitored by Service Provider and defects reported back to the Superintendent.

Appendix F: Heritage Species List

Remnant vegetation of the Ribbon Gum - Mountain Gum - Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion Species List

Arbutus
Agapanthus
Ash
Blackberry
Beech
Bamboo
Bunya
Cotoneaster
Chinese Elm
Cherry Laurel
Crataegus
Cypress
Cupresus funebris
Deodar
Eucalypt
Elm
English Oak
Euonymus
Fig
Fruit Trees
Grey Spruce
Grapevine
Hawthorne
Hydrangea
Ivy
Laurel
Japonica
Magnolia
Maple
Mixed Native Shrubbery
Pampus
Photinia
Prunus
Poplar
Pine Species
Pyracantha
Rosemary
Radiata Pine
Thuja
Tree Ivy
Virginia Creeper
Wisteria
Wattle
Yew

Appendix G: Preliminary Species Selection for People and Infrastructure Zone

Acacia dealbata
Acacia fimbriata
Acacia latisepala
Acacia marie
Acacia rubida
Acacia sp. Warra National Park
Acacia torringtonensis
Actinotus helianthi
Ajuga australis s. lat.
Allocasuarina inophloia
Allocasuarina littoralis
Allocasuaring rigida
Ammobium alatum
Arthropodium fimbriatum
Arthropodium milleflorum
Blechnum nudum
Bursaria spinosa subsp. *spinosa*
Callistemon flavovirens (including red form)
Callistemon combynensis
Callistemon linearis (Pilliga form)
Callistemon pungens subsp. *pungens*
Callitris oblonga subsp. *parva*
Carex fascicularis
Cassinia laevis
Cassinia leptocephala subsp. *leptocephala*
Casuarina cunninghamiana
Chrysocephalum sp. Ebor Falls
Chrysocephalum sp. New England
Chrysocephalium semipapposum
Coleus parvifolius s. lat.
Daviesia latifolia
Dicksonia antarctica
Eucalyptus bakeri
Eucalyptus boliviana
Eucalyptus camphora subsp. *relicta*
Eucalyptus codonocarpa
Eucalyptus dissita
Eucalyptus pauciflora
Eucalyptus prava
Eucalyptus stellulata
Geranium solanderi
Goodenia hederacea subsp. *hederacea*
Hakea ochroptera
Hydrocotyle laxiflora
Indigofera australis
Jacksonia scoparia
Leptospermum polygalifolium subsp. *transmontanum*
Leucochrysum albicans
Lomandra longifolia
Lomandra multiflora
Mentha satureioides
Microseris lanceolata
Nothofagus moorei
Olearia fulgens
Olearia viscidula
Ozothamnus diosmifolius
Phebalium stellatum
Phebalium sp. *Kay Bryant*
Phebalium verrucosum
Poa sieberiana var. *hirtella*
Prostantera teretifolia
Prostanthera cineolifera
Prostanthera largiflorens
Prostanthera rupicola
Prostanthera williamsii
Pultenaea microphylla
Scleranthus sp. *Fitz's Hill*
Sorghum leiocladum
Stylidium graminifolium
Tasmannia stipitata
Themeda triandra
Trachymene sp. NSW Northern Tablelands (L.M.Copeland 4234)
Veronica arcuata
Wahlenbergia communis
Xerochrysum neoanglicum

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