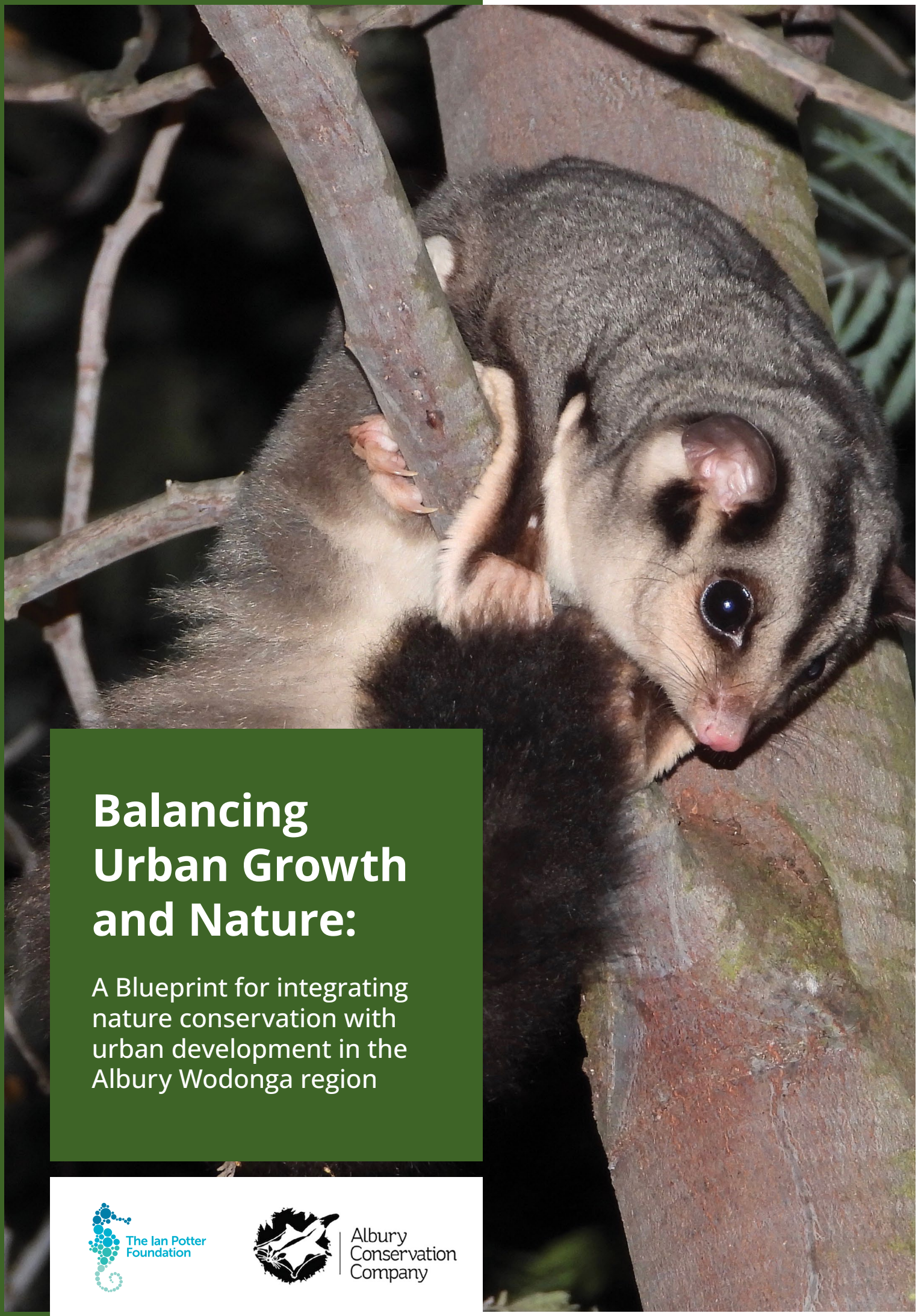

Balancing Urban Growth and Nature:

A Blueprint for integrating nature conservation with urban development in the Albury Wodonga region

The Ian Potter Foundation

Albury Conservation Company

Acknowledgement of Country

Albury Conservation Company acknowledges the Traditional Owners and on-going custodians of the land we are fortunate to live and work on. We recognise their continuing connection to land, waters and culture, and we pay respect to Elders past, present and emerging.

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Albury Conservation Company

Front Cover Image:
Squirrel Glider (*Petaurus norfolcensis*) (photo: Amy Daeché)

Eastern Bearded Dragon (*Pogona barbata*) (photo: Damian Michael)

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Executive summary

The **Albury Conservation Company (ACC)** was established in 2006 with the primary goal of raising community awareness and supporting the protection and enhancement of the natural environment in the Albury Wodonga region.

The ACC commissions ecological monitoring and research to inform urban planning and support on the ground actions that improve viability of populations of threatened native species in this region. The ACC is particularly focused on collaborating with the Albury and Wodonga City Councils, as well as other organisations and community groups, to raise awareness about local biodiversity and develop effective strategies for integrating nature conservation with urban development.

The ACC received funding from **The Ian Potter Foundation** to monitor the health of local biodiversity and to share this information with key stakeholders, including the Albury and Wodonga City Councils. This initiative aims to inform strategies for integrating nature conservation with urban development.

After consulting a diverse range of individuals, the ACC has documented lessons on how local governments and resident communities can effectively plan and manage nature conservation alongside urban development. The information is presented in this Blueprint.

The Blueprint summarises the insights gained on achieving positive outcomes from integrating nature conservation with urban development in the Albury Wodonga region. Its purpose is to share these experiences and lessons to inform future urban development, not only in the Albury Wodonga region but also in other areas of Australia. Key insights from the region include:

- The Albury Wodonga region supports rich native biodiversity, a wide variety of species and habitats across different landscapes, preserved in a mosaic of Crown and council reserves along with private land. The early strategic planning by the Albury Wodonga Development Corporation created a network of reserved lands with high quality environmental features that significantly contribute to the region's biodiversity. However, the area is home to several species listed as 'threatened' by the Commonwealth and/or State governments, such as the Squirrel Glider and Sloane's Froglet, which necessitate additional legal protection and efforts for population recovery.
- The region includes many examples of innovation in natural area management, such as use of technology to assess habitat and record wildlife, Traditional Owners demonstrating 'cultural burning' (cool season burning) and cultural-environmental watering, and the wide array of 'citizen science' projects that harness the community's increasing interest in monitoring and managing the region's natural areas.

Red-browed Finch (*Neochmia temporalis*) (photo: Amy Daeché)

- Over the past 50 years, a multitude of organisations have contributed to an impressive 'knowledge bank' about the region's native biodiversity and management options. This information provides opportunities for benchmarking the current status of species and habitats to prior conditions and, therefore, allows land managers to make informed decisions about the design options and implementation strategies to protect endangered species.
- Complex land and water ownership and management arrangements across the Albury Wodonga region have created a confused understanding for professionals and community members about who is the primary manager of specific areas and the nature of their authority and responsibility. Coordination among the managing entities of land and water resources remains an important task.
- Maintaining a ready supply of affordable housing for a growing population in the Albury Wodonga region means that urban block sizes are declining, which lessens opportunities for supporting large trees and other woody vegetation on private land in urban settings. The purposeful design and management of public land will be critical for securing the ecological viability of native biodiversity.
- Albury and Wodonga Councils are navigating a more complex environment for urban development. There's a need for long-term plans that assure both the community and commercial developers while being adaptable to emerging site issues. Additionally, expectations and standards for urban growth are increasing, along with the potential upfront and ongoing maintenance costs of natural areas.
- Public land managers need to effectively communicate and engage with the local community and interest groups to ensure there is a general awareness of management objectives for public land with nature conservation values.
- There is a growing trend for the developing the concept of 'nature positive cities' so that urban residents have greater opportunities to benefit from 'everyday nature' in their daily routines. Increasing examples of cost-effective 'nature positive' initiatives – both in Australia and internationally – could be adapted to the Albury Wodonga region.
- Increasing expectations surrounding the management of Albury Wodonga's urban bushland present challenges due to constrained, diminishing or fluctuating resources. This situation makes it difficult to effectively manage Albury Wodonga's areas dedicated to nature conservation. The challenging context for agencies responsible for managing public lands impacts the motivation and outcomes achieved by the many community-based interest groups.

White-plumed Honeyeater (*Ptilotula penicillata*) (photo: Damian Michael)

Principles for Integrating Nature Conservation with Urban Development

A range of complex and interacting pressures affect the integration of nature conservation with urban development. However, there are key principles that, if successfully implemented, can lead to positive long-term outcomes. The principles identified in this Blueprint for achieving the successful integration of nature conservation with urban development in the Albury Wodonga region include:

- **Ecologically Informed Strategic Planning:** Strategic planning at a landscape scale based on detailed ecological information that leads to the effective integration of nature conservation with urban development.
- **Institutional Capacity and Commitment:** Councils and State agencies with capacity, expertise and commitment to efficiently implement practices that achieve environmental outcomes exceeding minimum legislative requirements.
- **Developer Engagement in Environmental Innovation:** Urban developers with a capacity and commitment to implementing options that promote positive environmental outcomes.
- **Connected High-Quality Environmental Assets:** A network of high-quality environmental land and water assets should be reserved in clusters and corridors to maintain habitat quality and ensure species resilience over time.
- **Community Participation and Stewardship:** Strong community interest in nature conservation should be supported with opportunities for engagement in local environmental activities.
- **Collaborative Governance and Investment:** Coordinated action and aligned investment across public, private and community sectors that leads to enduring positive environmental outcomes.
- **Evidence-Based Environmental Management:** Ongoing monitoring of key species and corresponding habitats should inform management strategies aimed at enhancing ecological health and species viability.

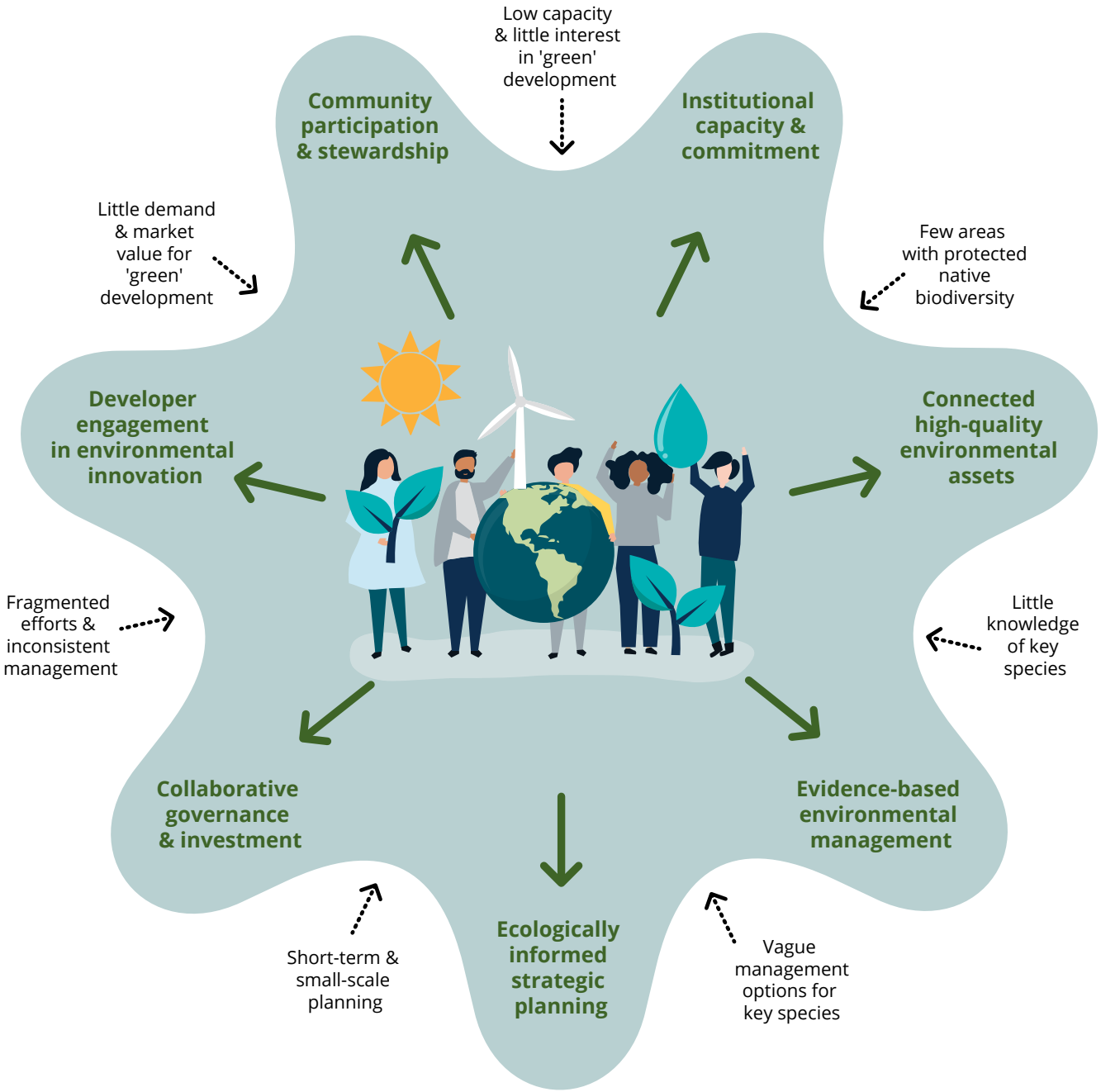


Figure 1: Blueprint for integrating nature conservation and urban development in Albury Wodonga: Dynamic context of pressures and principles

1 Context, history and the environment of Albury Wodonga

Albury Wodonga's unique story

The Albury Wodonga region has several key features, such as being a major inland urban centre with a combined population of about 100,000 people (plus a surrounding catchment of roughly 250,000).

Albury Wodonga has a diverse economy with steady population growth, about 70 kilometres of the nationally significant Murray River, and a 50-year legacy from the Albury Wodonga Development Corporation (AWDC, established in 1974). The region straddles two state jurisdictions with different policies and statutory requirements. The combined area of the Albury (306 kilometres²) and Wodonga (434 kilometres²) Local Government Areas (LGA) is approximately 740 kilometres² (RNES 2020) and includes commercial, industrial, residential, and rural areas (see Fig. 2, following page). Located about a three-hour drive from Melbourne (300 kilometres) and six hours from Sydney (550 kilometres), the Albury and Wodonga City Councils manage around 3,700 hectares of natural areas. An extra 2,300 hectares of Crown land is managed by Parklands Albury Wodonga mainly for nature conservation and community recreation.

The Albury area is within the lands of the Wiradurji people across southern New South Wales (NSW) and the Wodonga area is home to the Duduroa[1] people along the Murray River in northern Victoria. The rich natural environment supported the prosperity of First Nations peoples for millennia. Important meeting places in the region for the Wiradurji people include Mungabareena Reserve (a Declared Aboriginal Place) on the banks of the Murray River. The recently constructed Wagirra Trail and Yindyamarra Sculpture Walk provide a contemporary interpretation of culturally important species and stories. One significant species is the Bogong moth (*Agrotis infusa*), which was an important food source during its migration to the high country which coincided with important gatherings of First Nations peoples in the region.

[1] Also written as *Dhudhuroa* people, see First Nations Protocols Toolkit (n.d.) Wodonga City Council and the Regional Natural Environment Strategy 2020-2032 (2020) Albury and Wodonga City Councils.

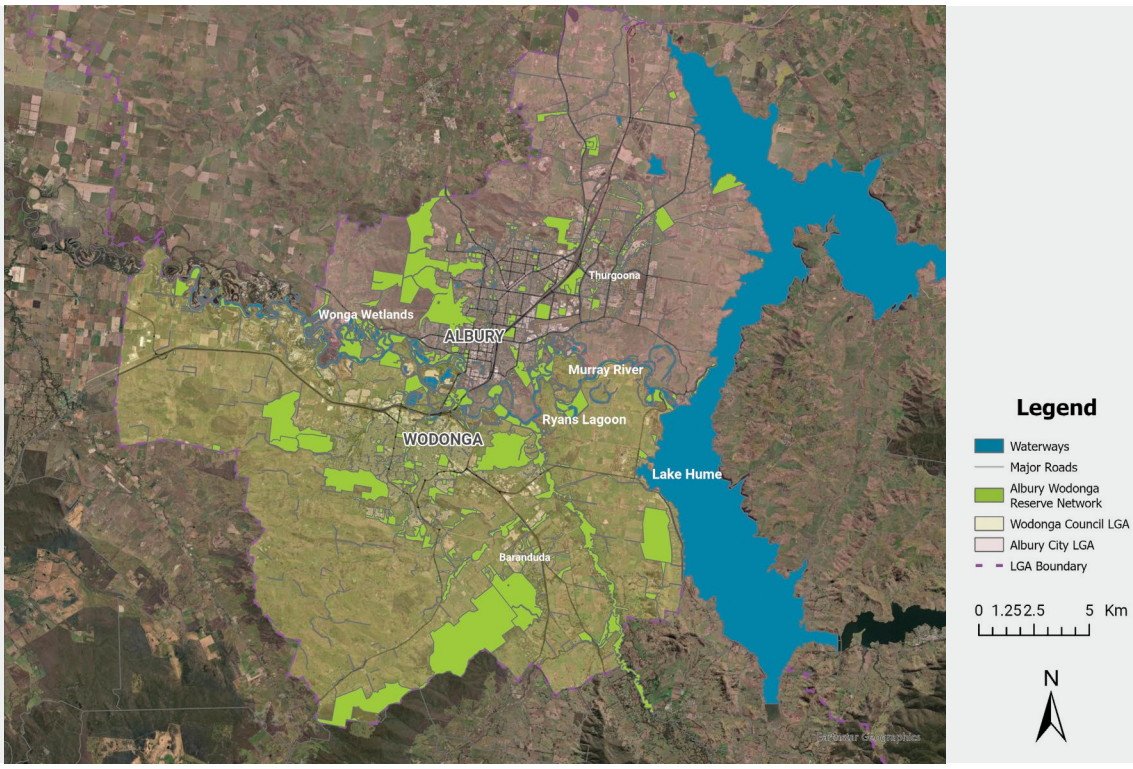


Figure 2: Major 'green' public areas in the Albury Wodonga region.
Source: AlburyCity and City of Wodonga

European history in the region first records Hume and Hovell's expedition passing through in 1824. It wasn't until the late 1830s that European settlements appeared, and Albury was gazetted as a town in 1839. Albury Wodonga became an important crossing point over the Murray River, which increased demand for services and produce and led to the establishment of a small permanent settlement. Surrounding land was converted to farming, more notable buildings were constructed, and the population grew further, reaching about 22,000 by 1900. While a large area of agricultural production (mainly grazing cattle and sheep) still exists in the combined Albury Wodonga LGA region, the land continues to gradually shift to small-scale lifestyle properties and new estates for residential housing and related developments.

The region's climate is temperate, with warm, dry summers and cool, wet winters. Native vegetation includes box-gum forests on the hills with White Box (*Eucalyptus albens*), Yellow Box (*E. melliodora*) and Blakely's Red Gum (*E. blakelyi*) common. The Murray River and its tributaries support River Red Gum (*E. camaldulensis*) forests, which are home to many grazing marsupials, aquatic species, and birdlife. Much of the natural ecology and wildlife was exploited to help establish the early settlement of Albury Wodonga, then declined further as large-scale development sped up, with buildings, infrastructure, and land clearing for farming.
The early town planners of Albury considered the medium-term future, reserving space in the town centre for a botanic garden (the Albury Botanic Garden in 1877) and a recreation reserve (Monument Hill Reserve, with its war memorial unveiled in 1925). These spaces were designed to fit within the European landscape style of the time, rather than reflecting the local landscape and flora.

1

Turquoise Parrot (*Neophema pulchella*) (photo: Damian Michael)

Pink Cockatoo (*Cacatua leadbeateri*) (photo: Damian Michael)

Safeguarding the region's native biodiversity

Residents have valued the natural biodiversity of the region for many decades, with the AWDC, Albury and Wodonga City Councils, and numerous other organisations and community groups actively working to preserve and enhance it. The region has an inherent abundance of natural biodiversity due to the Murray River, remnant bushland reserves, surrounding rural environment, and its proximity to major state reserves and national parks in the Australian Alps. In anticipation of increased development pressures felt nationally on the region's environment, the AWDC worked with the Councils and State governments during 2006-07 to establish the Retained Environment Network (REN). The REN includes land of significant environmental value that cannot be utilised for urban development. However, ongoing population growth and habitat loss mean there is an extensive list of endangered and threatened native species, and, as in much of Australia, many natural systems are declining. The latest assessment for the *Australia State of the Environment* (2021) reports that the nation's inability to manage development pressures is a key contributing factor to the decline of the natural environment (Cresswell *et al.* 2021).

There are several native species in the Albury Wodonga region that are considered to be of a 'threatened' status and are listed under Commonwealth (***Environment Protection and Biodiversity Conservation Act 1999*** [EPBC Act]), New South Wales (***Biodiversity Conservation Act 2016*** [BC Act]), or Victorian (***Flora and Fauna Guarantee Amendment Act 2019*** [FFG Act]) legislation. Species can be considered threatened at a national level (i.e. listed under the Commonwealth's *EPBC Act 1999*) or at a more localised or regional level (i.e. listed under State legislation), with some local species listed by both the Commonwealth and State governments (see Appendix 1). Some of the key species in the region under threat include the Squirrel Glider (*Petaurus norfolcensis*), Spotted-tailed Quoll (*Dasyurus maculatus maculatus*), Sloane's Froglet (*Crinia sloanei*) and Murray Cod (*Maccullochella peelii*). Also, the Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*) are listed as Critically Endangered under the *EPBC Act 1999* and the Victorian *FFG Act 1988*, and Critically Endangered and Endangered, respectively, under the NSW *BC Act 2016*. There are also several native plants listed as threatened in the region, such as the Darling Pea (*Swainsona galegifolia*) and Purple Diuris (*Diuris punctata*).

These Acts require the responsible land manager – public and private—to conduct environmental assessments, implement suitable management strategies (which may include habitat or site protection), and mitigate any degrading processes as part of any development. If a new development is proposed on sites with listed species or known habitats of listed species, the developer must undertake an environmental assessment in accordance with relevant legislation and prepare a management plan that aims to avoid, mitigate, or offset any anticipated negative impacts on the listed species. Conditions for approval of the development may include requirements for habitat restoration, species protection, and monitoring of the development impacts. However, criticisms of the *EPBC Act* (at the time of this publication, the *EPBC Act* is being reviewed) include that the process for development approval on sites with listed species is too lengthy, opaque, and vague, often relying on incomplete or poor data. Additionally, the *EPBC Act* does not consider the cumulative impacts of different projects or the effects of climate change. (Samuel 2020). The latest *Australia State of the Environment* (Cresswell *et al.* 2021) report illustrated common issues that compound the pressure on the natural environment (see Figure 3: Impact of multiple pressures on the natural environment, Cresswell *et al.* 2021, following page).

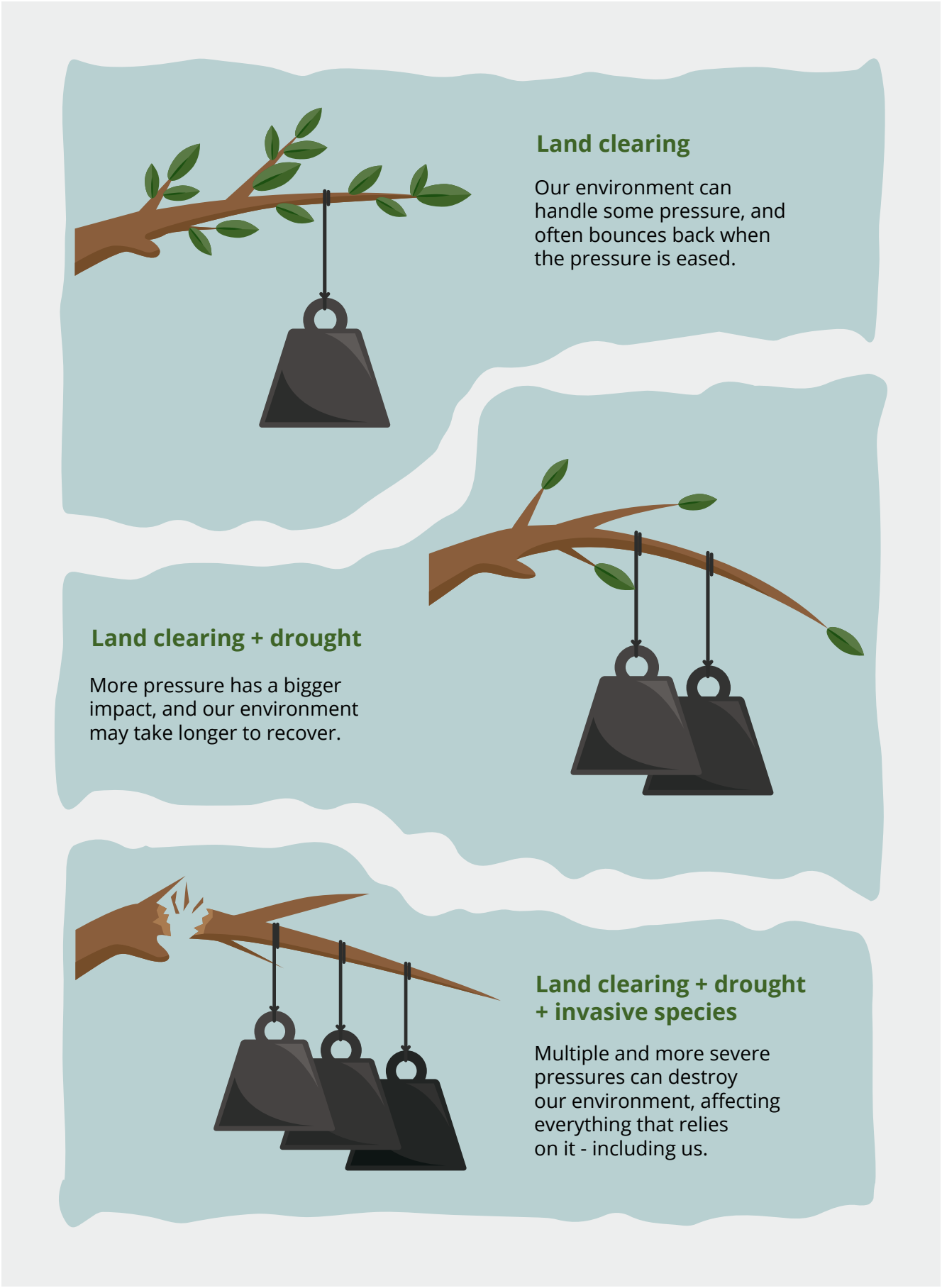


Figure 3: Impact of multiple pressures on the natural environment, Cresswell *et al.* 2021, above.

1

Yellow-tufted Honeyeater (*Lichenostomus melanops*) (photo: Damian Michael)

Peron's Tree Frog (*Litoria peronii*) (photo: Amy Daeché)

Strategies for managing remnant native vegetation

Valuable information about the state of the region's native biodiversity has been thoroughly documented, such as in the *Thurgoona Threatened Species Conservation Strategy* (2004), the *Albury Ranges Threatened Species Conservation Strategy* (n.d.), the *Wodonga Retained Environment Network* (WREN) *conservation strategy* (2006), and the *Regional Natural Environment Strategy: 2020-2032* (RNES, 2020). These strategies have assembled a diverse and high-quality collection of information about key species and their habitats, along with management options. This information also serves as a comprehensive baseline of the region's natural areas for future benchmarking of different management approaches. The RNES: 2020-2032 (RNES 2020) and associated 4-year implementation plans (i.e. 2020-2024) provide an excellent framework that guides the environmental programs of the two Councils.

The Wodonga Retained Environment Network (WREN) is a strategic network covering around 600 hectares of conservation reserves established in 2007 within the Leneva Baranduda Growth Area of Wodonga. It was initially created as an offset for the native vegetation removal associated with future residential development. The WREN Reserves area is managed by Wodonga City Council, with an additional 108 hectares of WREN land transferred to the Crown, which is managed by Parklands Albury Wodonga (PAW). A further 218 hectares, currently privately owned, will be transferred to Wodonga City Council in the future as subdivision and development occurs. The WREN provides a strong foundation for securing nature conservation among urban development across the Wodonga LGA, as expressed in the **Leneva Baranduda Precinct Structure Plan (2018)** that incorporates conservation areas alongside other public use spaces and residential areas.

Landcare volunteers. Photo: Wodonga Urban Landcare Network

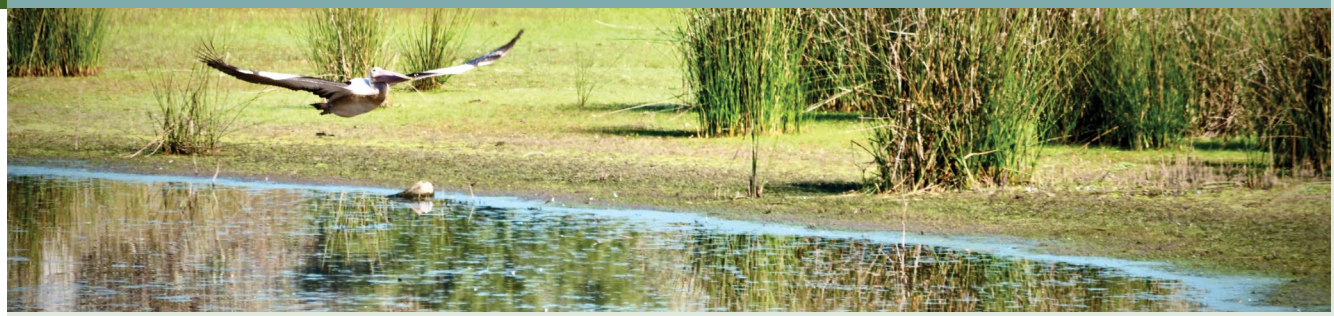
Outside of the WREN Reserves in the Wodonga LGA, there are extensive areas primarily managed for environmental values. These include:

- Wodonga Hills Reserves: larger reserves totalling 1,608 hectares that support conservation, recreational, aesthetic, and cultural opportunities.
- Offset Sites: legally protected areas of remnant native vegetation or lands managed for native vegetation restoration. These sites are set aside to compensate for native vegetation removal elsewhere. Wodonga City Council manages 37 Offset Sites covering a total of 439 hectares. Most are located within larger WREN or Hill Reserves, with approximately 76 hectares of stand-alone reserves at White Box Rise, Logic, Silky Oaks, Castel Verde, and Alpine View estates.
- Other Environmental Land: additional lands with environmental value managed by Wodonga City Council, including:
  - Environmental Land on Gateway Island (about 224 hectares);
  - Drainage Reserve behind Moloney Drive and Carrolls Lane (about 18 hectares);
  - Baranduda Fields Froglet Habitat (about 14 hectares); and
  - High Value roadside vegetation.

There is also a large Crown land estate in the Wodonga LGA, mainly along the Murray and Kiewa River floodplains, managed by Parklands Albury Wodonga, as well as land along the Baranduda Range managed by Parks Victoria. Additionally, the Commonwealth Department of Defence manages land featuring significant native vegetation.

1

Community stories of action and achievement
by Parklands Albury Wodonga



Australian Pelican (*Pelecanus conspicillatus*) at Ryans Lagoon (photo: Jacqueline Schulz)

As part of the Albury Wodonga Development Corporation's (AWDC) landscape-scale planning for the region, in 1996 it released an 'open space' strategy to establish '... the most magnificent regional parklands in Australia'. The task for developing the envisaged parkland was given to a community-based Committee of Management. In January 1997, Parklands Albury Wodonga (PAW) was incorporated in both States and the Committee of Management became the Board of Directors. In 2004, it became a company with its name being Parklands Albury Wodonga Ltd. The strategy pursued by PAW has been to:

- develop relationships with community organisations and businesses;
- secure government and philanthropic funding; and
- coordinate with partners to deliver significant environmental and social outcomes within and beyond the Albury Wodonga region.

PAW is a public land manager of 2,300 hectares of Victorian Crown land (primarily within Wodonga LGA). PAW also assists with restoration works on Albury and Wodonga LGA owned natural area lands.

Each year, PAW works in partnership with around 80 community, business and government partners and the wider community. Achievements include:

- Restored native vegetation to 3,300 hectares of degraded hill country surrounding Albury Wodonga (McFarlanes, Federation, Huon, Baranduda and Albury Ranges areas) and along 80 kilometres of major waterways (Murray and Kiewa Rivers and tributaries)
- Erected more than 170 kilometres of stock exclusion fences; planted over half million native seedlings; removed hundreds of hectares of woody weeds by hand and undertake considerable broadleaf weed control
- Delivered hundreds of community engagement and education events and Ranger led volunteer programs with community members of all ages and abilities, providing innovative and accessible opportunities to connect people with nature
- Created and maintain 172 kilometres of recreation trails, built lookouts, facilities and information shelters, installed wayfinding and interpretive signage and park maps
- Restored 18 heritage buildings at the Bonegilla Migrant Experience Heritage Park; developed visitor services; produced information booklets, website and promotional information; organised Back to Bonegilla community events and secured National Heritage listing for the site.

Aerial view of Ryans Lagoon (photo: Beau Murray)

Changing nature of urban development

The type of urban development and the level of nature conservation included in designs, and their impact, is not straightforward. There are various models for urban development, ranging from high-density residential areas at the geographic centre of an area to highly dispersed low-density housing in rural areas (see **How Victoria's major cities could grow: 5 urban development scenarios**). Each model carries implications for nature conservation as well as costs related to urban development, including housing affordability. Recent research indicates that housing costs are rising faster than the relative increase in household incomes (Leishman *et al.* 2023).

This trend is placing pressure on commercial developers of 'green field' urban projects to deliver affordable housing. In the Albury Wodonga region, this mostly translates into standalone houses (3-4 bedrooms) on 600-800 m² blocks close to a variety of amenities (such as parks and shops) and services (e.g. bus routes and schools). Even when urban zones and natural areas are clearly separated, effort is needed to manage ongoing competing demands and impacts of different land uses, such as along the interface between urban and natural spaces (for example, wandering pets, spread of garden plants, perceived fire risk). Although the immediate impacts of development on natural areas may be small, there can be gradual loss over time. Usually, there are clear trade-offs between conserving nature and urban development, but with long-term strategic planning, areas with high-value native biodiversity can be reserved and managed to complement or even enhance neighbouring areas of urban development.

Additional benefits can accrue to urban precincts through the purposeful design and integration of 'blue green' infrastructure (i.e., blending engineering with nature) and promoting the concept of **'nature positive cities'** (i.e. incorporating natural features in urban growth). Developing incentives for developers and individual households to exceed minimum environmental standards could raise expectations among the wider community that the Albury Wodonga region could be a leader in 'nature positive' urban development. Some local examples of 'blue-green' infrastructure include:

- Waterways through urban areas that are landscaped, gravelled, and vegetated in ways to 'pool' water and create habitats suitable for small fauna (e.g., frogs, lizards);
- Roadsides and nature strips planted with native vegetation encouraged to flower and seed, and if the area is sufficient, then establishing native vegetation with multiple layers (e.g., grasses and lilies, small shrubs and trees) to provide habitat for lizards, birds, and possums/gliders; and
- Rainwater tanks to store water for use in urban ornamental and/or vegetable gardens and to supply water for native fauna during warmer months.

2 Features of the natural environment in the Albury Wodonga region

Natural assets of Albury Wodonga

The natural diversity of the geography in the Albury Wodonga region offers a range of habitats, resulting in diverse native flora and fauna.

Located at the base of the foothills of the Great Dividing Range the distinctive Eastern and Huon Hills serve as the gateway through which the iconic Murray River flows into the heart of the Albury Wodonga region. From the centre of Albury and Wodonga, the landscape transitions into extensive floodplains. The habitat diversity in the Albury Wodonga region provides a rich palette to interest and engage the surrounding community through formal or organised recreation (such as trail running and canoeing events) and passive activities (like cycling or walking through urban bushland and fishing). The opportunity for residents to live close to natural areas is increasingly valued for its benefits to health and wellbeing (Ives & Kelly 2016).

The legacy of the Albury Wodonga Development Corporation

The role of the Albury Wodonga Development Corporation (AWDC) since its formation in the early-1970s until it ceased operations in 2014, has provided a rich environmental legacy for the region.

The AWDC created arguably the most impressive environmental legacy from all of the designated 'regional cities' initiated by the Australian government at that time. Key features that enabled the AWDC to achieve this legacy were that it had legislative authority and financial resources which allowed it to plan and undertake urban development at a landscape scale. This capability enabled the AWDC to operate beyond the confines of single parcels of land zoned for residential development. Essentially, it was able to prepare a strategic plan across the entire Albury Wodonga region, integrating urban development with a network of areas reserved for nature conservation such as the Conservation Zoned lands in Albury and Wodonga's Retained Environment Network (WREN) lands. Furthermore, the AWDC also complemented the reserved areas of remnant native vegetation by planting over 3 million native seedlings across about 2,000 hectares (RNES 2020). While the AWDC had a responsibility to plan and facilitate suburbs of residential development - similar to today's commercial urban developers - it also had a duty to plan for the anticipated public infrastructure, institutions (e.g. hospitals, schools, universities), recreational centres and open 'green' spaces.

Turquoise Parrot (*Neophema pulchella*) (photo: Amy Daeché)

Key message #1:

The Albury Wodonga region supports rich native biodiversity – a vast number of species and habitats across different landscapes. The earlier strategic planning by the Albury Wodonga Development Corporation created a network of reserved lands with high quality environmental features.
Yet the region is also home to several species listed by the Commonwealth and/or State governments as under threat, such as the Squirrel Glider and Sloane's Froglet, which require legal protection and additional effort for population recovery. Several bird species in the region are also listed as Critically Endangered (meaning they face a very high risk of extinction), including the Regent Honeyeater and Swift Parrot (listed as Endangered in NSW).

Recommendation #1:

Design and implement an ongoing ecological monitoring program of selected species to inform management options. Include a range of 'signature' species that covers the main habitats of the Albury Wodonga region and are likely to appeal to community groups (e.g. potential for 'citizen science' projects).

2

Aunty Valda Murray with turtle hatchling at Ryans Lagoon (photo: Jacqueline Schulz)

Community interest in native biodiversity

In line with a national trend over recent decades, community interest in native biodiversity has been growing. This interest has led to growing community participation in activities to enhance the habitat for endangered species (e.g. installing nest boxes), restore the natural qualities of public spaces (e.g. revegetation), and control of degrading factors (e.g. removing weeds).

This growing awareness and interest by the community in the native biodiversity of the local area has also led to increased scrutiny and pressure on agencies managing public areas, including more thorough review of Development Applications (NSW) and Planning Permits (Vic) for potential environmental impacts. Both Albury and Wodonga City Councils have formal processes for seeking community input on environmental matters. For example, Albury City Council's **Sustainability Advisory Committee** provides feedback on major development plans and advice on how Council might support community environmental initiatives (e.g. grants for local activities).

The local community is also self-mobilising through the formation of various community-based organisations, such as Landcare groups and networks. (e.g. **Wodonga Urban Landcare Network**, **Woolshed Thurgoona Landcare**, **Murray Landcare Collective**), Friends of specific reserves (e.g. **Friends of WREN Baranduda**, **Friends of Nail Can Hill**) and several 'citizen science' initiatives (e.g. **Sloane's Champions**, **Great Australian Platypus Search**). The RNES (2020) reported that 35 community-based groups are involved in various sustainable development initiatives across the Albury Wodonga region. Some examples include Parklands Albury Wodonga (established 1997), the Wodonga Urban Landcare Network (WULN, established in 2012), and the Traditional Owners' management of Ryan's Lagoon, all of which have ongoing programs that coordinate and support a wide network of volunteers. Councils and other organisations should continue to harness the growing community interest in native biodiversity, especially by highlighting local nature-based opportunities that resonate with popular culture. For example, encouraging people to appreciate the Broad-shelled Turtles (*Chelodina expansa*) in Wodonga's Belvoir Park Lake or value one of Australia's largest freshwater fish – the Murray Cod (*Maccullochella peelii*) in the Murray River, could assist to translate community interest into active environmental management.

Eastern Spinebill (*Acanthorrhynhcus tenuirostris*) (photo: Amy Daeché)

Appealing to the community's interest in native biodiversity can be a powerful way to encourage behaviour that reduces degrading practices and protects the environment, sometimes referred to as 'cues to care' (Li & Nassauer 2020). A local example is the collaboration between **Turtles Albury Wodonga** (a member group of WULN), La Trobe University and Wodonga City Council to organise a variety of events and projects to increase awareness and coordinate action to support turtle conservation in Wodonga. The collaboration arose after a spike in turtle deaths following the draining of Belvoir Lake by Wodonga City Council for construction works in 2018. The collaboration has led to public awareness initiatives (e.g. presentations, signage), community training about turtle nest protection (e.g. citizen science use of ***TurtleSat***) and increased efforts to reduce predation of turtle nests by foxes. Another example from outside the region is what the Shepparton City Council has achieved in partnership with other organisations and community groups to establish ***RiverConnect*** – a multifaceted strategy to increase the wider community's appreciation and understanding of the Goulburn River environment.

Citizen science has become a popular idea as it aims to educate, involve, and value everyday people in scientifically valid methods of collecting data to monitor specific species or ecosystems. This method of involving the local community has been shown to empower people to take more active roles as custodians of their local environment. There are several excellent examples of citizen science in the region, such as that coordinated by BirdLife Australia with the Birds on Farms program in Southern NSW (see the comprehensive information provided in '**the Woodland Warbler**'). The national citizen science project – ***the Aussie Bird Count***, is an important annual event organised by BirdLife Australia, with the event in 2024 attracting over 57,000 participants, illustrating the potential to engage the wider community in environmental programs.

2 An Ecological Case Study: Woodland Birds

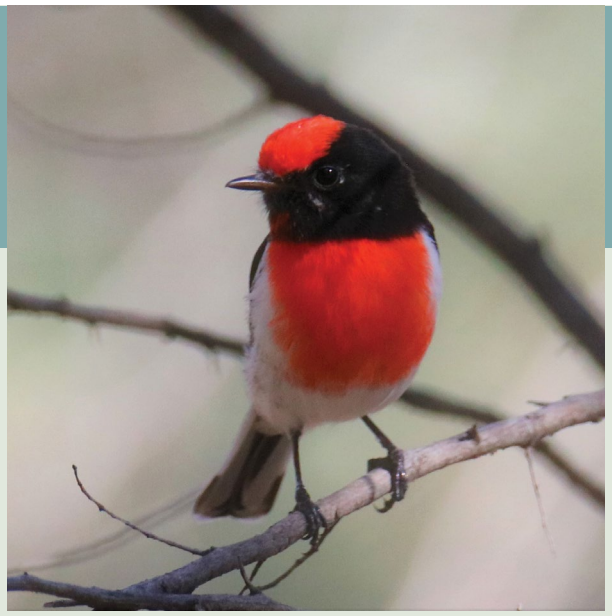
Prepared by Dylan McWhinney

Scarlet Honeyeater (male) (*Myzomela sanguinolenta*) (photo: Damian Michael)

The *Victorian Temperate Woodland Bird Community* is a threatened ecological community (TEC) listed under the *Victorian Flora and Fauna Guarantee Act 1988* (FFG Act). It is defined as a suite of bird species, mainly associated with drier woodlands on the slopes and plains north of the Great Dividing Range, that seem to have declined markedly in numbers since records began. Many such woodlands originally had an open structure, a light shrubby understorey, a grassy ground cover with fallen timber, an abundance of tree-hollows and other nesting sites, and available sources of seeds, nectar and insects throughout the year. Since European settlement, most of these woodlands have been cleared for agricultural production, or fragmented and degraded, greatly reducing the resources available to these birds (Robinson & Traill 1996), and many sites now also have cats and foxes present.

When the WREN lands were assessed in 2006 (about 20 years ago), 128 species of birds were recorded, including 11 threatened species (Brown Treecreeper, Diamond Firetail, Speckled Warbler, Swift Parrot, Regent Honeyeater, Black-chinned Honeyeater, Double-barred Finch, and the non-woodland species of Australian Shoveler, Hardhead, Great Egret, and Nankeen Night Heron). Other features from this assessment included:

- Small insectivorous birds were common throughout the WREN lands where the habitat was multi-layered (i.e. thickets of young trees and / or shrubs as well as large trees); and
- Hollow nesting birds including owls and parrots were most common along the waterways and roadsides where there were abundant large hollow-bearing trees.



Red-capped Robin (*Petroica goodenovii*) (photo: Damian Michael)

Just as forest ecology is dynamic, so are the composition and distribution of woodland birds (Lindenmayer 2022). Since 2000, it is believed that there has been a decline in the following species:

- Bush Stone-curlew
- Grey Goshawk
- Regent Honeyeater
- Pink Robin
- Yellow-tufted honeyeater
- Turquoise Parrot
- European Greenfinch
- Chestnut-rumped Heathwren
- Buff-rumped Thornbill
- Fan Tailed Cuckoo
- Red Capped Robin
- White-naped honeyeater
- Brown-headed honeyeater
- Black-chinned honeyeater
- Hooded robin
- Eastern Yellow robin
- Red-capped robin

However, some native birds are more commonly recorded than in 2000, such as:

- Rainbow Lorikeet
- Satin Bowerbird
- King Parrot

Some of the possible drivers of change in woodland bird species composition are thought to be due to:

- The tree plantings by AWDC have matured and now function as an open woodland with large trees with few shrubs or understorey. When trees were immature, their shrubby form would have been more suitable for small woodland bird species (Robins, Honeyeaters, etc) and now, are more suitable for more dominant (and sometimes predatory) species, such as Magpies, Butcherbirds and Noisy Miners.
- A warming climate has changed the availability of food sources, thereby affecting the frequency and duration of visits of migrant birds (e.g. Eastern Koel, Channel-billed Cuckoo, Oriental Dollarbird, Pied Currawong Rainbow Bee Eater), and potentially altering predator-prey relationships.
- Increase in abundance of dominant species including the native Rainbow Lorikeet and Noisy Miner, and the introduced Common Myna.
- Ongoing urbanisation and high-density living leading to an:
  - Increase in depletion, fragmentation and degradation of available woodland habitat;
  - Increase in abundance of roaming cats that predate birds; and
  - Increase in traffic strikes.

Regular monitoring of woodland birds can inform:

- The effectiveness of land management actions (e.g. revegetation, weed control, fencing)
- The appropriateness and effectiveness of the RNES 2020 objectives, goals and priority actions
- Whether Councils and other organisations need to adopt new land management measures or biodiversity-related strategic goals
- If the strategic planning for the existing 'biolinks' across the Albury Wodonga region has been effective.

2 Defining Citizen Science

'Citizen science' projects in the environmental field allow members of the public to contribute to scientific research by collecting data, making observations, and participating in various environmental monitoring and research activities. These projects cover a wide range of topics, including biodiversity monitoring, water quality assessment, and climate change studies. By engaging with citizen science, individuals can help scientists gather valuable data, raise awareness about environmental issues, and foster a deeper understanding of the natural world. Successful citizen science environmental projects share several key characteristics, including:

- strong volunteer training and engagement;
- effective data management communication; and
- a focus on building collaborations and community awareness.

Successful projects also typically have a clear vision, a well defined methodology, and a way to circulate their findings to relevant stakeholders, including policy makers. Some examples of citizen science projects profiled by the Australian Museum are available **here**.

Citizen science projects can also monitor and record the presence of species and habitat health using valid scientific methods. These projects have the potential to collect large amounts of data over extensive areas and long time periods. Often, this capability surpasses the more constrained budgets and timelines of research undertaken by recognised organisations (e.g. state agencies, universities). Harnessing the scientific potential of community interest and building expertise in nature conservation to document the status of endangered species and manage critical habitats has been an important realisation and development in Australia's environmental management. Community interest has led to the publication of an array of local field guides designed to assist identification and protection of native biodiversity, with guides available for the Albury Wodonga region focused on birds, fish, mammals, plants, frogs and reptiles (Michael 2025).

When supported by credible research organisations, citizen science can generate impressive levels of community engagement, data collection and improved knowledge of nature conservation at a fine-scale or local level. The rise of citizen science has also led to development of online platforms for the community to record and share their data, such as the global ***iNaturalist*** and Australian ***NatureMapr***, with the data linking to the 'open access' repository ***Atlas of Living Australia*** (ALA), hosted by the CSIRO. The ***FrogID*** app has been particularly successful in enabling people to identify and record frog species, and aggregate data from across Australia to better understand species distribution and population health. The recently developed **Covram** mobile app may also offer opportunities for lay people to readily assess the condition of their local native vegetation and track change over time, with data easily recorded, aggregated and shared.

Learning about the ecological value of native plants in urban gardens (photo: Lizette Salmon)

2 An Ecological Case Study: Sloane's Froglet

Prepared from information by Albury Conservation Company, Alex Knight & Albury City Council

The Albury Conservation Company (ACC) has invested in research of the Sloane's Froglet (*Crinia sloanei*) with Charles Sturt University. Sloane's Froglet is a small ground-dwelling frog with a body size of up to 2 cm and found in the floodplains of the Murray-Darling Basin. This little known species was listed as endangered in 2019 under the Commonwealth's *EPBC Act 1999*, the NSW *BC Act 2016* and the Victoria *FFG Act 1988*. The specific threats to the species are not well understood, but include degradation of habitat quality through clearing, overgrazing, changes in flooding regimes, predation, and climate change. Chytridiomycosis, an infectious disease caused by the amphibian chytrid fungus, may also be a threat to Sloane's Froglet. Surveys found significant populations in the suburbs of Thurgoona-Wirlinga and further west at Corowa (Knight 2013). Due to the small size of the froglet, the best way to know if the species is present at a site is by listening for its distinctive *'chick, chick, chick'* call that males make from autumn through to spring.

Watch video

In Victoria, the Wodonga City Council commissioned the ACC to undertake a study – *'Identification and Protection of Sloane's Froglet Habitat in Wodonga'* in 2023, which found that Sloane's Froglet has a very restricted distribution in Wodonga. It produced a GIS model of known suitable habitat, likely suitable habitat, and potential suitable habitat for the species within the Wodonga LGA, developed guiding principles for creating Sloane's Froglet habitat in Wodonga, and prescribed management recommendations to enhance Sloane's Froglet habitat in specific WREN reserves.

In the wider Albury area, the Woolshed Thurgoona Landcare Group have been monitoring frogs across the Thurgoona Wirlinga area since 2018. The **Sloane's Champions monitoring program** is helping researchers better understand the Sloane's Froglet distribution and how it changes over time. They are a dynamic frog species and can be found in a wide range of natural and constructed wetlands across the Albury Wodonga region. Some key features that Sloane's Froglet prefer for breeding include:

- Locations that are subject to periodic inundation;
- Wetlands that contain areas of shallow water, are vegetated and have gentle sloping banks; and
- Structured and small-stemmed vegetation, which is significant for the attachment of eggs (e.g. Common Spike Rush *Eleocharis acuta*) (Knight *et al.* 2024).

Sloane's Froglet (*Crinia sloanei*) (photo: Damian Michael)

Albury's Environmental Lands Network plays an important role in the ongoing protection of the Sloane's Froglet. These natural areas provide corridors for the species to disperse across the landscape and wetlands to use as a refuge in the drier summer months. Other locations in Albury where you can find the species include Mungabareena Reserve and Wonga Wetlands, and in areas of Wodonga, such as Baranduda, and further afield in the Kiewa Valley.

To help ensure a viable Sloane's Froglet population into the future, Albury City has worked with the former NSW Department of Planning, Infrastructure and Environment's biodiversity team to develop the Sloane's Froglet Stormwater Wetland Design Guidelines. Reserved bushland alone is not enough to support the species and there remains a need to create connected breeding habitat among urban development.

Since the implementation of the guidelines, urban development within the **Sloane's Froglet LAMP area (Local Area Management Plan**) requires the construction of wetlands that provide suitable breeding habitat, while still providing the water quality outcomes that are required per state regulations. *Sloane's Froglet Stormwater Wetland Design Guidelines*, 11 October 2017 are currently being reviewed.

2 Traditional Owners' environmental management

'Cool season' burning led by Traditional Owners (photo: Digby Race)

Over the past decade there has been increasing awareness of, and interest in, Traditional Owners' approaches to land and water management – both on private and public land, in the Albury Wodonga region. The formation of the **Duduroa Dhargal Aboriginal Corporation** is providing new opportunities to engage with Traditional Owners in the Albury Wodonga region and learn more about Traditional Owners' perspectives to assessing and managing land and water. One example is the practice of 'cultural burning' to reduce accumulated fuel loads, reduce weeds and rejuvenate native vegetation.

Traditional Owners are also playing a leading role in changing the management of Ryans Lagoon with its emphasis now on restoring the ecological quality that can support abundant aquatic and bird life.

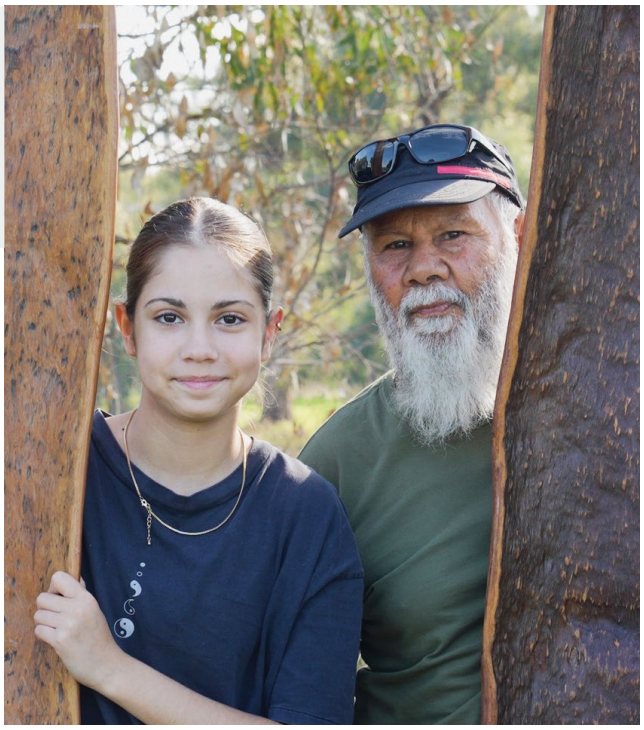
The cooperation between the Traditional Owners, Parklands Albury Wodonga, North East CMA, North East Water, Charles Sturt University, La Trobe University, BirdLife Australia, Country Fire Authority (Vic), Rural Fire Service (NSW) and others, has created an impressive example in the Albury Wodonga region of new approaches to natural area management and the opportunities to restore the ecological health to otherwise degraded habitats.

Group discussing gradens for wildlife (photo: Lizette Salmon)

2 Traditional Owners' management of Ryans Lagoon

Parklands Albury Wodonga (PAW) has transferred the daily management of Ryans Lagoon to Traditional Owners employed as part-time Field Rangers. Wetlands are vital ecosystems that provide critical environmental services such as cleaning water, storing carbon, and providing unique habitat. They also hold cultural value for local Aboriginal people. The Traditional Owners' organisation – Duduroa Dhargal Aboriginal Corporation (DDAC), has been working to restore a local wetland – Ryans Lagoon at Wodonga, in a way that reflects their vision of land management. Despite past grazing and land clearing along with altered hydrology, the wetland remains a good example of riverine billabongs in the upper parts of the Murray River. Grazing has been removed from all 165 hectares of the site and significant weed-removal efforts are underway which has included the Traditional Land Management practice of 'cultural burning' during the winter. This is complemented by the planting of native trees, shrubs, and grasses to restore a healthy mix of understorey and canopy. Another aspect of Caring for Country at Ryans Lagoon is the provision of environmental water during the spring-summer period. The arrangement between DDAC, North East Water and North East Catchment Management Authority resulted in around 185 megalitres of water being pumped from the Murray River into the wetlands, achieving positive cultural and environmental outcomes. The wetlands have become a hive of activity with representatives from Wodonga Urban Landcare Network and North East Water monitoring how the environment is responding to the cultural watering. Turtles Albury Wodonga are actively protecting turtle nests and trialing methods to discourage fox predation along with researchers from La Trobe University who are radio-tracking adult turtles, and BirdLife Australia have been assisting with bird surveys. The collaboration with research organisations (e.g. La Trobe University) and the water management agencies has led to scientific research, with research results indicating a positive response to the environment from DDAC's land and water management. But Ryans Lagoon isn't just a centre of environmental interest, it has also become a Cultural Learning Centre – a place where culture can be celebrated and passed on to the next generation of Traditional Owners and others interested in traditional management practices. DDAC has hosted several workshops on topics including weaving and tool-making, and the recently completed dance circle.

Experienced and qualified Council staff have also been experimenting with 'cool season' burning to rejuvenate small areas of WREN lands, with positive ecological responses observed (e.g. suppression of annual weeds, natural regeneration of eucalypts). The targeted approach of using mosaic patterns of 'cool season' burns on patches of natural areas, as practiced by Traditional Owners for thousands of years, may help safely reduce the fire risk of accumulated fuel loads at the interface of natural areas and urban development. This strategy can reassure residents that surrounding bushland provides opportunities for enjoyment and value. Lowering perceived fire risks and encouraging positive experiences will be key to encouraging widespread adoption of 'everyday nature' and supporting the concept of 'nature positive cities' in Albury Wodonga.



Uncle Phil Murray and Granddaughter Mia Murdoch
(photo: Jacqueline Schulz)

Ryans Lagoon Aerial with Turtle (Pic Beau Murray)

Key message #2:

The region includes many examples of innovation in natural area management, such as the use of technology for species monitoring and habitat assessment (e.g. motion-sensing cameras, eDNA tracing), affordable 'blue green' infrastructure (e.g. vegetated roadsides for shading and wildlife), and Traditional Owners demonstrating 'cultural burning' (cool season burning) and cultural-environmental watering. There is also a wide array of citizen science projects that harness the community's increasing interest in monitoring and managing the region's natural areas. Many citizen science projects use mobile apps to record and share data, and thereby contribute to the increasing knowledge of the region's, and Australia's, native biodiversity – complementing the research undertaken by organisations (e.g. agencies, universities).

Recommendation #2:

Encourage innovative approaches to managing natural areas across public and private lands. Provide support to community-based projects that enable residents to be actively involved in the observation and management of natural areas. Create a 'toolbox' of practices that allow agencies, developers and residents to effectively manage small and large natural areas to achieve 'nature positive' outcomes (e.g. cost-effective approaches to enhance waterways for wildlife, guidelines to enhance the habitat for specific species).

2 An extensive 'knowledge bank' of Albury Wodonga's environment

Diverse flora (photo: Dylan McWhinney)

Azure Kingfisher (*Ceyx azureus*) (photo: Damian Michael)

There is an extensive library of information about the status and extent of individual species and habitats in the Albury Wodonga region. The establishment of the AWDC in the early 1970's sparked the need to better understand and document the natural environment, in a large part to inform the strategic planning for the region's urban development. While broadscale at first, progressively the AWDC commissioned more detailed studies, leading to the publication of the *Albury Ranges Threatened Species Conservation Strategy* (n.d.) and the *Wodonga Retained Environment Network: A threatened species and habitat conservation strategy* (2006). Assessments of native species and mapping of key areas provided important baseline information for when the remaining land managed by the AWDC was transferred in 2014 to State governments and subsequently to the Albury and Wodonga Councils, with funding for land management over the following decade. The Albury and Wodonga Councils collaborated to develop the *Regional Natural Environment Strategy 2020-2032*, published in July 2020, which adopts a holistic 'one city' view of the natural environment (i.e., across state and council boundaries).

The information drawn from the ACC's **Albury Wodonga Threatened Species Monitoring Program** has informed Councils decisions about management of environmental lands, appropriate 'blue-green' infrastructure (e.g. Wodonga's siltation ponds along vegetated waterways) and habitat enhancement (e.g. Albury's installation of nest boxes and glider poles). These are examples of how fine scale or localised ecological data has been translated into practical responses by other organisations and illustrates the potential for increasing the depth of Albury Wodonga's 'knowledge bank' to support the integration of nature conservation with urban development.

River Red Gum (*Eucalyptus camaldulensis*) (photo: Dylan McWhinney)

2

An Ecological Case Study: Squirrel Glider

Prepared by
Dylan McWhinney

Squirrel Glider (*Petaurus norfolcensis*) (photo: Dylan McWhinney)

The Albury Conservation Company (ACC) has coordinated the monitoring of wildlife across Albury Wodonga since 2018, with a focus on arboreal mammals and in particular the Squirrel Glider (*Petaurus norfolcensis*). Following a species viability analysis, the Albury Wodonga Threatened Species Monitoring Program (AWTSMP) began in Albury (Thurgoona – Wirlinga) in 2018 and expanded to include areas in Wodonga in 2020 (Michael, Niedra & McWhinney 2021). The AWTSMP now monitors for wildlife at over 124 sites using motion-sensing cameras as the primary survey tool, mostly biannually in autumn and spring.

A mix of sites are selected for monitoring the wildlife, with 85 sites in Thurgoona – Wirlinga and 60 sites in Wodonga. The sites include areas of native vegetation greater than 5 hectares, such as:

- roadside verges;
- patches of remnant vegetation;
- riparian corridors; and
- future tree plantings.

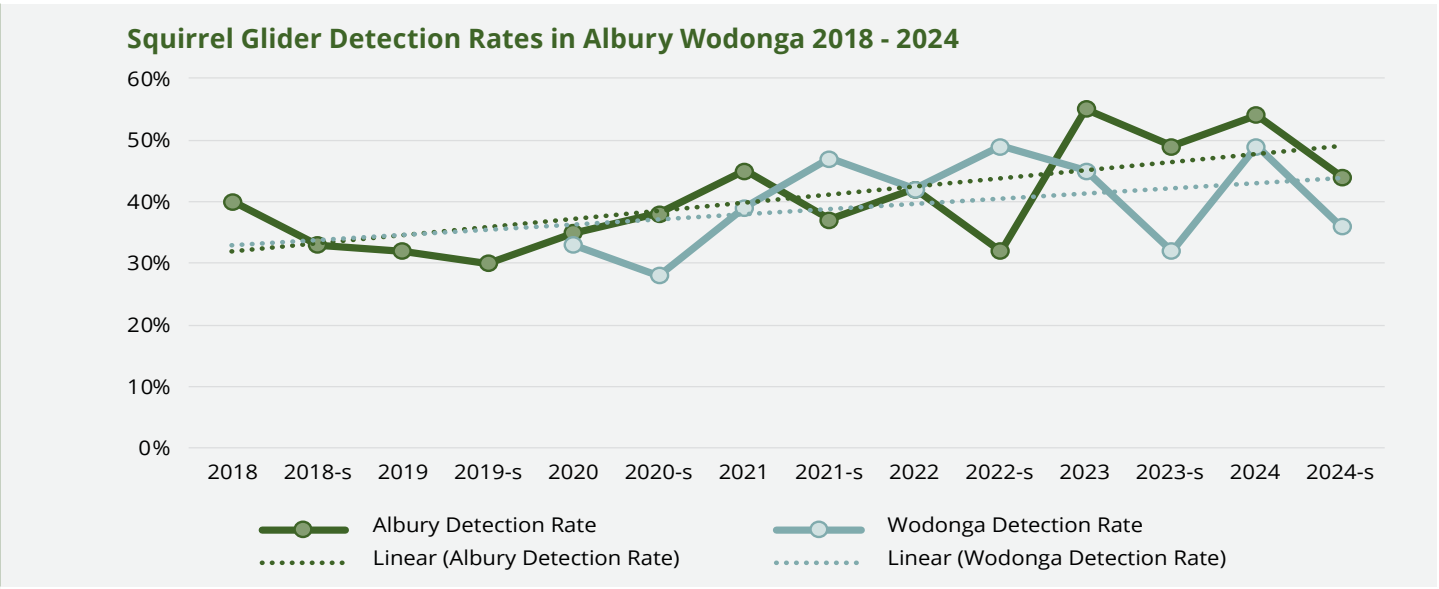
The sites also include a mix of land zones, such as:

- urban;
- peri-urban (anticipated future urban development); and
- rural (agricultural land).

In the Thurgoona – Wirlinga study area, all habitat types are showing a higher detection rate in spring 2024 than they were in spring 2019. During this time, roadside habitat sites have consistently produced higher detection rates in autumn compared to spring, until 2024 where the detection rate at roadside habitats remained constant from autumn to spring. Overall, results highlight the importance of roadside vegetation in linking patches of native vegetation in what is an increasingly fragmented landscape in terms of arboreal habitat.

In the Wodonga study area, detection rates at remnant and revegetation habitat types remained constant from autumn to spring 2024, while there were reductions in detection rates at riparian and roadside sites. Glider detections in the proposed urban development zones have been relatively stable over 10 monitoring periods, yet glider detections within the urban and rural land use zones have shown more variance. Recommendations for both Albury and Wodonga Councils provide opportunities for enhancement of the urban bushland to support the Squirrel Glider.

Beyond the regular monitoring for Squirrel Gliders reported above, the ACC is also supporting the PhD research by Dylan Lees on the *'Population viability and spatial ecology of the threatened squirrel glider (Petaurus norfolcensis) to rapidly changing peri-urban landscapes'.*



Source: Albury Conservation Company Threatened Species Monitoring Program 2024

Beyond the long-term management and research undertaken by relevant state agencies, such as the Victorian **Department of Energy, Environment and Climate Action** and NSW **Environment and Heritage** – Department of Climate Change, Energy, the Environment and Water, the region includes numerous other organisations with direct interest in the management of and knowledge-generation about natural areas. These include North East CMA, North East Water, Parklands Albury Wodonga, Murray Local Land Services, and the Murray-Darling Basin Authority. The establishment of Charles Sturt University in Thurgoona, La Trobe University in Wodonga, and local campuses of Tertiary and Further Education (TAFE) in Albury (including the National Environment Centre in Thurgoona) and Wodonga, have increased the opportunities for detailed and ongoing research with local partners. The two universities having acclaimed expertise in forest and woodland ecology, riparian and wetland management, aquatic species ecology and management, community-based organisations, and public governance and policy-making. Collectively, these organisations, groups, and many individuals contribute to increasing awareness and understanding of the region's natural environment. While there is extensive knowledge about the natural environment of Albury Wodonga, it is dispersed among organisations and can be difficult to access.

Key message #3:

Over the past 50 years, a multitude of organisations have contributed to an impressive 'knowledge bank' about the region's native biodiversity and management options. This 'bank' of information provides opportunities for benchmarking the current status of species and habitats to prior conditions and, therefore, allows land managers to make informed decisions about effective strategies to protect endangered species. Also, access to credible and detailed local information will enable Councils and other land managers to design evidence-based policies and practices.

Recommendation #3:

Encourage the ongoing collection of data about local biodiversity and make the information widely available via an 'open access' source. Information should be freely shared through various networks and platforms (e.g. the Atlas of Living Australia can provide a valuable repository for local data relating to biodiversity).

2 Summary of environmental features

A detailed understanding of the status and habitat of key or 'signature' species is essential for tracking changes in individual species populations and interpreting habitat conditions that are likely to support diverse native flora and fauna. Monitoring the status of 'signature' species across different habitat types will enable understanding of the condition of nature conservation efforts over a wider area. A localised understanding of species status enables the development of local area management plans (LAMPs), which provide a foundation for management guidelines that private landholders, commercial developers, and community groups can follow. The ongoing research supported by ACC has informed Albury and Wodonga Councils about the management of land with high potential to support threatened species.

The ACC contributes to the growing knowledge about native biodiversity in the region, with its ongoing **Albury Wodonga Threatened Species Monitoring Program** and the threatened species research projects (e.g. Squirrel Gliders, Sloane's Froglet). While being aware it could record the presence of other threatened species in Albury Wodonga, such as the Brush-tailed Phascogale (*Phascogale tapoatafa*) and Spotted-tail Quoll (*Dasyurus maculatus*), the ACC efforts have focused to date on monitoring Squirrel Gliders (*Petaurus norfolcensis*). A summary of projects focused on some of Albury Wodonga's 'signature' species – the Squirrel Glider, Sloane's Froglet and the potential of woodland birds, is provided previously in the Ecological Case Studies. Other species that could be considered as a 'signature' species for long-term monitoring include: Broad-shelled Turtle, Grey-headed Flying Fox, Gang-Gang Cockatoo, Pink-tailed Worm Lizard, Platypus and Rakali, as well as plants such as the Darling Pea.

In summary, the features of the Albury Wodonga region that contribute to its highly valued natural environment include:

- the climate and natural geography, such as undulating hills, the Murray River, surrounding tributaries, and floodplains with diverse ecology;
- the AWDC's foresight in reserving a substantial network of areas and corridors for nature conservation and passive recreation;
- a growing awareness and interest among the wider community in the local natural environment;
- the use of technology to record species and habitats, and the collaboration between Traditional Owners and multiple agencies, which has led to innovative methods for assessing and managing natural areas (e.g., motion-sensing cameras, eDNA tracing, cool-season burning);
- the increasing 'knowledge bank' of information about the natural environment, species, habitat condition, and appropriate management options; and
- leveraging the efforts of multiple agencies, the private sector, non-government organisations, and a large network of community-based groups with a strong interest in nature conservation.

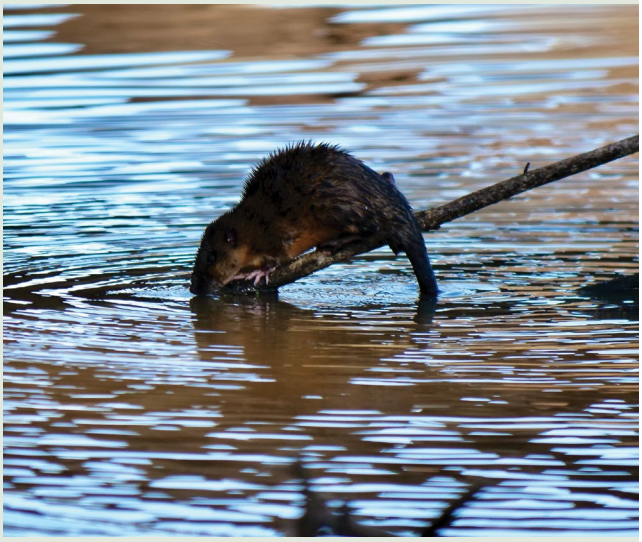
Rainbow Bee Eater (*Merops ornatus*) (photo: Amy Daeché)

Red Browed Firetail (*Neochmia temporalis*) (photo: Amy Daeché)

Wrinkled Toadlet (*Uperoleia rugosa*) (photo: Damian Michael)

Pink-tailed Worm Lizard (*Aprasia parapulchella*) (photo: Damian Michael)

Great Egret (*Ardea alba*) (photo: Jacqueline Schulz)



Rakali (*Hydromys chrysogaster*) (photo: Jacqueline Schulz)

3 Challenges in managing the natural environment in the Albury Wodonga region

Complex land tenure and management arrangements

The land tenure and management responsibilities are complex within the combined Albury Wodonga LGAs with numerous government agencies with statutory responsibilities for land and water management.

Across the region, a number of agencies have roles in land, waterway, and environmental management.

In NSW, key agencies include:

- **Department of Climate Change, Energy, the Environment and Water (DCCEEW)**
- Department of Planning, Housing and Infrastructure (DPHI) – Crown Lands
- Murray Local Land Services (LLS)

In Victoria, relevant agencies include:

- Department of Energy, Environment and Climate Action (DEECA)
- Parks Victoria
- North East Catchment Management Authority (NECMA)

(See Figure 4, following page)

State water authorities also play a significant role:

- **WaterNSW** and **North East Water** (Victoria) are primarily responsible for the supply of potable water
- Murray LLS and North East CMA are responsible for waterway management, including the Murray River and its tributaries.

At the Commonwealth level, the Murray–Darling Basin Authority (MDBA) and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) have responsibilities for basin-wide management and regulation, including protection of EPBC-listed species. In addition, several Committees of Management oversee specific parcels of Crown land. This includes organisations such as Parklands Albury Wodonga, which manages around 2,300 hectares for environmental values and community amenity, and undertakes restoration activities across other areas of public land.

Beyond the direct management of land and water, these agencies also hold regulatory responsibilities for the activities of private landholders, commercial land developers and community interest groups. The complexity of land tenure and management responsibilities across the Albury Wodonga region makes it challenging to ensure all interested stakeholders are informed, activities are coordinated and alliances are sustained. For both professionals and community members, it can be confusing to identify the primary management organisation, understand the capacity for active environmental management and recognise the intended outcomes. Low levels of awareness and coordination can lead to competing interests, wasted investment and negative environmental outcomes. This situation is further complicated by large-scale issues such as climate change, increased pest plants and animals, and the loss of native biodiversity due to expanding urban development.

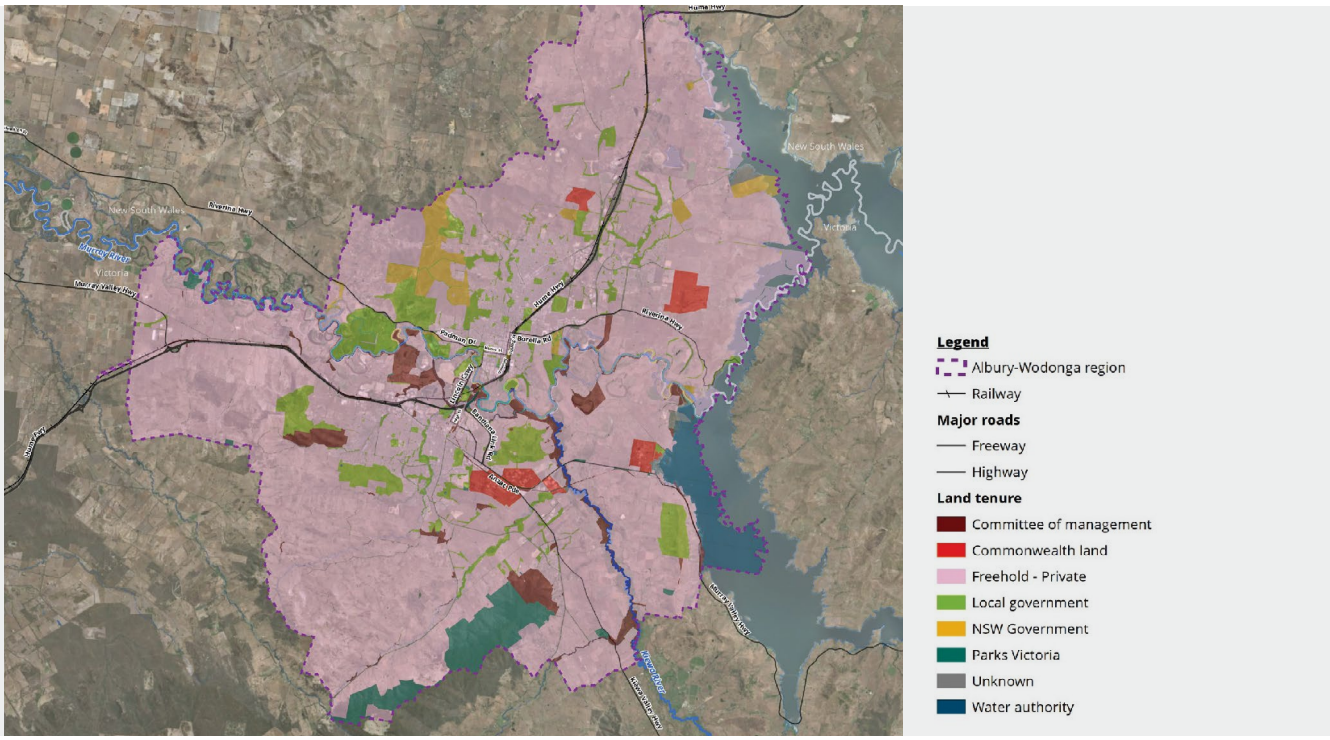


Figure 4: Complexity of land tenure and management.

Source: AlburyCity and Wodonga Council Regional Natural Environment Strategy – Biosis 2020.

Key message #4:

Complex land and water management arrangements across the Albury Wodonga region has created a confused picture for many professionals and community members about who is the primary manager of specific areas, the capacity for environmental management and intended outcomes. Clarifying land tenure, management responsibilities and capacity for environmental management across the Albury Wodonga region will assist in facilitating stronger partnerships, better environmental outcomes and effectiveness of investment.

Recommendation #4:

Improve communication, coordination and collaboration among stakeholders to align interests, improve efficiency of management, and increase opportunities for effective co-investment. Clarifying land tenure, management responsibilities and capacity for environmental management across the Albury Wodonga region will assist in faciltating stronger partnerships, effective investment and better environmental outcomes.

Creating a nesting hollow (photo: Dylan McWhinney)

3

A view of the urban-nature interface in Albury Wodonga region (photo: Dylan McWhinney)

Increasing need for affordable housing

Providing access to an adequate supply of affordable housing is a major issue for Australia's Commonwealth and State governments, with the Australia government recently announcing the ambition to facilitate the construction of 1.2 million new houses by June 2029. It has also stated its aim to build an additional 55,000 social and affordable homes by the same date[2], with a key strategy to streamline planning and development processes. The NSW and Victorian governments are also reforming planning regulations and housing zones[3] with the aim to reduce the time for planning processes, increase housing density to improve development efficiencies, and achieve greater benefits from existing public infrastructure (e.g. more housing near existing transport nodes and shopping precincts).

Highlighting the urgent issue of housing affordability is the recent data released by the Australian Bureau of Statistics (ABS), which shows that the average house price in Australia now exceeds $1 million ($1,002,500, ABS 2025), albeit weighted towards prices in the capital cities. Even in the Albury Wodonga region, early-2025 average house prices are at record highs, with Albury at $602,000 and Wodonga at $572,000, both above long-term trends. The affordability of housing is further impacted by Australia's population growth, including the sustained population growth of above 1% per annum in the Albury Wodonga region, which drives demand and upward pressure on prices amid limited supply. In recent years, the region's population has grown at about 1.4% per annum, further increasing the demand for new housing.

[2] Prime Minister's address at the National Press Club, 11th June 2025.
[3] As at 15th July 2025.

In response to these mounting pressures – rising house costs and limited supply – governments are approving the development of urban housing estates with houses on land sizes of 600-800 m² near city amenities and services (the average land size for new houses in Australia's capital cities is now below 400 m²). The Albury Wodonga region reflects the national trend of urban expansion mainly driven by commercial housing developers, where standalone houses in new estates are built en masse to enable efficient building processes – making houses more affordable to buy. The design of housing estates at scale (e.g., suburbs with 100+ new houses) often discourages individual house blocks from supporting large trees – whether planted or retained remnants, with this type of vegetation mostly limited to public land. In such scenarios, managing large trees and remnant native vegetation falls to the agencies responsible for the designated land. Even unintentionally, public land – in various forms like walkways, flora and fauna reserves, land held by public organisations, road reserves, and streetscapes – offers a vital opportunity to secure the long-term ecological viability of native biodiversity in urban areas. While land across all types of tenure can assist in nature conservation, it is arguably the larger areas of reserved public land that present the greatest potential for sustaining much of the habitats for threatened native species.

The RNES (2020) provides details of the natural biodiversity and the challenges in the Albury Wodonga region. For example, of the combined Albury Wodonga LGA of 74,110 hectares, urban development and other land-use changes have meant that only about 40% of the original native vegetation remains (RNES 2020, p.8). A high proportion of important native vegetation (>6,000 hectares) is retained in over 600 locally managed reserves, many of which are small parcels of land. The Murray River and its floodplains and tributaries provide critical habitat for a wide range of species, including many threatened native species of birds, mammals, fish, frogs and reptiles (RNES 2020, p.8). While it is clearly challenging for commercial developers of urban estates to maintain a profitable business and offer affordable housing to the market, the Victorian-based **Council Alliance for a Sustainable Built Environment** continues to develop and promote the Sustainable Suburbs Framework. There are now some exciting examples in Victoria of how the Framework can be applied (see case studies **here**).

Key message #5:

Maintaining a steady supply of affordable housing for a growing population in the Albury Wodonga region means that block sizes are decreasing, which reduces opportunities for supporting large trees and other woody vegetation which can provide critical habitat for native species. The purposeful design and management of public land will be crucial for securing the ecological viability of native biodiversity. Additionally, connecting urban estates to public land (e.g., parks, bush reserves, streetscapes, walkways, and bike paths) will create opportunities for urban residents to enjoy local biodiversity and value nature conservation.

Recommendation #5:

Explore opportunities for nature conservation across all forms of public land in collaboration with the relevant management organisation. Coordinating the management of public lands and the surrounding private land (urban estates) will enhance the scope for integrated landscape management that can support native species and encourage residents to value nature conservation and benefit from a healthy natural environment.

3

Eastern Rosella (*Platycercus eximius*) (photo: Jacqueline Schulz)

Complex planning for urban development

The health of the natural environment has been correlated with population growth and diverse economies (Luck 2011), but this can create challenges when new residents have different expectations and interests from those of long-established residents. Local governments are often tasked with managing these issues, facilitating urban development that is both attractive and affordable, while protecting natural biodiversity for growing conservation and recreation interests, and complying with State and Commonwealth legislation. For example, in Victoria the *Planning and Environment Act 1987*, the *Planning and Environment Regulations 2015* and the *Environment Protection Act 2017* form the main legal framework for guiding urban development and natural environment protection. The Victorian Planning Provisions creates a template so each Council adopts a planning scheme that complies with the legislation but takes account of the local context and development opportunities (see Wodonga City Council's planning for the major urban development on the **Wodonga Hills**). Victoria's Department of Transport and Planning has also produced **urban design guidelines** to assist councils interpret the key concepts of contemporary urban development, balance competing interests and still meet growing demand for housing.

In NSW, the *Environmental Planning & Assessment Act 1979* and Regulation 2000, and State Environmental Planning Policies (SEPP), provide the legislative framework for Councils' Local Environment Plan (approved by the NSW Minister). Albury City was one of the early and few Councils in NSW to adopt an LGA-wide Biodiversity Certification overlay in 2011, as a landscape-wide strategic planning approach to identifying areas of high-value for native biodiversity and other areas suited for development. Based on Albury's Local Environment Plan (2010), land is zoned according to preferred land use and considers nature conservation beyond individual development applications. While Albury's Biodiversity Certification overlay was meant to support a simplified and transparent approach to reserving land for nature conservation, there are concerns that it may have undervalued the ecological significance of land zoned for urban development and therefore reduced obligations for private landholders to protect native biodiversity. In 2025 Albury City applied for an extension to the current Biodiversity Certification overlay. Additionally in December 2025, following community consultation, AlburyCity adopted an upgraded **Thurgoona Wirlinga Precinct Structure Plan** which provides guidance on planning at a suburban scale. This precinct is forecast to house much of Albury City's population growth over the next 50 years. Also, in an effort to streamline the development application (DA) process, Albury City continues to encourage developers to have 'pre-lodgement' meetings. At these meetings, developers meet with relevant planning staff to discuss any apparent issues, including environmental concerns, before the developer formally lodges the DA. It is believed that this is a more efficient process, rather than staff responding to submitted DAs, then developers needing to provide further information or modifications to their plans, followed by re-submission of the DA. It also ensures any environmental issues are considered early in the DA process.

An urban waterway landscaped for drainage and wildlife (photo: Digby Race)

Key message #6:

Albury and Wodonga Councils face an increasingly complex environment for urban development due to the need for long-term plans that provide assurances for the community and commercial developers while remaining responsive to detailed and emerging site development issues. Additionally, expectations and standards for urban development are rising, as are the potential upfront and maintenance costs of public land, which may create tension between competing interests.

Recommendation #6:

Councils should maintain a team of experienced and qualified planning staff with a range of specialist expertise to manage the complex and diverse development applications (DA) in a timely manner. Ensuring Council staff remain connected to the latest nature conservation research, management and innovations, and community-based initiatives, will be beneficial, so this knowledge informs assessments of DAs about the local environmental challenges and opportunities.

3

Staff involved in the collaborative management of Ryans Lagoon (photo: Jacqueline Schulz)

Community awareness and expectations of land managers

Another trend relevant to integrating nature conservation with urban development is the growing awareness and interest in Albury Wodonga's native biodiversity among the wider community. Greater public awareness of the value of native biodiversity has also increased understanding of the threats and degrading processes on native biodiversity. This has led to more community efforts with Wodonga Urban Landcare Network (WULN), Parks Albury Wodonga (PAW) to remove pest plants, protect waterways, revegetate with native species, and enhance habitat for local fauna (e.g., nest boxes for squirrel gliders). This increased community awareness and activity to support nature conservation in urban environments has also led to higher demands for community involvement in decision-making about managing public lands with potential for native biodiversity. For example, the **Thurgoona Wirlinga Community Action Group** advocates on behalf of residents to ensure urban development enhances the liveability of the area, with consideration of the area's environmental characteristics, public open spaces, transport corridors and hubs among other aspects of development expressed in Albury Council's **Thurgoona Wirlinga Precinct Structure Plan**. The trend of increased community interest in their local environment has emerged as both an opportunity for partnerships with the community and a challenge in terms of management agencies needing to engage more closely with the local community. For example, the **Wodonga Regional Waterway Action Plan** was developed through a community-led collaboration between WULN, North East CMA and Wodonga Council to produce a shared vision and strategy.

Community planting activty with Friends of Wodonga Rail Trail and Wodonga Primary School (photo: Wodonga Urban Landcare Network)

3

A community story: Wodonga Urban Landcare Network

The Wodonga Urban Landcare Network (WULN) has facilitated community-led environmental stewardship since its formation in 2012. What began as a network of three groups has grown into a dynamic alliance of 18 groups working predominantly on public land. WULN takes an inclusive approach to environmental stewardship, welcoming traditional Landcare groups alongside innovative community initiatives. The network supports diverse activities ranging from community gardening and farming, revegetating and reimagining our rail trails as wildlife corridors and tourist attractions, protecting endangered turtles, and operating native plant nurseries that supply native plants for landscape restoration and teach community members to propagate endemic species. Over the years of 2023 and 2024, the network has mobilized 955 volunteers who contributed 18,631 hours to on-ground conservation work, creating both environmental and aesthetic improvements across the local landscape. Simultaneously, WULN staff organised 128 educational events that reached nearly 7,000 additional community members through practical and experiential projects including the *Gardens for Wildlife* program, citizen science activities, and environmental volunteering initiatives. WULN has demonstrated leadership and partnership building with the development and implementation of the Wodonga Regional Waterways Action Plan (WRWAP). This groundbreaking initiative marked the first time a municipal-wide waterways planning process was led by a community organisation rather than government authorities.

WULN's commitment to education and capacity building extends across all age groups and community sectors. The network's partnership with local schools exemplifies this approach. Staff and volunteers have engaged with local kindergartens to raise awareness about endangered turtle protection, while facilitating the establishment of junior Landcare activities that will see schools actively involved in the management of municipal reserves. WULN has also received support from a local developer – Nordcon, to initiate the *Gardens for Wildlife* program and promote wildlife habitat in urban yards while raising awareness about environmental sustainability. WULN's success lies in its ability to connect people with landscapes through leadership, collaboration, and genuine partnership building. By fostering relationships between diverse community groups and key authorities, the network has created a model of environmental stewardship for Wodonga.

Unilateral management of public lands is now less accepted by the wider community than before and may harm the reputation of agencies as responsible guardians of public lands. Agencies responsible for public land management should ensure the wider community is well-informed about proposed management practices to promote the shared goal of nature conservation. Agencies need to maintain a 'social licence' to operate with the surrounding community, even when managing land over which they have statutory responsibility. Strong community support for an agency's management usually results in fewer complaints and an improved 'social licence' to operate. An example of a conceptual framework of public participation has been developed by the **International Association of Public Participation** (see Fig. 5, below).

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We wil look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Figure 5: IAP2 Spectrum of Public Participation

Key message #7:

Public land managers will need to effectively communicate and engage with the local community and interest groups to ensure there is a general awareness of the objectives for public land with nature conservation values. In some cases, public land managers should collaborate and empower key partners to achieve a shared goal of nature conservation.

Recommendation #7:

Agencies should have community engagement strategies to create a cooperative relationship between each agency and the local community and interest groups. In some cases, agencies should collaborate with key partners for improved management of environmental lands and waterways to enhance nature conservation (e.g. encourage volunteer participation in efforts to enhance and protect native biodiversity).

3

Eastern Brown Snake (*Pseudonaja textilis*) (juvenile) (photo: Damian Michael)

Growing appreciation of urban bush

While much of Australia's protected natural biodiversity is found in national parks and state reserves, there is a growing expectation that small reserves in urban areas should also be protected and managed to high standards to provide critical habitat for locally-threatened native species. Referred to by some as the 'new bush' or 'urban bushland', native vegetation in an urban setting can provide significant habitat for threatened species and enhance the liveability with improved outcomes for human wellbeing (Kowarik *et al.* 2019). The Australian Local Government Association's (ALGA) recent report cited innovative environmental strategies by the NSW Clarence Valley Council to protect an endangered population of coastal emus, and the WA Town of Victoria Park's community-led Urban Forestry Strategy that has significantly increased tree cover (ALGA 2024). At a wider Local Government Agency (LGA) level, the Australian Capital Territory (ACT) might serve as an informative example for Albury Wodonga, with its similarly complex land tenure and overlapping responsibilities between multiple agencies, the foresight of town planners to work at a landscape scale, considerable remnant native vegetation, multiple organisations with research capabilities, and increasing community interest in the protection of native biodiversity (see the ACT government's environmental management documented in the **Nature Conservation Strategy 2013-2023**).

The concept referred to as 'nature positive' for cities and other urban environments is becoming increasingly researched and applied in Australia and beyond (Frantzeskaki 2019; Visintin *et al.* 2024; Kiss *et al.*, 2025). This concept aims to increase opportunities for 'everyday nature' so that people living in densely populated areas gain exposure to and benefit from nature conservation in their daily routines. By applying the concept of 'nature positive', attention is given to establishing biodiverse 'green' spaces near busy business and residential districts, as well as integrating vegetation into previously 'hard' landscapes (such as revegetating along roads, 'green' walls, rooftop gardens), sometimes referred to as 'blue-green' infrastructure (Almaaitah *et al.* 2021). Re-greening initiatives may also provide value for the reintroduction of native species or critical habitat for migration between breeding colonies (Parsons *et al.* 2025), as well as providing greater scope for people to interact with native biodiversity daily and 'blurring' the boundary between bushland and urban development.

Locally, Charles Sturt University has proposed a 'nature positive' strategy to revitalise its Thurgoona campus (2025). Also, Albury City released a draft of its Urban Forestry Strategy in September 2025 for public comment, which seeks to increase the tree canopy and increase biodiversity in the most urbanised areas, and therefore improve the overall liveability of Albury for residents.

Local Landcare volunteers. Photo: Wodonga Urban Landcare Network

Key message #8:

There is a growing trend for the development of 'nature positive cities' so that urban residents have a greater opportunity to benefit from 'everyday nature' in their daily routines. There are increasing examples of cost-effective 'nature positive' initiatives in Australia and internationally, that could be adapted to the Albury Wodonga region.

Recommendation #8:

Agencies with responsibility for urban development in the Albury Wodonga region, principally the Albury and Wodonga City Councils, should continue to develop a suite of 'nature positive' strategies for implementation by developers, residents and community groups. The Urban Forest Strategy being developed by Albury Council is a timely opportunity to further develop 'everyday nature' for residents and visitors.

3 Council capacity: Meeting expectations with limited resources and staff

While community expectations of agencies managing public land and services are increasing, this occurs during a period of constrained resources and staffing. For example, the Australian Local Government Association (ALGA) estimates a significant shortfall of town planners and engineers to advise and oversee urban development projects, with this shortage most acutely felt in regional and rural areas. Managing the costs of increased administration and compliance requirements, along with meeting community expectations for performance (e.g., new and routine services) and infrastructure (e.g., roads, footpaths, lighting, facilities), with limited staffing—both in numbers and expertise—creates a challenging operating environment for agencies, particularly for the Albury and Wodonga City Councils. While the details differ, the main challenges faced by Albury and Wodonga City Councils are similar to those encountered by other agencies managing public lands and waterways, such as in Victoria by DEECA, NECMA, North East Water and Parks Victoria, and in NSW by DCCEEW and Murray LLS. Delays in informing developers and reviewing DAs cause frustrations, costly delays, and impacts the forecast of building costs and house prices (**ALGA 2023**).

Similarly, the Albury and Wodonga Councils will need to ensure sufficient resourcing and staffing to effectively engage with a growing number of community groups, as the combined investment by volunteer groups (labour, expertise, physical resources) committed to improving the natural environment of the Albury Wodonga region are substantial. For example, WULN comprises 18 groups with 542 registered members. Over the past two years, these groups have engaged 955 volunteers (members and non-members) who contributed 18,631 hours of labour, which includes pest and weed control and planting over 8,000 trees and shrubs. Maintaining the support for community-based groups with resources and staff expertise will be important to build strong partnerships and nurture the enthusiasm of volunteers to manage public spaces.

Key message #9:

Increasing expectations of the management of Albury Wodonga's urban bushland is challenging with constrained, diminishing or fluctuating resources, which in turn makes it difficult for agencies to fully engage with community groups. Motivated and supported community groups can make a considerable contribution to enhancing the natural environment.

Recommendation #9:

Develop business models that ensure reliable resourcing for managing urban bushland effectively so agency staff and community partners feel confident that current efforts won't be undermined by future neglect. Understanding the resources needed (staff and dollars per hectare) to manage urban bushland effectively should guide strategic planning by agencies. Building stronger channels of regular communication between agencies and relevant community groups could engender a shared commitment to maintaining areas valued for their biodiversity.

The aggregation of pressures on the natural environment from urban development can cause direct negative and unintentional impacts, leading to a gradual decline in native biodiversity. The effects of urban development are not always predictable, nor are they always avoidable. The pressure-state-response (PSR) framework can be used to analyse the 'cause and effect' of different development scenarios or impact assessments (see Fig. 6, below). The framework is also used in an expanded form as driver-pressure-state-impact-response (DPSIR).

In summary, the key challenges in the Albury Wodonga region that hinder the integration of nature conservation with urban development include:

- maintaining a ready supply of affordable housing for the region means that block sizes are declining, limiting space for large trees and other woody vegetation;
- the Councils face an increasingly complex environment for urban development – the need for long-term planning while remaining responsive to emerging site development issues;
- the complex land and water ownership and management arrangements have led to confusion about who is the primary manager of specific areas;
- there is a growing trend for 'nature positive cities' so that urban residents have a greater opportunity to benefit from 'everyday nature' in their daily routines;
- public land managers need to communicate with and engage the local community and interest groups to ensure there is a general awareness of the objectives for environmental lands; and
- the increasing expectations by the community of Albury Wodonga's urban bushland are challenging, with agencies and other organisations facing constrained resources, which in turn can limit agencies' capacity to fully engage with community groups.

Pressure State Response Framework

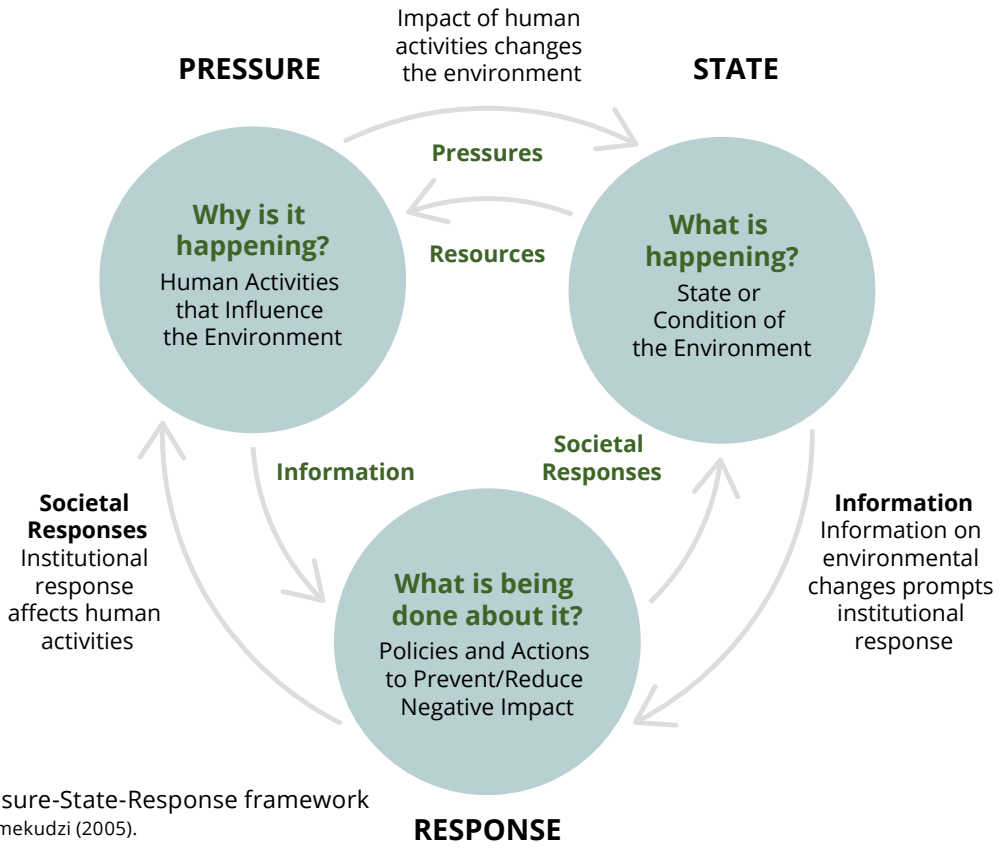


Figure 6: Pressure-State-Response framework
Source: Jeon & Amekudzi (2005).

4 Principles for integrating nature conservation with urban development

A range of complex and interacting pressures influence the context for integrating nature conservation with urban development, but key factors or principles—if achieved—are expected to lead to positive long-term outcomes.

Principles identified in this Blueprint that aim to guide the successful integration of nature conservation with urban development in the Albury Wodonga region include:

- **Ecologically Informed Strategic Planning:** Strategic planning at a landscape scale based on detailed ecological information that leads to the effective integration of nature conservation with urban development.
- **Institutional Capacity and Commitment:** Councils and State agencies with sufficient capacity, expertise, and commitment to efficiently implement practices that achieve environmental outcomes beyond the minimum legislative requirements.
- **Developer Engagement in Environmental Innovation:** Urban developers with the capacity and commitment to implementing options that promote positive environmental outcomes.
- **Connected High-Quality Environmental Assets:** A network of high-quality environmental land and water assets reserved in clusters and corridors that maintain habitat quality and ensure species resilience over time.
- **Community Participation and Stewardship:** Strong community interest in nature conservation, supported by opportunities to engage in local environmental activities.
- **Collaborative Governance and Investment:** Coordinated action and aligned investment across public, private and community sectors that lead to enduring positive environmental outcomes.
- **Evidence-Based Environmental Management:** Ongoing monitoring of key species and corresponding habitats that informs management strategies to improve ecological health and species viability.

Koala (*Phascolarctos cinereus*) (photo: Amy Daeche)

5 Summary of the Blueprint's recommendations and principles

This section summarises the link between the Blueprint's recommendations, principles and vision. The recommendations are offered for consideration by all stakeholders – including the public, private and community sectors – who are interested in optimising the integration of nature conservation with urban development in the Albury Wodonga region.

Kookaburra (*Dacelo novaeguineae*) (photo: Amy Daeche)

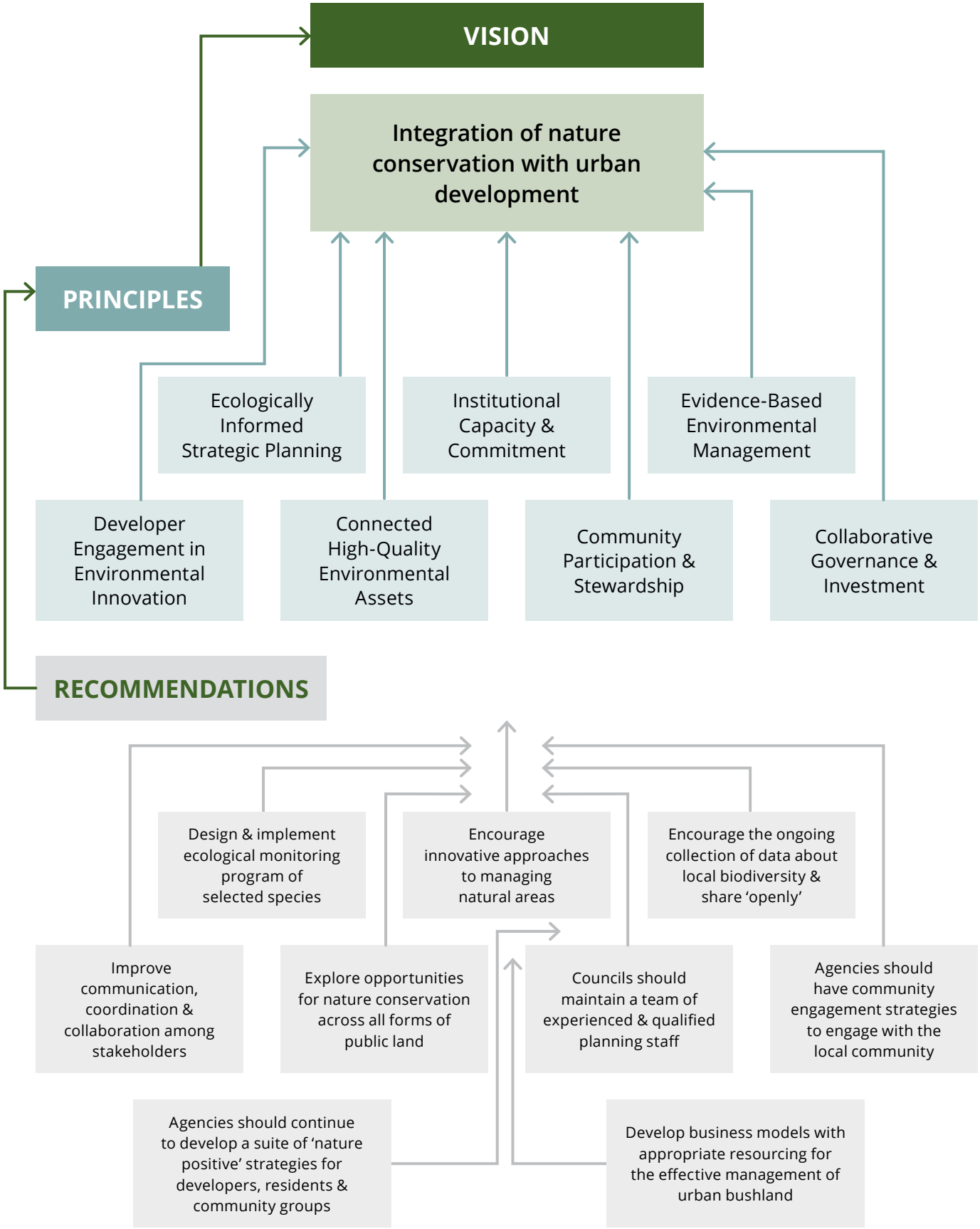


Figure 7: Blueprint's connection between recommendations, principles and vision

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Appendix 1: Some species in the Albury Wodonga region listed for protection under Commonwealth and State legislation

Species	Commonwealth *EPBC Act 1999*	New South Wales *BC Act 2016*	Victoria *FFG Act 1988* (March 2025)
Squirrel Glider (*Petaurus norfolcensis*)		Vulnerable	Vulnerable
Spotted-tail Quoll (*Dasyurus maculatus*)		Vulnerable	Endangered
Sloane's Froglet (*Crinia sloanei*)	Endangered	Endangered	Endangered
Murray Cod (*Maccullochella peelii*)	Vulnerable		Endangered
Blue-billed Duck (*Oxyura australis*)		Vulnerable	Vulnerable
Regent Honeyeater (*Anthochaera phrygia*)	Critically Endangered	Critically Endangered	Critically Endangered
Swift Parrot (*Lathamus discolor*)	Critically Endangered	Endangered	Critically Endangered
Turquoise Parrot (*Neophema pulchella*)		Vulnerable	Vulnerable
Pink-tailed Legless Lizard (*Aprasia parapulchella*)	Vulnerable	Vulnerable	

Scale of species status rating under the Commonwealth *EPBC Act 1999*:

1. Extinct
2. Extinct in the Wild
3. Critically Endangered
4. Endangered
5. Vulnerable
6. Conservation dependent
7. Threatened

For a full list of current threatened species and ecological communities in Victoria, New South Wales and in the Commonwealth please refer to the following links:

https://www.environment.vic.gov.au/conserving-threatened-species/threatened-species

https://threatenedspecies.bionet.nsw.gov.au/

https://www.dcceew.gov.au/environment/biodiversity/threatened

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