

Biodiversity Strategy



CITY OF
TEA TREE GULLY
Naturally Better

Mayor's Message

The City of Tea Tree Gully is fortunate to have generous open spaces and natural features. The community highly values these places for their amenity and the recreational opportunities that they provide, but they also support a wealth of native plants and animals.

Australia's biodiversity is under threat from land clearing, pollution and pest plants and animals. Thirty-five fauna species and over 50 flora species in the City of Tea Tree Gully are considered rare, vulnerable, or endangered.

The Biodiversity Strategy, together with the City Master Plan and Open Space Strategy, have identified biodiversity as a significant environmental concern—and one that is critical to the health and wellbeing of our citizens. Biodiversity underscores the benefits that the natural environment provides to all of us, including clean air, clean water, and the natural removal of waste and pollution. These benefits are irreplaceable once lost. We must work together to nurture and preserve the biodiversity within our city.

This biodiversity strategy builds on a strong legacy of protecting and improving the health of our natural environment for present and future generations. It will guide us as we continue to create an attractive, liveable city that is “naturally better.”



Mayor Marijka Ryan



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In Brief...



Nature is important to the City of Tea Tree Gully. It is in our brand:

“Naturally Better”



Biodiversity is the part of **nature** that is alive. It is the variability among all the different kinds of life including the genetic diversity found in individual organisms, the diversity between species and the diversity across habitats and ecosystems.



Biodiversity matters because...



It is fundamental to our wellbeing.

Biodiversity underlies:

- the natural resources we need to survive
- the physical conditions on Earth that support life
- the cycling of water, carbon, oxygen and nutrients
- cultural values such as amenity, spirituality and identity.



It enhances our resilience against natural hazards like heatwaves and floods.

The cooling effect of natural areas can counter urban heat islands, and watercourses and catchments in their **natural state are much less prone to** rapid ‘flash flooding’.



It contributes to liveability.

Quality public open space and natural areas help to attract and retain people in the City of Tea Tree Gully.



Council is a steward of the natural environment.

It holds land in trust for current and future generations. Council has environmental and land management responsibilities under the *Local Government Act 1999* and other legislation.



While all natural areas are important, Council has identified a number of **environmentally valuable places** within and adjoining the city. These places are recognised because of their biodiversity value and display at least one of the following characteristics: has intact native vegetation, is a wildlife refuge, has a role in linking and connecting places and/or is riparian habitat.

The environmentally valuable places are loosely grouped geographically around Cobbler Creek, the Para Escarpment, Dry Creek, Dry Creek tributaries, the ‘hills edge’ and the Torrens Valley, with a seventh grouping comprising land in state government owned protected areas.



We will focus on...

So that...

1 Connected habitat



- 1.1 Managing the 'habitat mosaic' with robust data and information on the state and condition of environmentally valuable places and the needs of endemic native plant species and wildlife.
- 1.2 Growing the viability of the habitat mosaic through strategic land acquisition, land swaps or partnerships with private landowners to increase the city's open space estate or improve habitat connectivity.
- 1.3 Helping volunteers, community groups and private citizens all contribute to connecting habitat through their actions in the community and on private property.

Habitat corridors and stepping stones provide for movement and migration of species and preserve genetic diversity.

2 Preserving remnant native vegetation



- 2.1 Prioritising the preservation and protection of remnant native vegetation ('securing the best areas first').
- 2.2 Developing and maintaining staff capacity and capability in native vegetation management
- 2.3 Benefiting from productive partnerships with NGOs and volunteers who provide specialised bushcare services and expertise.

The cultural, heritage and environmental values of remnant native vegetation are preserved for the benefit and enjoyment of future generations.

3 Managing threats



- 3.1 Advocating for state government and Australian Government policy, regulation, governance and investments that are in the interest of our community and our natural environment.
- 3.2 Fulfilling the land management responsibilities conferred by state government and Australian Government legislation.
- 3.3 Understanding the implications of future climate scenarios on our natural environment.
- 3.4 Adopting biodiversity sensitive urban design (BSUD) and water sensitive urban design (WSUD) principles are adopted in the development, redevelopment or upgrade of Council assets and facilities.
- 3.5 Developing and maintaining staff capacity and capability in pest plant and animal management.
- 3.6 Helping residents and community groups to manage pest plants and animals on private property.

Our natural environment is resilient to natural hazards, pest plants and animals and other urban pressures.

4 Restoring ecosystem function



- 4.1 Targeting habitat restoration projects and activities to provide maximum benefit to the whole habitat mosaic.
- 4.2 Preferencing planting indigenous species of local provenance over other non-local native species and introduced species.
- 4.3 Managing and maintaining the natural and non-natural assets established through habitat restoration projects over their whole lifecycle.
- 4.4 Helping volunteers and community groups be involved in ecological restoration projects.

Biodiversity is enhanced and ecosystem services are restored through targeted ecological restoration activities.

Introduction

Nature is inherently important to the City of Tea Tree Gully. This is reflected in our brand of ‘naturally better’.

Biodiversity and nature are closely related. Biodiversity (see box right ►) can be thought of as the part of nature that is living. It includes animals and plants, as well as the way they coexist in ecosystems (ecological systems). Biodiversity supports everything we need from nature to survive, such as clean air, clean water, food, medicine, and shelter.

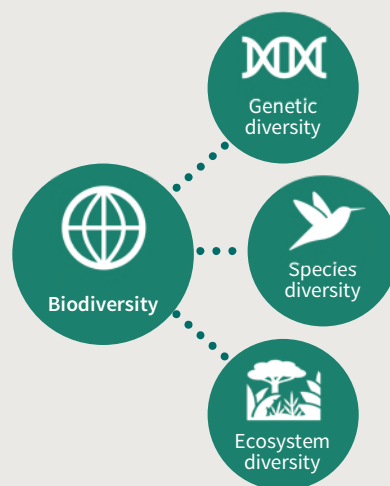
Council recognises the essential role that biodiversity has in creating a healthy, beautiful and rich environment for our community, and acknowledges its responsibility as the custodian of public land to manage that land for the benefit of the community, both now and in the future.

This Biodiversity Strategy sets the foundation for:

- a city that balances biodiversity with urban development
- a city that values the needs of future generations
- a community that enjoys conservation areas and natural open space
- a community that can get involved and play a part in shaping the landscape of our city.

Biodiversity—the variety of life

Biodiversity (biological diversity) refers to the variability among all the different kinds of life—the variety of animals, plants, fungi and microorganisms that make up our living world. This variability includes the genetic diversity found in individual organisms, the diversity between species and the diversity of habitats and ecosystems.



Fringing the Adelaide Hills and with a patchwork of open space and remnant vegetation, the City of Tea Tree Gully is rich in biodiversity.

Strategic Context

Council recognises the natural environment as one of the five themes in its Strategic Plan 2030.

The City of Tea Tree Gully Environmental Management Framework guides the Council in planning and delivering actions to achieve its environmental aspirations. Protecting and restoring the city’s biodiversity is a critical part of being a ‘naturally resilient’ city (Figure 1) and supports the strategic plan objectives shown in Table 1.

The environment we enjoy in our city is only a small part of the ‘natural estate’ shared by all South Australians. South Australia’s *Biodiversity Act 2025* has a dual focus on preventing environmental damage and restoring the natural environment. Council will continue to ensure that its efforts in managing biodiversity are not only recognised, but also in harmony with those of our neighbouring councils and other levels of government.

This strategy and its related action plan will be reviewed regularly to ensure ongoing alignment with strategic plan objectives and other Council priorities.

Table 1: Related Strategic Plan objectives.

Strategic Objective	Wellbeing Pillars					
	Healthy	Safe	Prosperous	Connected	Vibrant	Liveable
3. We are leaders in how we manage and care for our environment and resources.						
3.1 Biodiversity, green spaces and tree canopy are valued, enhanced and protected.	●				●	●
3.2 We practice the responsible and sustainable use of resources.	●		●			●
3.3 We are resilient to extreme weather events, bushfires and environmental risks.	●	●				●
4. Our city is a desirable place to live, stay and play.						
4.1 Our public places are attractive, adaptable and fit for purpose.			●	●	●	●

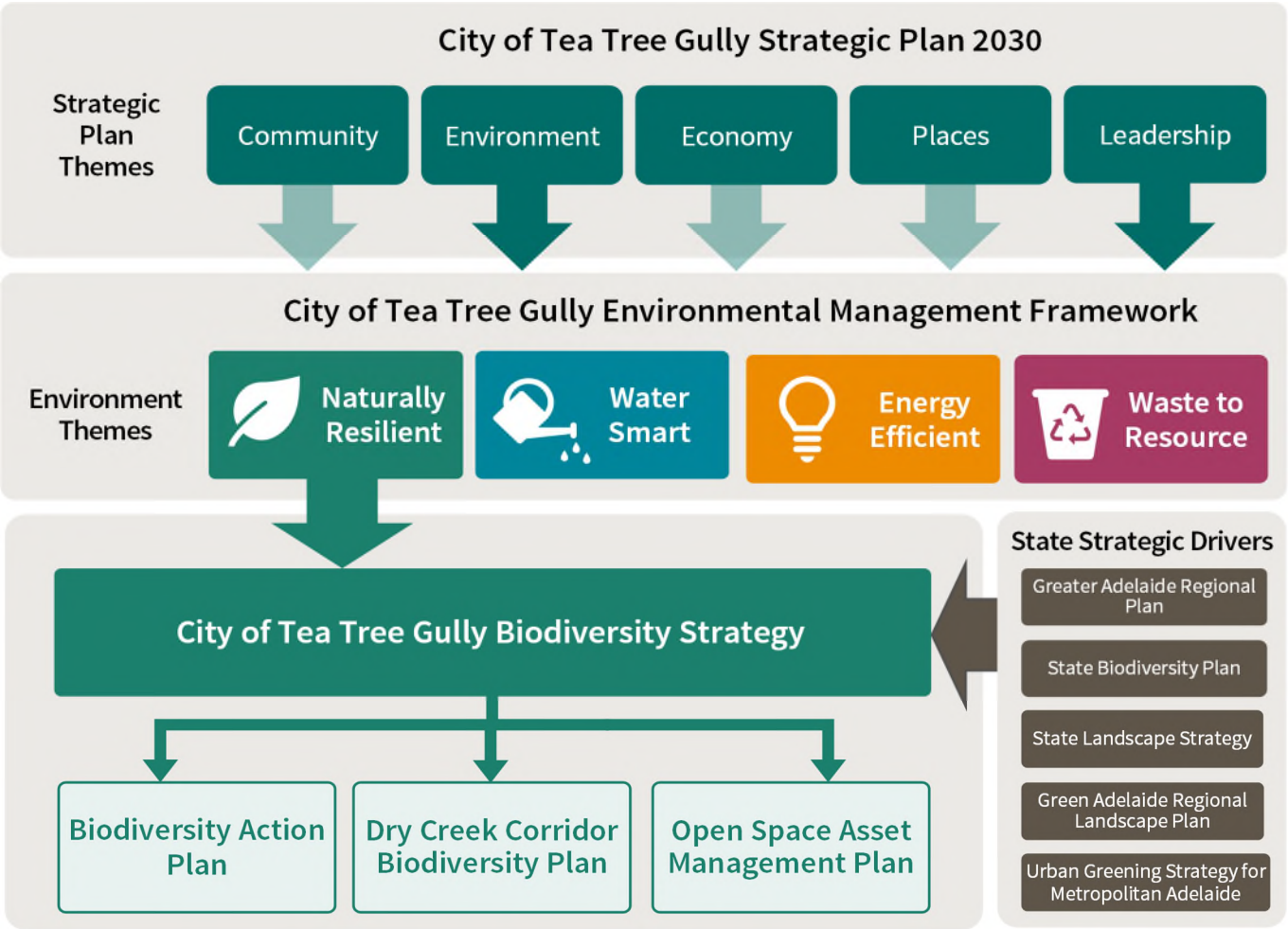


Figure 1: Biodiversity is part of being a ‘naturally resilient’ city.

Our Valued Landscape

Land use

The City of Tea Tree Gully is an outer-metropolitan local government area north-east of Adelaide with an area of approximately 95 square kilometres. Just over half of the city is urbanised, but along the eastern fringe and to the north are areas that remain semi-rural, which are dedicated to conservation, primary production, rural living and water supply operations (see Figure 2). A notable portion of land in the city is given over to mineral extraction (quarrying of clays and sands).

Physical and planning policy constraints to further growth mean that the urban footprint of the city is unlikely to expand significantly; however, general infill will increase urban density.

Almost 800 hectares of open space exist in the urbanised part of the city, which is about 14% of the urban area. While this is relatively high in comparison to other Adelaide metropolitan local government areas, it is estimated that only half of this space retains its natural character, with the remainder being ‘developed’ open space such as sports fields, parks, playgrounds, and planted gardens.

Geomorphology

The flora and fauna communities endemic to the city are influenced by topography (elevation, slope and aspect), soils, geology and climate.

The city generally slopes from the Adelaide Hills in the east down to the plains in the west. Five main watercourses traverse the slope including the Little Para River, the River Torrens and the ephemeral Gould Creek, Cobbler Creek and Dry Creek (see Figure 3).

The break of slope at the foot of the Adelaide Hills closely follows the Eden geological fault. The numerous tributaries of Dry Creek originate in short escarpment gullies in the highland east of the Eden fault.

The Para geological fault creates a steep escarpment along the north-western side of the city. Cobbler Creek and the Little Para River drop from the escarpment onto the plains below. Outwash deposited east of the Para fault is the source of the Golden Grove clays and sands that support extensive quarrying activity to this day.

The south of the city is flatter and rich in alluvium deposited by Dry Creek and the River Torrens. The soils in this part of the city are ideal for cultivating vines and fruits, and they formerly supported widespread viticulture and horticulture.

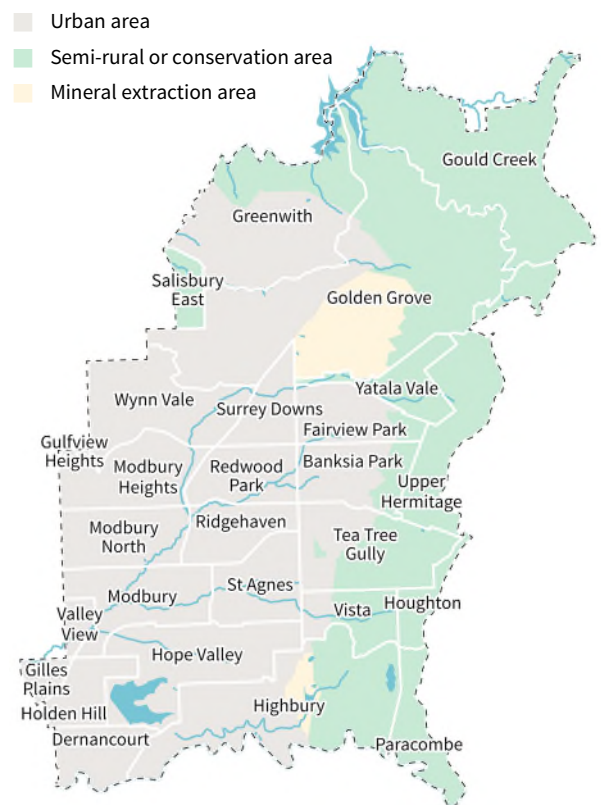


Figure 2: Generalised land use across the City of Tea Tree Gully.

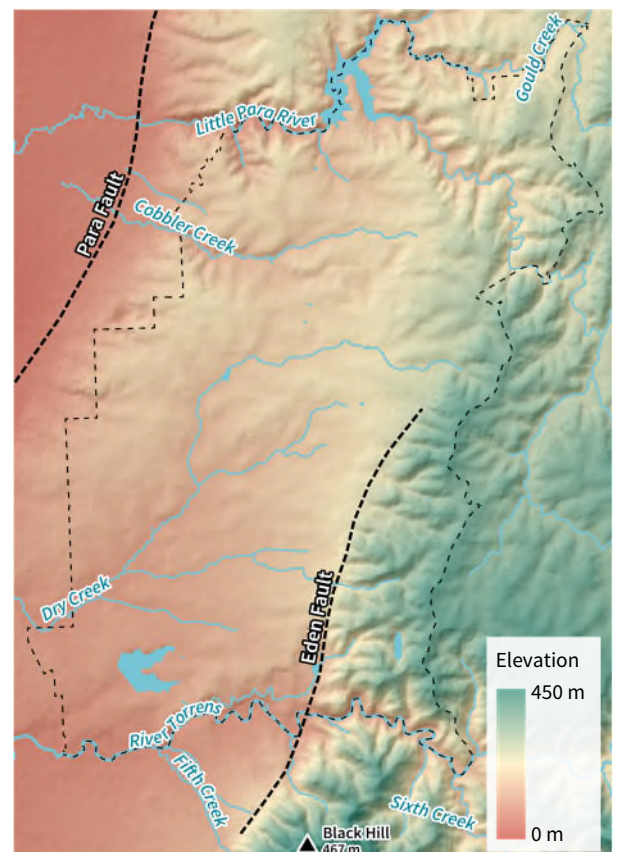


Figure 3: Key topographical and geological features of the City of Tea Tree Gully.

A changing landscape

It is believed that the Adelaide Plains were once one of the most biodiverse areas in South Australia, due to their considerable variation in topography, geology, rainfall and microclimate. The decline in the number of native plant and animal species across Adelaide following European colonisation has been mainly due to the clearance of land for urban development and agriculture, with less than 4% of the original vegetation now remaining. Europeans were quick to establish market gardens on the fertile flats of the River Torrens (Karrawira Pari) and several small townships developed, including Steventon (now Tea Tree Gully), Hope Valley, and Modbury.



Steventon (now Tea Tree Gully) circa 1880. (Credit: State Library of South Australia, B 68630.)



Tea Tree Gully circa 1900. (Credit: State Library of South Australia, B 16027.)

Early descriptions of the city's landscape paint a picturesque view of the area, highlighting both its natural and cultivated assets. In 1906, Mr G. Holden, son of William Holden, who settled and named Hope Valley, wrote the following:

The early settlers used to mow the long grasses—kangaroo, spear, barley, and silver grass—for hay. The district was covered with forests of giant gums, sheoak and wattles and from Teatree Gully (sic)—so named because of the dense growth of native tea tree all along the course of the creek there—on to the River Torrens, there were thousands of yuccas or grass trees. Birds were very numerous, and it was a common thing to see a dozen wild turkeys, great fellows 20 pounds in weight, marching along. Cockatoos were in thousands, and blue mountain grass, cockatoo shell, rosella, and other beautiful parrots, parakeets, quail, laughing jackasses and many other native birds were so plentiful. The flora and fauna were magnificent.¹

In its upper sections, Dry Creek had many permanent water sources supporting magnificent river red gums and large stands of silky tea-tree (*Leptospermum lanigerum*, pictured right), the species that gave the city its name. The tea-trees were rapidly cleared as their rot-resistant timber was valued for fence posts. The silky tea-tree has all but vanished from the city, with only one population remaining adjacent to One Tree Hill Road at Golden Grove.

By the late 1930s, much of the City of Tea Tree Gully had been transformed from natural vegetation and open woodland to countryside enclosed by hedgerows and fences, agriculture, vineyards and orchards. By 1936, nearly 150 introduced weed species had been declared noxious. The most common pest plants in the cultivated areas were the Scotch thistle and wild artichoke.

Residential development began to accelerate in the 1960s, with the southern half of the city, including Banksia Park, Tea Tree Gully and Modbury, established by the late 1970s. The development of Golden Grove and Wynn Vale followed during the 1980s and 1990s, displacing much of the city's remaining biodiversity.



Silky tea-tree (*Leptospermum lanigerum*).

¹ Auhl I (1976), *From Settlement to City: A History of the District of Tea Tree Gully 1836– 1976*, p.278.

Vegetation communities

Remnant trees can be seen dotted across the skyline of the City of Tea Tree Gully. These are an essential part of the city's natural feel and set it apart from other local government areas in metropolitan Adelaide. While these remaining trees are highly valued, they are only a fraction of the native vegetation that once covered the city.

Several vegetation associations would have existed in the city before European colonisation and land clearing. In some places, vegetation associations would have coexisted in composites (see box below ▼).

Surveys have identified over 500 native plant species in the city, of which 50 have conservation significance (meaning a conservation rating of uncommon, rare or vulnerable at a national, state or regional level). However, many of these species can only be found in protected areas, such as Anstey Hill Recreation Park.

Vegetation communities in the City of Tea Tree Gully



Mallee box (*Eucalyptus porosa*). (Credit: M Fagg.)

Mallee box woodland was the predominant vegetation association on the Adelaide Plains before European colonisation. The mallee box (*Eucalyptus porosa*) is a small tree often found in association with other small trees such as golden wattle, drooping sheoak, and native apricot. These tree species formed associations with a middle storey of kangaroo thorn and a ground layer of mixed grasses, saltbush and annual and perennial herbs. Little of this vegetation association still exists in Adelaide.



Pink gum (*Eucalyptus fasciculosa*). (Credit: D Nicolle.)

Pink gum/long-leaf box woodland exists on the hills' fringe, extending down to the urban interface, and would have also once existed in parts of Yatala Vale, Banksia Park, and Fairview Park. Pink gum (*Eucalyptus fasciculosa*) is a small tree with a pale trunk. The remaining pink gums in the city are often found standing together with long-leaf box (*Eucalyptus goniocalyx*).

River red gums (*Eucalyptus camaldulensis*) are instantly recognisable to many people who live and work in the City of Tea Tree Gully. Many examples of this species have survived alongside creeks and rivers, but their understorey is varied, and in many instances dominated by exotic species such as kikuyu grass and woody weeds. Where native understorey still exists, species vary from thickets of kangaroo thorn to grassy swathes. **The South Australian blue gum** (*Eucalyptus leucoxylon*) can often be found in conjunction with the river red gum. Blue gum woodland was common in suburbs such as Redwood Park, Ridgehaven, Modbury and Hope Valley.



River red gum (*Eucalyptus camaldulensis*).



Native pine (*Callitris gracilis*). (Credit: A Patitsas.)



Drooping sheoak (*Allocasuarina verticillata*). (Credit: A Yates.)



Silver banksia (*Banksia marginata*). (Credit: M Fagg.)

Native wildlife

Fauna data for the City of Tea Tree Gully is limited, but with its proximity to the Adelaide Hills and patchwork of open space, the city is known to host a variety of wildlife. The likely presence of species can be inferred from national and state data sets.²

Of note is the existence of Cunningham’s skink within the River Torrens Linear Park at Highbury and the presence of superb fairywren along the Dry Creek corridor (see box below ▼).

Cunningham’s skink (*Egernia cunninghami*, pictured right) is a variety of spiny-tailed skink found in the cool climate of the Mount Lofty Ranges and the Fleurieu Peninsula, as well as the Great Dividing Range in eastern Australia. The skink is considered vulnerable in South Australia.

The skink has a long tail with keeled scales along its dorsal surface, extending from the back of the neck to the tip of the pointed tail. Adults reach 25-30 centimetres in length. Its colour can vary from dark brown and reddish to jet black. Local populations tend to be darker and strongly patterned.



Male superb fairywren (*Malurus cyaneus*).

The **superb fairywren** (*Malurus cyaneus*, pictured left) is a small bird about 14 centimetres long. Breeding males feature a striking bright blue forehead, ear coverts, mantle, and tail, with a black mask and black or dark blue throat.

In 2022, Council staff noticed superb fairywrens had spread south of Kingfisher Reserve to both Drumminor Reserve and Fairleigh Reserve. Although the species is not considered threatened, the presence of small birds, such as the superb fairywren, indicates a healthy ecology in the area. The habitat of dense shrubs and long native and weedy grass patches has created a continuous feeding and semi-protected movement corridor for the superb fairywren.

Council has initiated a project to protect and enhance the habitat of the superb fairywren.



Cunningham’s skink (*Egernia cunninghami*). (Credit: J Martin.)

Environmentally valuable places

Many places in and adjacent to the City of Tea Tree Gully are recognised for their biodiversity value as ‘environmentally valuable places’. These places can be loosely amalgamated into groups based on their characteristics, location and management (see Table 2).

Figure 4 illustrates the locations of environmentally valuable places. Appendix A also lists some key attributes of these places.

Some places in adjoining council areas are recognised as environmentally valuable because they are contiguous with the city. Black Hill Conservation Park and the southern side of the River Torrens Linear Park are two notable examples. There are also many small pockets of locally significant native vegetation throughout the city and on roadsides, which cannot be practically shown in Figure 4.

A small number of environmentally valuable places are designated as ‘Bush for Life’ sites.³ These locations are cared for by dedicated volunteers who have received training in weed control and vegetation restoration.

Table 2: Environmentally valuable places groups.

Groups
• Cobbler Creek • Para Escarpment • Dry Creek • Dry Creek tributaries • hills edge • Torrens Valley • state protected areas

² For example, Department of Climate Change, Energy, the Environment and Water (2025), *Protected Matters Search Tool*, <https://pmst.environment.gov.au/>; *Atlas of Living Australia* (2025), <https://www.ala.org.au/>; Department for Environment and Water (2025), *Nature Maps (Fauna Tools)*, <https://data.environment.sa.gov.au/NatureMaps/Pages/default.aspx>.
³ Trees for Life (2023), *Bush for Life*, https://treesforlife.org.au/TFLWeb/TFLWeb/What_we_do/Bush_For_Life/Bush-For-Life.aspx.

-  Urban area
-  Semi-rural or conservation area
-  Mineral extraction area
-  Community land
-  Environmentally valuable place

Cobbler Creek

1. Martindale Reserve
2. Cobbler Creek East Reserve
3. Cobbler Creek West Reserve

Para Escarpment

4. Little Para Reserve
5. Marengo Reserve
6. Immanuel Conservation Reserve
7. McIntosh Conservation Reserve
8. Verdant Reserve
9. Horama Reserve
10. Para Hills Reserve

Dry Creek

11. Greenway Reserve
12. Jubilee Reserve
13. Kingfisher Reserve
14. Drumminor Reserve
15. Oratanga Reserve
16. Fairleigh Reserve
17. Solandra Reserve
18. Edinburgh Reserve
19. Dawson Reserve
20. Valley View Reserve
21. Vaucluse Reserve
22. Gilles Reserve

Dry Creek tributaries

23. Player Conservation Reserve
24. Shannon Conservation Reserve
25. Sherwood Park Reserve
26. Riverside Reserve
27. Stevens Reserve
28. St Agnes Recreation Area
29. Doxiadis Conservation Reserve
30. Kaplan Conservation Reserve
31. Gifford Reserve
32. Mumford Conservation Reserve
33. Abercrombie Conservation Reserve

Hills edge

34. Private (heritage agreement)
35. Taworri Conservation Reserve
36. Gunda Conservation Reserve
37. Milne Reserve
38. Brightlands Conservation Reserve
39. Pine Park Conservation Reserve
40. Tea Tree Gully Hill Conservation Reserve
41. Callitris Conservation Reserve
42. Junction Triangle

Torrens Valley

43. Turrumurra Conservation Reserve
44. Lyons Reserve
45. River Torrens Linear Park (north)
46. River Torrens Linear Park (south) (not in city)

State protected areas

47. Little Para Reservoir
48. Cobble Creek Recreation Park
49. Angove Conservation Park
50. Anstey Hill Recreation Park
51. Hope Valley Reservoir
52. Highbury Aqueduct
53. SA Water land
54. Black Hill Conservation Park (not in city)

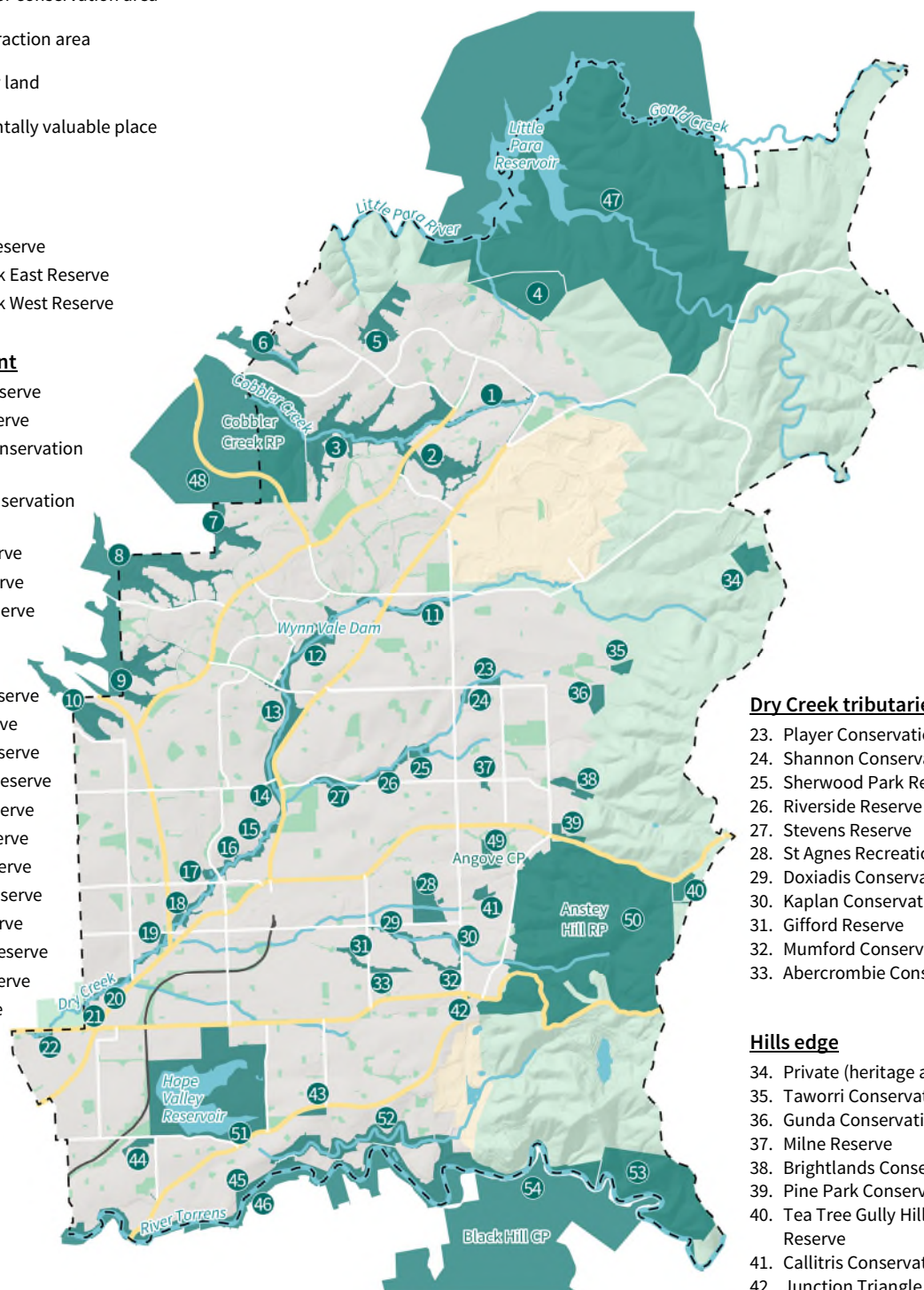


Figure 4: City of Tea Tree Gully environmentally valuable places.

Cobbler Creek

Martindale Reserve, Cobbler Creek West Reserve, and Cobbler Creek East Reserve encapsulate Cobbler Creek and its upstream tributary, Slate Creek. These reserves form an important riparian and biodiversity corridor joining Cobbler Creek Recreation Park.

River red and blue gum open forests are the dominant vegetation communities present in Martindale and Cobbler Creek East Reserves. In Cobbler Creek West Reserve, the dominant vegetation associations are river red gum open forest and one of the last stands of mallee box woodland occurring in the Adelaide region. This vegetation type is poorly conserved in South Australia.

Weed control and revegetation are the main management activities at these reserves.

Para Escarpment

The Para Escarpment running along the north western edge of the City of Tea Tree Gully features numerous steep gullies. Together with adjoining reserves in the City of Salisbury, the escarpment reserves create essential 'stepping stones' linking the hills to the plains.

Weed control is the primary management activity at these reserves.

Dry Creek

Dry Creek flows through several semi-connected reserves that form an important riparian and biodiversity corridor.

Despite being severely degraded by human activity and weeds, the Dry Creek corridor retains a reasonably intact overstorey of large river red gums. Small pockets of remnant native grassland and indigenous perennial species can still be found, and several areas have been successfully revegetated with indigenous species.

Today, the Dry Creek corridor serves many functions and provides:

- habitat and a wildlife corridor for native fauna
- recreational and educational opportunities
- effective stormwater conveyance, capture, and treatment, with the construction of several wetlands along its length.

Weed control and revegetation are the main management activities that occur along Dry Creek.

Dry Creek tributaries

Dry Creek has several tributaries that traverse the city. One significant tributary flows south-west through Fairview Park, Banksia Park, Redwood Park and Ridgehaven. Silver banksia (*Banksia marginata*) once thrived in the sandy soils of Banksia Park and Fairview Park. Banksia woodlands have been identified as one of the most threatened vegetation types in South Australia, with fewer than ten hectares estimated to remain in the Adelaide region. A remnant silver banksia woodland exists in one fenced-off corner of the Player Conservation Reserve, which is also a Bush for Life site. Further downstream, Sherwood Park, Riverside and Stevens Reserves form a riparian corridor which retains an overstorey of river red and blue gums. Understorey revegetation has occurred at these reserves.



Fairleigh Reserve on Dry Creek at Modbury North.



Kookaburras (Dacelo novaeguineae) in Silver Banksia at Player Conservation Reserve, Banksia Park.

Another significant tributary of Dry Creek flows west from Tea Tree Gully to St Agnes, where it is joined by a smaller branch flowing west through Vista. This tributary continues to its confluence with Dry Creek at Modbury. Doxiadis, Kaplan and Mumford Conservation Reserves form a riparian corridor along the Vista branch, dominated by river red gum and blue gum woodlands. Revegetation and weed control are the main management activities at these reserves. There are Bush for Life sites at Kaplan and Mumford Conservation Reserves.

Abercrombie Conservation Reserve and Gifford Reserve lie on smaller tributaries of Dry Creek. Abercrombie Conservation Reserve is relatively weed-free and is a Bush for Life site. It features blue gum as the dominant vegetation type, together with native pine (*Callitris gracilis*), drooping sheoak (*Allocasuarina verticillata*), sweet bursaria (*Bursaria spinosa*), kangaroo thorn (*Acacia paradoxa*) and a mix of exotic and native species at ground level.

Hills edge

A series of reserves along the foothills are valued for their diverse, intact remnant native vegetation. Taworri and Gunda Conservation Reserves in Banksia Park support blue gum, long-leaf box (*Eucalyptus gonicalyx*) heath, and pink gum (*Eucalyptus fasciculosa*) open forest, with kangaroo thorn and a variety of grasses in the understorey layers. The perched spring in the upper section of Gunda Conservation Reserve supports an interesting range of herbs and lilies, including the wet-loving brown-back wallaby grass (*Austrodanthonia duttoniana*). Both reserves are Bush for Life sites.

Callitris Conservation Reserve features blue gum and river red gum vegetation associations and is named for its dominant understorey species, *Callitris gracilis* (native pine). The reserve supports high species diversity and is a Bush for Life site.



Abercrombie Conservation Reserve, St Agnes.



Callitris Conservation Reserve, Tea Tree Gully.

Torrens Valley

The River Torrens is the southern boundary of the city. Before European colonisation, the riverbanks would have been dominated by river red gum, with blue gum woodland on the upper slopes.

The River Torrens Linear Park follows the river, continuing downstream to Adelaide and the coast. The northern side of the linear park (from Highbury through to Dernancourt) is managed by Council. The adjacent southern section of the linear park (across the river) is managed by Campbelltown City Council. Weed control and revegetation are the main management activities in the linear park.

Turrumurra Conservation Reserve in Highbury is notable for its diverse native vegetation and is a Bush for Life site.

State protected areas

State government-owned land with high environmental value in the city includes land dedicated to conservation (managed by the Department for Environment and Water) as well as land currently or previously dedicated to water supply operations, which, by remaining substantially undeveloped, still retains intact native vegetation.

Environmentally valuable places managed by the Department for Environment and Water are:

- **Angove Conservation Park.** Once part of the Angove Vineyards, the park area was set aside by Dr William Angove, who was well known for his interest in the environment. The park conserves one of the last remnants of drooping sheoak and native pine open woodlands in the Adelaide foothills. It contains 142 native plant species and provides habitat for a small number of animals that require dense vegetation to survive. Several species of reptiles can be found, along with mammals such as ring-tail and brush-tailed possums, bats and 74 species of birds.⁴
- **Anstey Hill Recreation Park.** One of the larger protected areas in the city at 383 hectares. The park is named after George Alexander Anstey (1814–1895), a local viticulturalist. A total of 289 plant species have been recorded in the park. Pink gum and long-leaf box communities, now rare in the Adelaide Hills, dominate the stony slopes with button daisies, pussytails, needle bushes and silky guinea flowers found in their understorey. The river red and blue gum grassy woodlands are feeding grounds for local birds. Some of the more commonly seen animals in the park include superb fairywrens, western grey kangaroos, koalas, brown tree frogs and bearded dragons. The park is also a habitat for the endangered chestnut-rumped heathwren (*Hylacola pyrrhopygia*).⁵
- **Cobbler Creek Recreation Park.** Another significant protected area (280 hectares) straddles the City of Tea Tree Gully and the City of Salisbury. While parts of the park have been highly disturbed (including by the construction of Golden Grove Road and a flood control dam on Cobbler Creek) it contains the largest remaining stand of the endangered mallee box woodland on the Adelaide plains, making it an important conservation area. The park also features a diverse array of native perennial grasses and serves as a refuge for threatened woodland bird species.⁶
- **Highbury Aqueduct Reserve.** The Highbury Aqueduct originally carried water from the River Torrens to Hope Valley Reservoir. Since the aqueduct was replaced with a pipeline in 2010, the surrounding land (50 hectares) has been dedicated as a public reserve. The reserve features remnant blue gum woodland that is part of a Bush for Life site.
- **Black Hill Conservation Park.** Black Hill Conservation Park lies outside of but is contiguous with the city, sharing a common boundary along the River Torrens. The park is part of a near-continuous biodiversity corridor that spans the Adelaide Hills face.

Environmentally valuable places managed by the South Australian Water Corporation are:

- **Little Para Reservoir.** Although the reservoir has a significant impact on the hydrology of the Little Para River, the surrounding land contains large tracts of intact native vegetation. While a small portion of this land is open to the public, most it is closed and serves as a refuge for native wildlife.
- **Hope Valley Reservoir.** The exclusion of public access from large parts of the reservoir land creates a refuge for wildlife in an otherwise highly urbanised part of the city.
- A large (unnamed) parcel of land in the south-east corner of the city that abuts the River Torrens Linear Park (north) and is adjacent to Black Hill Conservation Park. This land is undeveloped and contains intact native vegetation.



Anstey Hill Recreation Park, Tea Tree Gully. (Credit: Department for Environment and Water.)

⁴ DEW 2025, Angove Conservation Park, <https://www.parks.sa.gov.au/parks/angove-conservation-park>.

⁵ DEW 2025, Anstey Hill Recreation Park, <https://www.parks.sa.gov.au/parks/anstey-hill-recreation-park>.

⁶ DEW 2025, Cobbler Creek Recreation Park, <https://www.parks.sa.gov.au/parks/cobbler-creek-recreation-park>.

Why the City of Tea Tree Gully Needs a Biodiversity Strategy

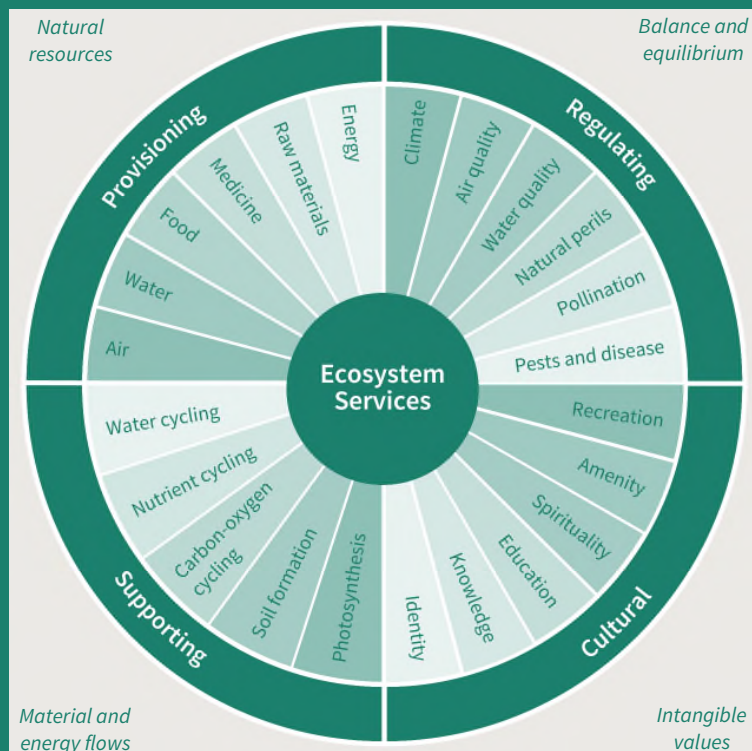
Biodiversity is fundamental to wellbeing

Most Australians agree that wellbeing should be a foremost consideration in government decision-making.⁷ Council shares a responsibility with all levels of government to facilitate and promote community wellbeing.

Biodiversity is fundamental to our wellbeing. Biodiversity provides a range of ecosystem services that support life on Earth (see box below ▼). It is easy to see how these services meet our most basic human needs, such as clean air, clean water and food; however, these things can seem far removed from the roles and responsibilities of local government. In fact, numerous ecosystem services have direct local relevance and impact on the community. Biodiversity helps provide the following benefits in our city:

- Natural places offer amenity and recreation opportunities to our residents. They also contribute to the local economy when visitors spend time in our city because of these natural attractions.
- Natural places remind us of our heritage and reflect our identity. This is especially true of the City of Tea Tree Gully, with our slogan of “naturally better”.
- Natural areas have a demonstrated cooling effect in urban areas that can provide respite during heatwaves.
- Areas of urban biodiversity can buffer developed areas from natural perils like flooded watercourses.
- Intact terrestrial and riparian vegetation communities naturally purify stormwater that we rely on for irrigating parks, reserves and sports fields. This natural purification reduces the cost of chemical and physical water treatment.
- When ecosystems are in balance, natural predation can control or limit populations of pest species. Healthy ecosystems are more resilient against outbreaks of disease. This reduces the costs of physical and chemical pest control.
- Pollination services are invaluable to home gardeners and the small but important number of primary producers in the city.

Ecosystem Services—What nature provides us for free



Experts recognise four classes of ecosystem services provided by biodiversity:

- **Provisioning services** provide the tangible natural resources that we need to survive, including air, water, food, medicine, raw materials (textiles, timber, minerals), and fuels for energy.
- **Regulating services** keep atmospheric, hydrological, geological and biological processes in equilibrium and maintain conditions on Earth that support life.
- **Supporting services** maintain fluxes and transformations of matter and energy that are fundamental to ecosystem processes, including the cycling of water, carbon, oxygen and nutrients.
- **Cultural services** provide intangible values such as recreation, amenity, spirituality, education, knowledge and identity.

⁷ Williams L and Hammerle M (2004), *Purpose of Government Pulse: Australian attitudes to democratic purpose, priorities and performance*, <https://cpd.org.au/wp-content/uploads/2024/01/2024-Purpose-of-Government-Pulse-report.pdf>.

Biodiversity supports liveability and economic prosperity

South Australia's Economic Statement recognises the importance of liveable cities, as liveability is a significant factor in attracting and retaining people, businesses, and investors.⁸ This same importance on liveability is mirrored in the City of Tea Tree Gully Strategic Plan's objective to make our city "a desirable place to live, stay and play."

Liveability, in essence, is the degree to which a place is suitable for living. It encompasses both the built and natural environments. Liveability and economic prosperity are intrinsically linked to biodiversity (see Figure 5). Biodiversity provides people with access to quality open spaces, clean air and water, and passive and active recreational opportunities, all of which contribute to a great place to live. This, in turn, attracts people and investment in the economy. Biodiversity also directly contributes to the natural resources needed to sustain the economy (like water, timber, minerals etc).

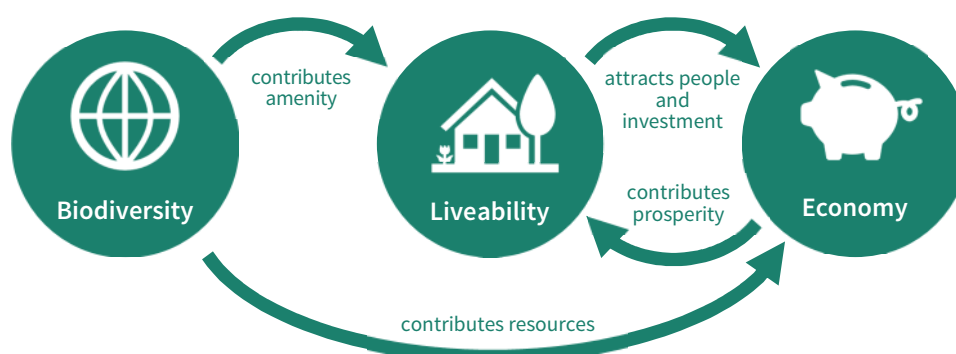


Figure 5: Biodiversity, liveability, and the economy are intrinsically connected.

Biodiversity can increase our resilience to natural hazards

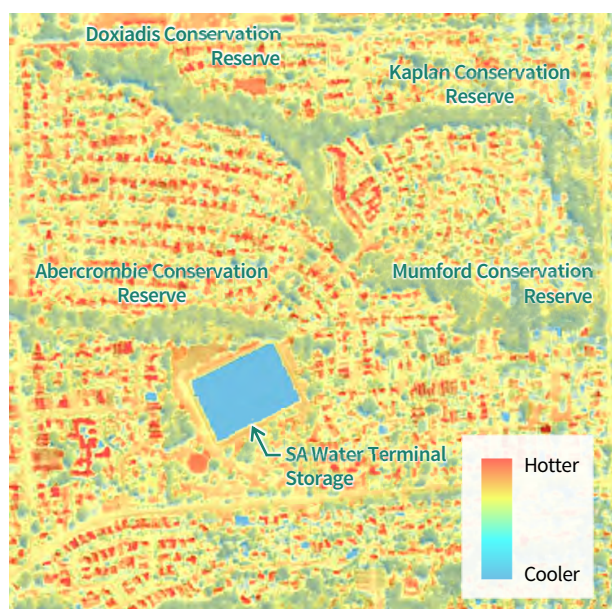


Figure 6: Daytime surface temperatures in St Agnes and Hope Valley (26 March 2023).

The regulating services provided by nature enhance community resilience to natural hazards, particularly extreme weather events such as heatwaves and floods.

Natural areas have a cooling effect that can counter urban heat islands. Figure 6 illustrates how much cooler reserve areas are on a summer day relative to surrounding residential and commercial properties. These areas help moderate urban temperatures during heatwaves and provide respite from the heat for people and wildlife alike.

Watercourses and catchments in their natural state are much less prone to rapid 'flash flooding' than catchments cleared of vegetation. Indeed, when a "Great Flood" devastated Hope Valley and other Adelaide districts in 1851, several commentators made the connection between land clearing and increased flooding, with one noting that floodwaters were reaching Adelaide 15 minutes earlier than had been previously observed.⁹

⁸ Government of South Australia (no date), *South Australian Economic Statement*, https://www.premier.sa.gov.au/_data/assets/pdf_file/0004/895054/SA-Economic-Statement.pdf.

⁹ Smith DL and Twidale CR (1987), *An historical account of flooding and related events in the Torrens River system from first settlement to 1986*, volume 1 1836-1899, Engineering and Water Supply Department, Adelaide.

Council is a steward of the environment

Council owns and manages significant areas of public land. Excluding roads and road reserves, Council manages around 8% of the area of the city.

Council has several statutory responsibilities in common with all landowners in South Australia. Under the *Landscape South Australia Act 2019*, for instance, landowners have a general statutory duty to protect biodiversity. Certain parts of the city, specifically in the Hills Face Zone, are also subject to the *Biodiversity Act 2025*. The Biodiversity Act makes it an offence to clear native vegetation without approval of the statutory Clearance Assessment Committee, except in limited prescribed circumstances.

In addition to these general responsibilities, the Council has functions conferred on it by the *Local Government Act 1999*. These functions include managing public areas and protecting and restoring the environment in an ecologically sustainable manner (see box right ►). Council also has a moral responsibility to preserve natural areas for the benefit and enjoyment of future generations.

This Biodiversity Strategy demonstrates the Council's dedication to being a good steward of the natural environment and its commitment to meeting its statutory and moral obligations to the environment.

Functions of a Council

Councils have many functions conferred upon them by the *Local Government Act 1999*. These include:

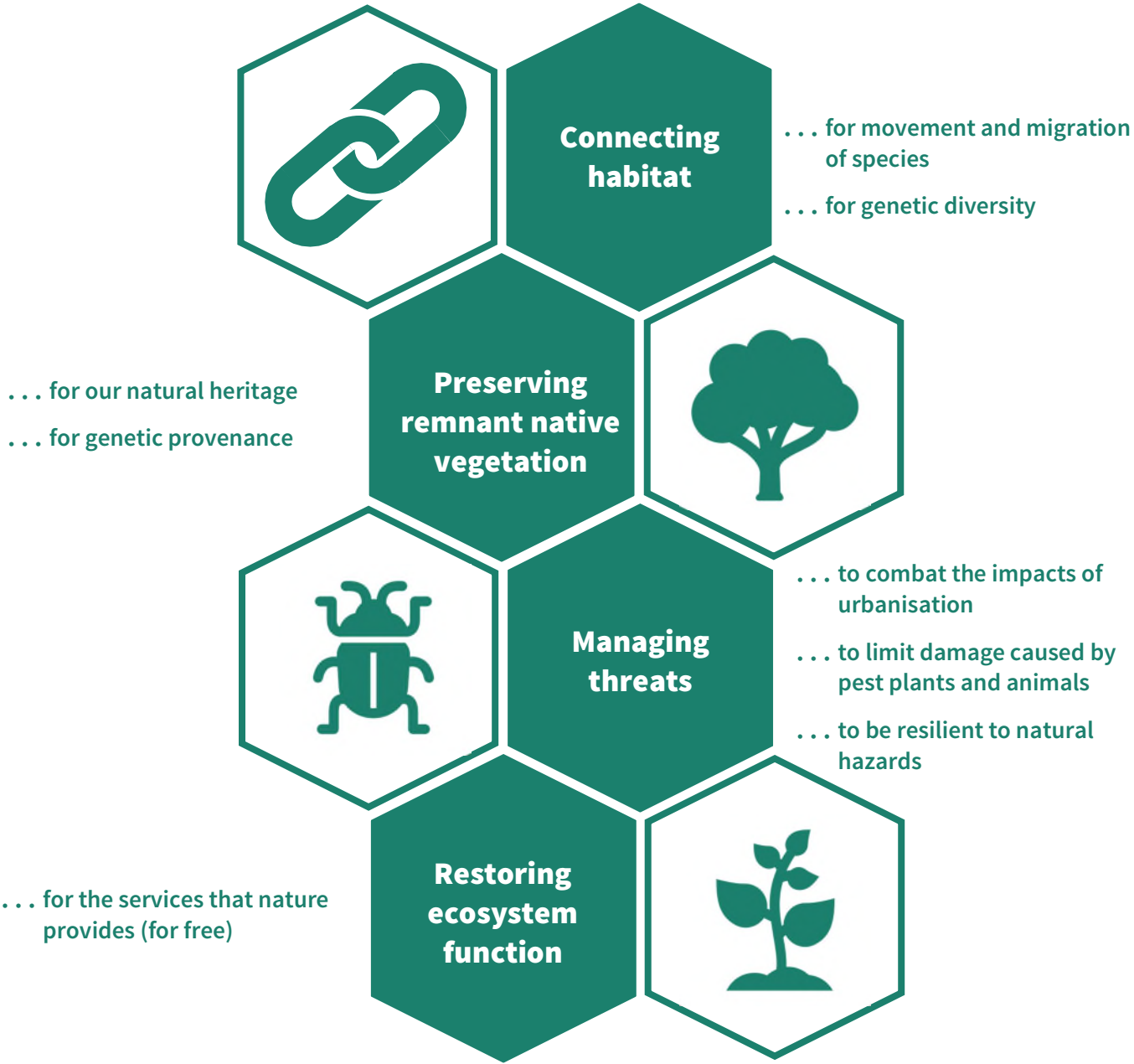
- Managing, developing, protecting, restoring, enhancing and conserving the environment in an ecologically sustainable manner.
- Managing public areas vested in, or occupied by, the Council.

Councils must, as a legislative principle, seek to facilitate sustainable development and the protection of the environment, and to ensure a proper balance between economic, social, environmental and cultural considerations.



Greenway Reserve, Surrey Downs.

Our Biodiversity Focus



Connecting Habitat

In urban areas, natural habitat is impacted by pressures like those listed in Table 3. As cities grow and develop—even when there is a conscious effort to preserve natural areas—the eventual outcome can be fragmented habitats that are vulnerable to these pressures. City reserves are often narrow and relatively small and cannot adequately buffer external pressures due to ‘edge effects’ (see box overleaf ►►►).

Connecting areas of urban habitat with ‘core habitat’ (dedicated conservation areas) can counter fragmentation and create a ‘habitat mosaic’. Connecting features include continuous ‘links’ like biodiversity corridors and riparian corridors, as well as discrete ‘stepping stones’ like reserves, remnant trees and streetscapes (see Figure 8).

The best opportunities for wildlife movement and seed dispersal occur when the habitat patches in the mosaic are larger and closer together. Relatively mobile species, such as birds, bats and insects, can thrive in urban environments if there are enough stepping stones available. However, terrestrial mammal species have a more limited ability to move and often face barriers such as roads and fences. These latter species benefit greatly from continuous habitat corridors.

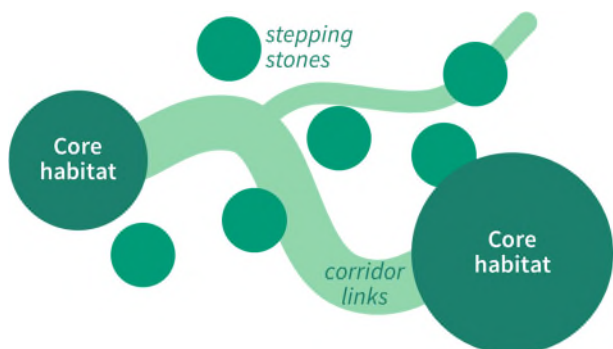


Figure 8: A connected ‘habitat mosaic’ includes core habitat, linking corridors and stepping stones.

Table 3: Ecological pressures in urban environments.

Urban ecological pressures	
- domestic animals at large - earthworks - fire - flood - increased stormwater runoff - introduced species - litter and pollution	- noise - pests and diseases - roads, railways and busways - surface water and groundwater extractions - vandalism - vegetation clearing

The City of Tea Tree Gully is fortunate to have a relatively high proportion of public and private open space, which results in a well-developed habitat mosaic. High-quality remnant vegetation in state protected areas provides core habitat, which is connected and linked with patches of vegetation found in council conservation reserves, biodiversity corridors (riparian corridors and linear bushland), streetscapes, parks and suburban gardens (see Figure 7). Habitat quality varies widely, however, as illustrated in Figure 9 which shows the ‘total ecological value’ score for open space areas across the city.¹⁰

Urban ecology

Ecology is the scientific study of the relationships between living organisms and their environment.

Historically, ecology focused only on natural environments, but by the late 1970s, many ecologists began to recognise that urban environments supported a surprisingly diverse range of ecosystems.

The field of *urban ecology* recognises that urban environments provide a range of natural and artificial habitat niches and conditions that can support a variety of fauna species.



Many bird species have adapted well to urban environments.

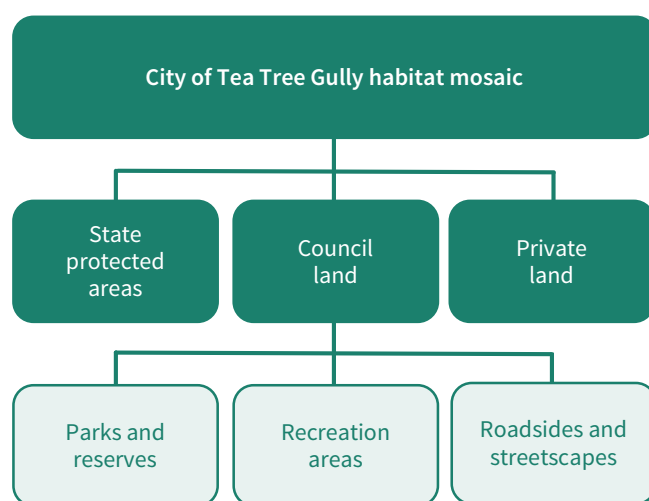


Figure 7: Elements in the City of Tea Tree Gully habitat mosaic.

¹⁰ At the time of writing, Council was updating its methodology for assessing total ecological value and its dataset. Total ecological value was last assessed in 2010.

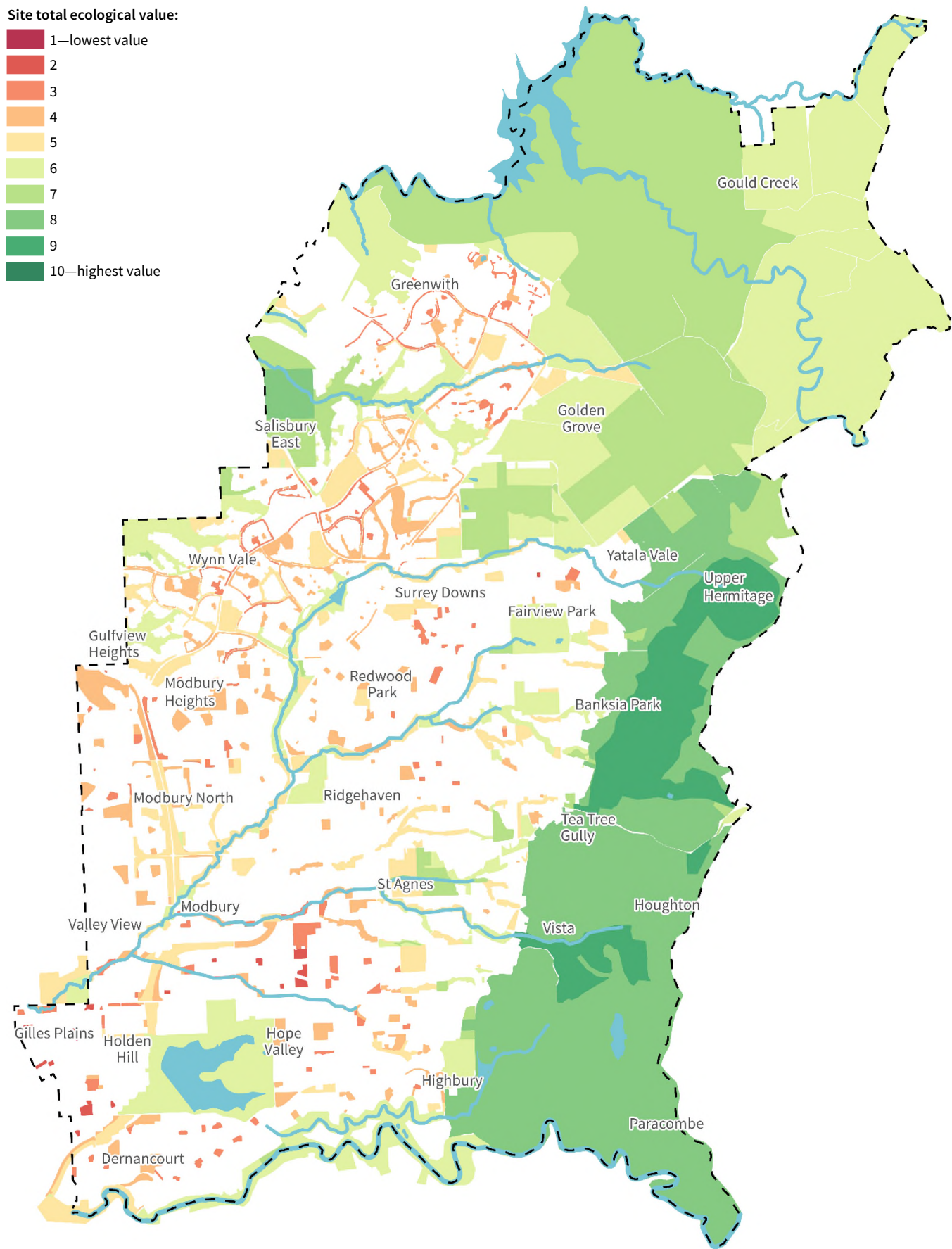
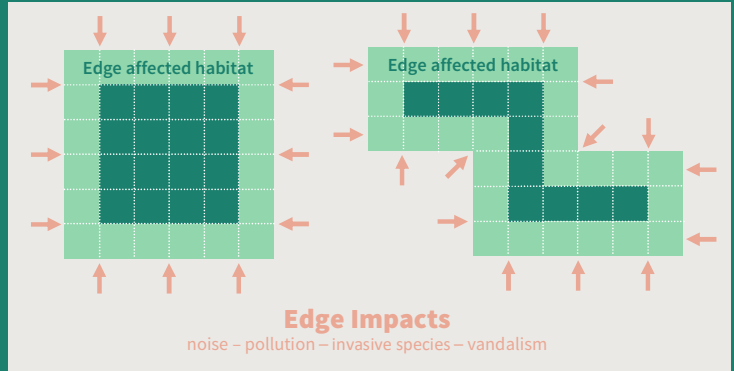


Figure 9: The ‘total ecological value’ score (from 2010) ranks and compares areas of open space across the City of Tea Tree Gully. The score is derived from eight metrics, including site area, site shape, and the distance from core habitat.

Edge effects in protected areas

When land is set aside in protected areas, there will always be some detrimental impact from adjoining land uses in the form of noise, pollution, invasive species and even intentional damage. This phenomenon is known as an ‘edge effect’.

The figure on the right shows two different shapes of identical area and illustrates how shape can markedly impact the proportion of a protected area that is edge-affected. Long, slender regions, such as riparian corridors, are particularly susceptible to edge effects.



How we will connect habitat

Outcome	Key Directions
1 Habitat corridors and stepping stones provide for movement and migration of species and preserve genetic diversity.	1.1 Manage the ‘habitat mosaic’ with robust data and information on the state and condition of environmentally valuable places and the needs of endemic native plant species and wildlife. 1.2 Grow the viability of the habitat mosaic through strategic land acquisition, land swaps or partnerships with private landowners to increase the city’s open space estate or improve habitat connectivity. 1.3 Help volunteers, community groups and private citizens contribute to connected habitat through their actions in the community and on private property.



Hope Valley Reservoir Reserve, Hope Valley.

Protecting Remnant Vegetation

Remnant vegetation (see box right ►) can exist as a complex vegetation community, a small group of grasses, or even a single tree. The inherent beauty of remnant vegetation offers an opportunity to understand and appreciate the natural environment, helping to imagine what the landscape of the city would have looked like before European colonisation.

Studies suggest that remnant native vegetation is much more valuable as habitat than revegetated areas. Remnant vegetation is also a valuable source of seeds and propagation material. The use of local seeds and propagations for revegetation projects ensures that the new plants are well-adapted to local conditions.

Remnant vegetation can be found throughout the city in reserves and open spaces that have retained some of their natural character, on roadsides, and private land. Figure 10 illustrates where remnant native vegetation is most likely to be found in the city. Still, it is important to recognise that even a single remnant tree can provide crucial habitat.

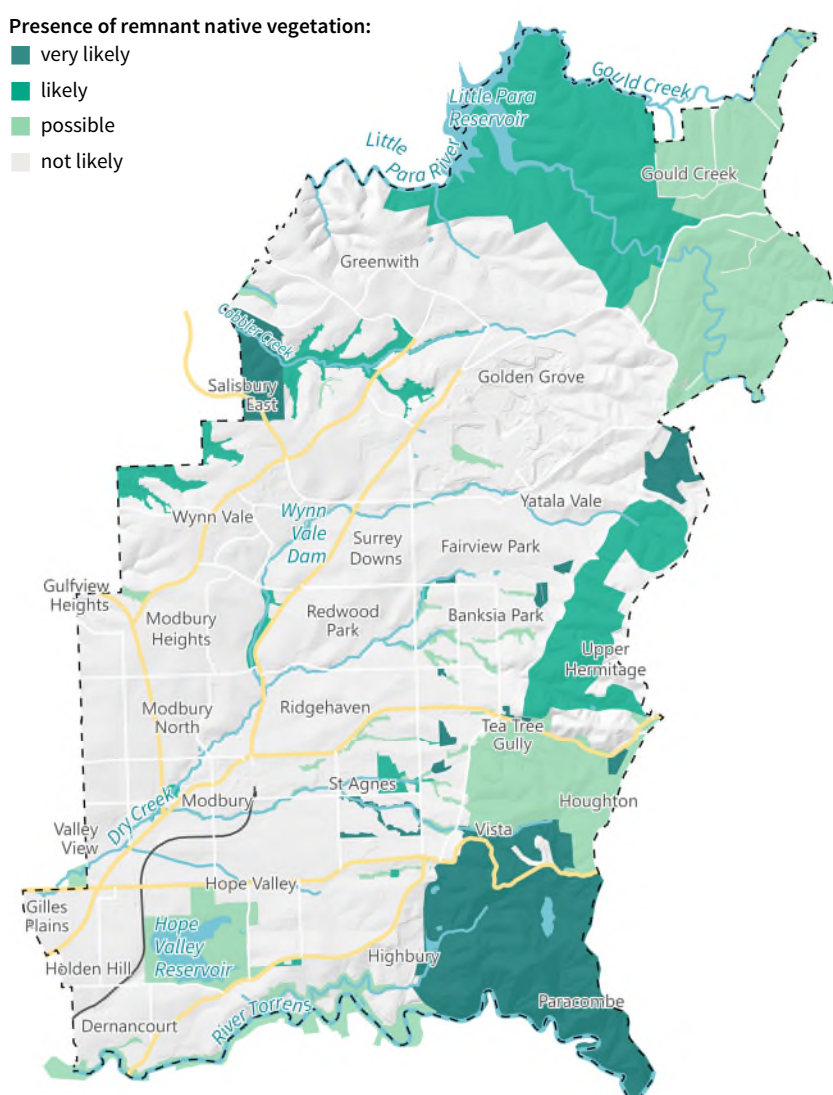


Figure 10: Presence of remnant native vegetation across the City of Tea Tree Gully.

Remnant vegetation

Remnant vegetation refers to plants and plant communities that have existed in a natural state since European colonisation. These plants have survived since then or are the progeny of plants that lived in the area at that time.

The genetic makeup of remnant vegetation is unique to a particular area and is what makes those plants well-adapted to a specific local climate, soil type, and other conditions.



Bush for Life site at Immanuel Conservation Reserve, Greenwich.

Intervention by land managers is often necessary to preserve and protect remnant vegetation from urban impacts, such as pollution and invasive species. Council uses a combination of staff, service providers and volunteers to manage environmentally valuable places with significant remnant vegetation. At some sites, skilled volunteers provide specialist 'bushcare' services (Figure 11).



Figure 11: Bushcare volunteers at Kingfisher Reserve.

How we will protect remnant native vegetation

Outcome	Key Directions
2 The cultural, heritage and environmental values of remnant native vegetation are preserved for the benefit and enjoyment of future generations.	2.1 Prioritise the preservation and protection of remnant native vegetation ('secure the best areas first'). 2.2 Develop and maintain staff capacity and capability in native vegetation management. 2.3 Benefit from productive partnerships with NGOs and volunteers who provide specialised bushcare services and expertise.



River red gum (Eucalyptus camaldulensis) on Dry Creek at Modbury.

Managing Threats

Urban encroachment

The South Australian Planning and Design Code came into effect in March 2021, replacing individual council development plans. The Planning and Design Code is the single source of land use planning policy and development controls in South Australia. It governs development through the application of policies that variously apply to:

- zones and sub-zones, which prescribe what types of development can occur in an area
- overlays, which prescribe other matters that must be considered in the development of an area
- general development policies, which broadly relate to how development should occur.

A number of policies in the Planning and Design Code are intended in varying degrees to preserve biodiversity and prevent further urban encroachment into areas of natural character. Figure 12 illustrates relevant planning overlays and planning zones, and where they apply in the City of Tea Tree Gully.

Of note, the Hills Face Zone fringes the north and eastern boundary of the city. This zone has policies that prevent urban encroachment into the Mount Lofty Ranges. While the hills are relatively well-protected from further development, the trend of infill development and smaller allotments in the urban part of the city means that the loss of private open space is accelerating. This has implications for biodiversity, as it means less privately-owned land that can provide biodiversity value and a greater burden on public land for biodiversity conservation.

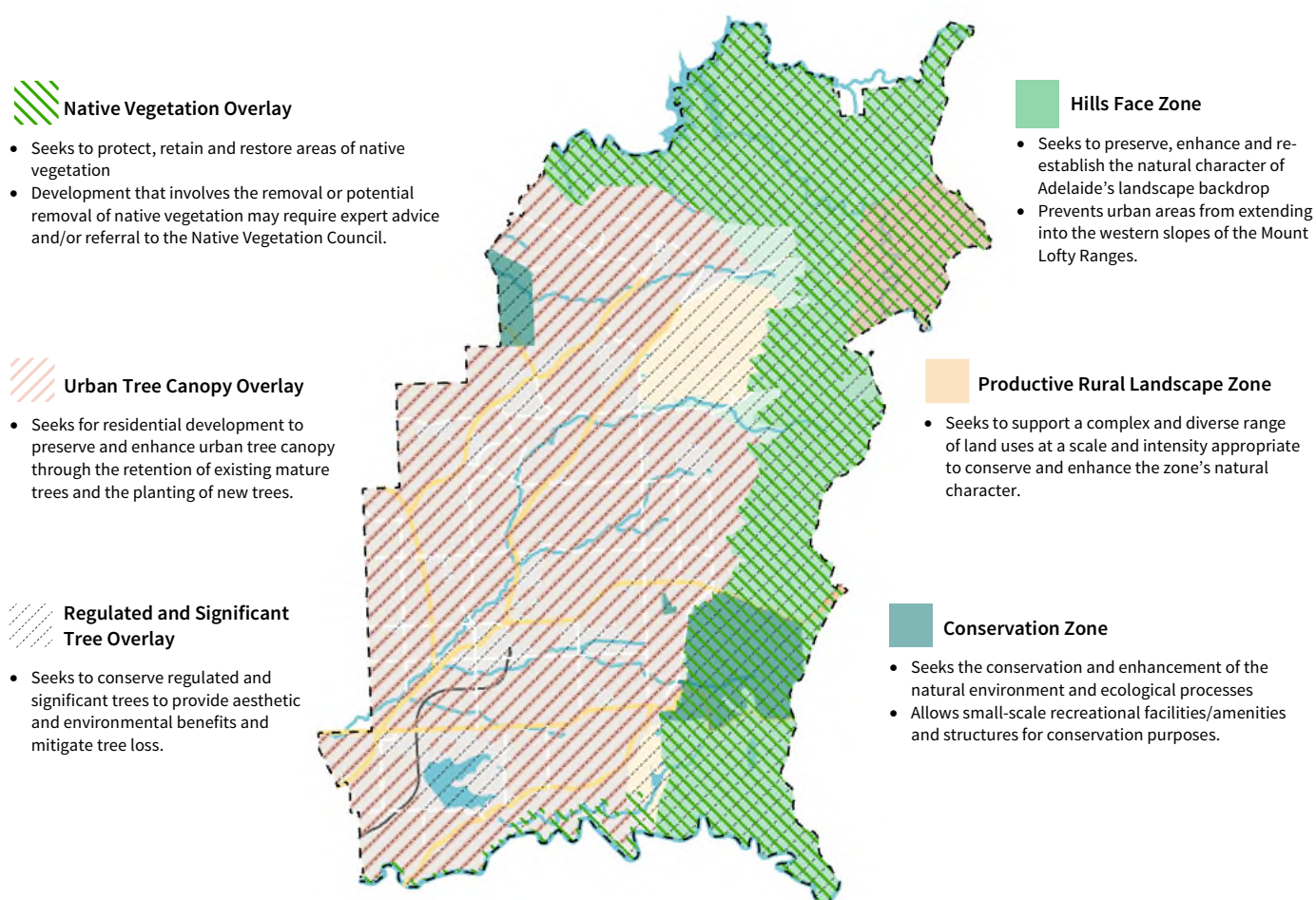


Figure 12: Relevant Planning and Design Code overlays and zones, and where they apply in the City of Tea Tree Gully.

Pollution

Air, land and water pollution are unfortunate products of urbanisation that adversely impact native flora and fauna communities, often paving the way for invasive species better adapted to the degraded environment to take hold.

Air quality in the city is generally reasonable. Similarly, the lack of historical commercial and industrial development in the city (relative to other parts of Adelaide) means that instances of severe land pollution are uncommon. However, as in most cities,



Wetland at Berri Reserve, Hope Valley.

stormwater can carry pollutants into watercourses and waterbodies to the detriment of aquatic and riparian flora and fauna communities.

Chemical misuse (especially fertilisers), construction activity, littering, animal faeces and motor vehicle emissions and depositions are all sources of stormwater pollution. Council was an early adopter of constructed wetlands to treat stormwater pollution; however, increasing urban density (with its associated higher pervious areas) and rising car use mean that the threat posed by stormwater pollution is not diminishing.

Council's program of completing catchment stormwater management plans provides a basis for identifying works and measures to reduce stormwater pollution.

Pest plants, animals and diseases

Control of pest plants, animals and diseases is a major aspect of Council's open space management. Control activities consume significant resources, over \$600,000 annually.

Council has responsibilities in common with all landholders under the *Landscape South Australia Act 2019* (Landscape Act) in relation to species of plants and animals declared as pests. Council also takes measures to control other 'nuisance' and overabundant species.

Table 4 lists some of the pest plant species found in the city. Most of these species are declared species that Council has a legal duty to control. One weed species, Chilean needle grass (see box far right ►►), is a weed of national significance. Council is obligated under the Landscape Act to eradicate any instances of Chilean needle grass found on its land.

For many weed species, eradication from the city is not feasible due to widespread infestation and build-up of soil seed banks. Most weed management is focused on control to minimise further spread. Council has a mature weed management program that uses a combination of control techniques, including:

- manual removal by hand or using hand tools
- mechanical control, e.g. mowing or slashing
- biological control through natural predators and parasites
- chemical control through the responsible use of herbicides
- hygiene practices, especially relating to site disturbances and the movement of materials like soil and mulch between sites.

Table 4: Selected pest plant species found in the City of Tea Tree Gully.

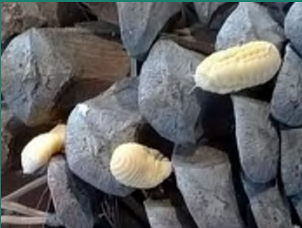
Pest plant species † declared under the <i>Landscape South Australia Act 2019</i>	Duty to control	Duty to eradicate
broadleaf weeds (various species)		
Calomba daisy (<i>Oncosiphon suffruticosum</i>) †	●	
Chilean needle grass (<i>Nassella neesiana</i>) †		●
Coolatai grass (<i>Hyparrhenia hirta</i>) †	●	
desert ash (<i>Fraxinus angustifolia</i>) †	●	
European olive (<i>Olea europaea</i>) †	●	
fountain grass (<i>Cenchrus setaceus</i>) †	●	
gazania (<i>Gazania spp.</i>) †	●	
golden wreath wattle (<i>Acacia saligna</i>)		
rice millet (<i>Piptatherum miliaceum</i>)		
silver leaf nightshade (<i>Solanum elaeagnifolium</i>) †	●	
wild artichoke (<i>Cynara cardunculus</i>) †	●	

Chilean needle grass (*Nassella neesiana*, pictured right) is a weed of national significance. It has been found along Dry Creek tributaries and across the Para Escarpment. Council is obligated under the *Landscape South Australia Act 2019* to eradicate Chilean needle grass detected on Council land.

The grass is a perennial tussock grass that grows 1–1.5 metres tall but may be found locally growing to around 60 centimetres. It is easily confused with some native grasses, including spear grasses (*Austrostipa* spp.) and wallaby grasses (*Austrodanthonia* spp.).

Chilean needle grass threatens native grasslands by rapidly invading and degrading them. Seed is easily spread by mowing, earthmoving, people, animals, and vehicles. The sharp, needle-like seeds have been known to injure dogs and livestock.

The **giant pine scale** (*Marchalina hellenica*, pictured below left) is an insect native to the eastern Mediterranean that sucks the sap of pine trees, ultimately resulting in their death. The insect produces dense, white cotton-like secretions (pictured below right). It poses a significant threat to South Australia’s plantation softwood industries.



Adult giant pine scale on a pinecone. (Credit: Primary Industries and Regions SA.)



Secretions from the giant pine scale on a pine tree trunk. (Credit: Primary Industries and Regions SA.)



Chilean needle grass (*Nassella neesiana*). (Credit: Weeds Australia.)

Infestations of giant pine scale have occurred around the Hope Valley Reservoir, Dernancourt School, Highbury Aqueduct Reserve and Silverlake Reserve. Managing outbreaks requires the removal of all infected and susceptible trees.

Giant pine scale infects introduced species (pines, firs and spruces). The complete removal of mature stands of trees—even those that are exotic—has a devastating effect on wildlife that has come to rely on those trees for its habitat.

Table 5 lists some pest animal species found in the city. As with pest plant species, the presence of many of these pest animal species has become an unfortunate fixture of the landscape. Responses to the presence of pest animals vary depending on their location and the severity of impact.

The red fox (*Vulpes vulpes*) is a noted declared pest because they thrive in urban environments, where they readily find sources of food and shelter. Foxes prey on native animals, particularly bird species, and the endangered southern brown bandicoot. The Council has a legal duty to control foxes. The most effective approach to deterring foxes is to eliminate access to items that attract them, such as easy sources of food and shelter.

Table 5: Selected pest animal species found in the City of Tea Tree Gully.

Pest animal species * when feral † declared under the <i>Landscape South Australia Act 2019</i> ‡ declared under the <i>Fisheries Management Act 2007</i>	Duty to control
brown rat (<i>Rattus norvegicus</i>) *†	
cat (<i>Felis catus</i>) *†	
elm leaf beetle (<i>Xanthogaleruca luteola</i>)	
European carp (<i>Cyprinus carpio</i>) **†	
European rabbit (<i>Oryctolagus cuniculus</i>) *†	
giant pine scale (<i>Marchalina hellenica</i>)	
goat (<i>Capra hircus</i>) *†	
Pigeons (e.g. <i>Columba</i> spp.) *†	
red fox (<i>Vulpes vulpes</i>) †	●

Giant pine scale (*Marchalina hellenica*) is a relatively recent invader (▲ see box above). The council has been working diligently to eradicate giant pine scale from the city.

In the same way that connecting habitats provides for the movement of native plants and animals, it unfortunately also provides for the migration of pest species. Because many pest plant and animal species are highly mobile, the success of any pest management program can only be assured when there is cooperation among neighbouring landowners. Years of work can be undone through one careless act or omission.

Natural hazards

Natural hazards—especially fires, floods, droughts and heatwaves—all have an impact on populations of native plants and animals. While these are natural phenomena, urban development and other human activities have had a significant influence on the spatial extent, frequency, duration and intensity of natural hazards.

Fire

The City of Tea Tree Gully lies on the urban fringe and the threat of bushfire will always be present. The Council's *Bushfire Mitigation Framework* outlines an integrated approach to bushfire risk reduction to protect life and property, economic assets, and environmental and cultural values. Fuel load reduction on public land, by controlled burning, mowing, slashing, pruning or physical removal, is an integral part of Council's bushfire preparedness and complements similar work undertaken by the Department for Environment and Water on state government-owned land.

Fuel reduction activities sometimes require a trade-off between biodiversity objectives and public safety. Collaboration and cooperation between risk managers, field staff, and biodiversity staff are essential to ensure that any unintentional impacts on native vegetation due to fuel load reduction activities are minimised. Importantly, weed control activities can have positive bushfire management outcomes, as woody weeds can have an inherent fuel load of three to five times that of native grasses.

Flood and drought

Urban development has profound impacts on hydrology. These impacts include increased surface runoff, concentrated discharges (e.g., from stormwater pipes), and increased flow velocities in watercourses. Structures built in watercourses (bridges, culverts, dams and weirs) can restrict or impede water flow and the movement of aquatic species. Significant volumes of water are extracted from rivers and aquifers to supply towns and cities.

Systems of stormwater pits and pipes and other flood mitigation infrastructure keep our urban communities relatively safe from flooding, but unfortunately have the simultaneous effect of:

- increasing the occurrence of short but intense 'flash flooding' type flows; and
- decreasing the occurrence of large, slow-moving floods.

Many Australian landscapes rely on large but rare flood events to replenish floodplain soil moisture and trigger the recruitment of plants and animals. Altering the hydrologic regime of an urban watercourse threatens riparian plant and animal communities via several mechanisms, including:

- individual plants and animals being dislodged by fast-moving water
- changes to physical habitat, such as changes in water quality, water velocity and channel shape
- physical barriers to movement
- life-cycle disruption due to changes in the timing of flows, 'out of season' flows and the drying up of permanent pools that provide summer refuge.

While the hydrological impacts of urbanisation cannot be reversed, steps can be taken to mimic more natural flow and water quality regimes (see Restoring Ecosystem Function).



As well as being a source of pollution, stormwater runoff from urban environments significantly alters the frequency and timing of flows in urban watercourses, impacting riparian plant and animal communities.

Heatwave

Prolonged high temperatures impact the health and wellbeing of humans, domestic animals and wild animals. In urban settings, heatwaves are compounded by the prevalence of hard, heat-absorbing surfaces (like roads and roofs). Without access to cooler refuge areas, many wildlife species will experience increased mortality during a heatwave.

Climate change

Long-term climate predictions for South Australia include warming average temperatures, reduced annual rainfall and changes in rainfall intensity and seasonality.

The impact of climate change on the future intensity and frequency of fires, storms, droughts, and heatwaves has been widely reported. There has been much less discussion, however, of the impact that a changing climate will have on plant and animal communities.

Every species of plant and animal is adapted to a particular set of climatic conditions. Most Australian species can cope with only a relatively narrow range of conditions. When climatic conditions change, species either migrate to a preferred climate area (if possible) or become extinct. The loss of a particular species of plant or animal from a community can have cascading effects, including loss of a food source or shelter for other animals, or opening the door to invasive species to fill the niche vacated by the species loss.

Egregiously, climatic changes that prove adverse for Australian species may be favourable for any number of invasive pest species—after all, it is the adaptability of pest species to a broad range of conditions that allows them to gain a foothold in the first place.



New Holland honeyeater (*Phylidonyris novaehollandiae*) in Bottlebrush tree (*Callistemon* sp.).

How we will manage threats to biodiversity

Outcome	Key Directions
3 Our natural environment is resilient to natural hazards, pest plants and animals and other urban pressures.	3.1 Advocate for state government and Australian Government policy, regulation, governance and investment that are in the interest of our community and our natural environment. 3.2 Fulfil land management responsibilities conferred by state government and Australian Government legislation. 3.3 Understand the implications of future climate scenarios on our natural environment. 3.4 Adopt biodiversity sensitive urban design (BSUD) and water sensitive urban design (WSUD) principles in the development, redevelopment or upgrade of Council assets and facilities. 3.5 Develop and maintain staff capacity and capability in pest plant and animal management. 3.6 Help residents and community groups to manage pest plants and animals on private property.

Restoring Ecosystem Function

Ecological restoration aims to initiate or accelerate the recovery of an ecosystem or recreate one that has been disturbed. Disturbances are environmental changes that alter the structure and function of ecosystems. Common disturbances resulting from urban development include the removal of vegetation, noise, stormwater runoff, litter and the introduction of invasive species.

Ecological restoration includes a broad range of activities, such as:

- revegetation of land that has been cleared
- revegetation of a particular layer that has been removed from a vegetation community (e.g. the understorey, middle storey or overstorey)
- reintroduction of native wildlife
- ‘daylighting’ of streams that have been piped or culverted underground
- artificial manipulation of flood levels to mimic natural wetting-drying cycles
- building structures that facilitate wildlife movement through or across manufactured barriers, e.g. fish ladders across weirs and fauna crossings under highways
- habitat enhancement measures to improve the suitability of habitat for a desired species, often using artificial constructs like bird and bat boxes.



Figure 13: The Mahogany Wetlands are an example of restoring ecosystem function to achieve natural water purification.



Figure 14: Bird nesting boxes installed along Dry Creek.

It is a natural desire to want to restore ecosystems to their ‘pre-disturbance’ state, but this aspiration is not always feasible. Often, the best possible outcome is one where the ecosystem can adjust to threats and disturbances and reach a new state of equilibrium.

The driver for many restoration projects is a desire to restore, improve, or create a particular ecosystem service to address a specific problem. Constructed wetlands (Figure 13) are a good example of ecological restoration that solves stormwater runoff quality problems, as the wetlands provide natural water purification. Bird boxes (Figure 14) are an example of habitat enhancement that specifically targets and encourages native bird species for the pollination, seed-dispersal, nutrient cycling, pest predation and amenity services they provide.

Ecological restoration is an essential tool for reversing some of the loss of biodiversity that has resulted from urbanisation. However, restoration activities should be viewed as complementary to—and not a substitute for—biodiversity conservation.

How we will restore ecosystem function

Outcome	Key Directions
4 Biodiversity is enhanced and ecosystem services are restored through targeted ecological restoration activities.	4.1 Target habitat restoration projects and activities to provide maximum benefit to the whole habitat mosaic. 4.2 Preference planting indigenous species of local provenance over other non-local native species and introduced species. 4.3 Manage and maintain the natural and non-natural assets established through habitat restoration projects over their whole lifecycle. 4.4 Help volunteers and community groups be involved in ecological restoration projects.



Native bee on tall scurf pea (*Cullen australasicum*). (Credit: S. Meyer)

Appendix A: Environmentally Valuable Places

Environmentally Valuable Place		Owner ¹	Area (ha)	Connectivity ²	Key Values				Key Activities			
					 Native vegetation	 Wildlife refuge	 Linking & connecting	 Riparian corridor	 Weed control	 Pest control	 Restoration	 Bushcare
Cobbler Creek												
1	Martindale Reserve	CTTG	7.9	3w								
2	Cobbler Creek East Reserve	CTTG	16	3w								
3	Cobbler Creek West Reserve	CTTG	59	1w, 2w, 48								
Para Escarpment												
4	Little Para Reserve	CTTG	42	47								
5	Marengo Reserve	CTTG	17									
6	Immanuel Conservation Reserve	CTTG	12									
7	McIntosh Conservation Reserve	CTTG	15	48								
8	Verdant Reserve	CTTG	37									
9	Horama Reserve	CTTG	21									
10	Para Hills Reserve	CTTG	16									
Dry Creek												
11	Greenway Reserve	CTTG	5.9	12w								
12	Jubilee Reserve	CTTG	20	11w, 13w								
13	Kingfisher Reserve	CTTG	16	12w, 14w								
14	Drumminor Reserve	CTTG	4.0	13w, 15								
15	Oratanga Reserve	CTTG	2.8	14, 16								
16	Fairleigh Reserve	CTTG	6.2	15, 17w								
17	Solandra Reserve	CTTG	1.8	16w, 18w								
18	Edinburgh Reserve	CTTG	7.6	17w, 19w								
19	Dawson Reserve	CTTG	4.5	18w, 20w								
20	Valley View Reserve	CTTG	2.9	19w, 21								
21	Vaucluse Reserve	CTTG	0.8	20								
22	Gilles Reserve	CTTG	1.8									
Dry Creek Tributaries												
23	Player Conservation Reserve	CTTG	2.6									
24	Shannon Conservation Reserve	CTTG	1.6									
25	Sherwood Park Reserve	CTTG	5.8	26w								
26	Riverside Reserve	CTTG	2.4	25w, 27w								
27	Stevens Reserve	CTTG	5.8	26w								
28	St Agnes Recreation Area	CTTG	16									
29	Doxiadis Conservation Reserve	CTTG	5.4	30w, 32w								
30	Kaplan Conservation Reserve	CTTG	3.3	29w								
31	Gifford Reserve	CTTG	2.9	33w								
32	Mumford Conservation Reserve	CTTG	2.8	29w								
33	Abercrombie Conservation Reserve	CTTG	2.8	31w								

Environmentally Valuable Place		Owner	Area (ha)	Connectivity ²	Key Values				Key Activities			
					 Native vegetation	 Wildlife refuge	 Linking & connecting	 Riparian corridor	 Weed control	 Pest control	 Restoration	 Bushcare
Hills Edge												
34	Private heritage agreement	Private	12									
35	Taworri Conservation Reserve	CTTG	3.2									
36	Gunda Conservation Reserve	CTTG	5.3									
37	Milne Reserve	CTTG	0.9									
38	Brightlands Conservation Reserve	CTTG	5.6									
39	Pine Park Conservation Reserve	CTTG	3.8	50w								
40	Tea Tree Gully Hill Conservation Reserve	CTTG	5.9	50								
41	Callitris Conservation Reserve	CTTG	2.9									
42	Junction Triangle	CTTG	<0.1									
Torrens Valley												
43	Turramurra Conservation Reserve	CTTG	2.6									
44	Lyons Reserve	CTTG	3.2	51w								
45	River Torrens Linear Park (North)	CTTG	58	46, 52, 53								
46	River Torrens Linear Park (South) (not in city)	CCC	99	45, 54w								
State Protected Areas												
47	Little Para Reservoir (part in city)	SAWC	1,271	4								
48	Cobbler Creek Recreation Park (part in city)	DEW	267	3, 7								
49	Angove Conservation Park	DEW	5									
50	Anstey Hill Recreation Park	DEW	357	39w, 40								
51	Hope Valley Reservoir	SAWC	159	44w								
52	Highbury Aqueduct	DEW	50	45								
53	SA Water land	SAWC	98	45, 54w								
54	Black Hill Conservation Park (not in city)	DEW	749	46w, 45w, 53w								

Note(s):

1. Ownership key.

CCC	Campbelltown City Council
CTTG	City of Tea Tree Gully
DEW	Department for Environment and Water
SAWC	South Australian Water Corporation

2. Connectivity. Entries in this column indicate that the environmentally valuable place is connected to other environmentally valuable places. Each number is a reference to another environmentally valuable place in the list that is connected. A “w” suffix indicates a weak connection only, most often because of the presence of a road between the two environmentally valuable places.

March 2026

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CITY OF
TEA TREE GULLY
Naturally Better