



Urban Biodiversity Strategy

2013-2023

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Front cover: Willsmere Billabong, Kew.
Photo © City of Boroondara

Responsible Directorate: Environment and Infrastructure
Managing Department: Environment and Sustainable Living

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City of Boroondara
Private Bag 1
Camberwell, VIC 3146

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Community Focus Group

Tony Stephen
Barbara Downes
Jill Lancaster
Jill Dumsday
Stanley Barker
Peter McAlpine
Beth McAlpine
Ruth McDonald
David Cummings

Ecology consultants

Lincoln Kern	Practical Ecology
Janyce McMurtrie	Regional Envirosense
Dr Graeme Lorimer	Biosphere Consulting

Biodiversity Working Group (Council officers)

Michaela Skett	Environment and Sustainable Living
Andrea Lomdahl	Environment and Sustainable Living
Nicola Hoey	Environment and Sustainable Living
Mark Dornau	Manager, Parks and Gardens
Brad Curtis	Biodiversity Sites and Revegetation
Paul Birch	Biodiversity Sites and Revegetation
Adrian Hotchin	Biodiversity Sites and Revegetation
Peter Tucker	Biodiversity Sites and Revegetation
Sally Speed	Biodiversity Sites and Revegetation
Katerina Staikos	Strategic Planning
Christine Daly	Strategic Planning
Shiranthi Widan	Strategic Planning
Carl Dalla Riva	Statutory Planning
Adam Haines	Statutory Planning
Marjorie Kennedy	Statutory Planning
Greg Talbot	Local Laws

Design

Johanna Villani Design

*“the fate of
biological diversity
for the next 10
million years will
almost certainly
be determined
during the next
50–100 years by
the activities of
a single species”.*

Robert Ehrlich and
Robert Pringle (2008)

01][Executive Summary



While the vast majority of Boroondara's original natural vegetation was cleared to make way for farming and then urban development, there are still valuable areas of remnant vegetation and revegetated habitat along the Yarra River as well as along smaller waterways and in reserves across the municipality.

Since adoption of the City of Boroondara's first biodiversity strategy in 2003, significant progress has been made in restoring, protecting and enhancing the City's natural environment. Amongst other things, the original strategy led to development of *The Inventory and Assessment of Indigenous Flora and Fauna in Boroondara* by Dr Graeme Lorimer, and a Biodiversity Corridors Plan that outlines steps to improving habitat connectivity so as to establish a biodiversity corridors network across the municipality and beyond. Progressive restoration and revegetation of biodiversity sites by Council and Friends Groups has resulted in the stunning restoration of many sites and the return of birds and other fauna.

To ensure local natural habitats are protected and enhanced for future generations, Council must manage a range of complex and dynamic **issues**, including:

- the ongoing need for skilled maintenance of revegetated and ecologically significant sites, and in particular, the challenge of controlling environmental weeds
- species and ecosystem impacts as a result of a generally warmer and drier climate, and more extreme weather events, as a result of global warming
- impacts of urban development (such as residential infill and development within or adjacent to biodiversity corridors along the Yarra) including potential loss of vegetation, habitat continuity and landscape values
- impacts of urban development on stormwater run-off and river health (from extreme flows, pollution, litter etc)
- wildlife disturbance or deaths caused by domestic pets (dogs and cats) and feral animals (eg. foxes).

The strategy's **vision for 2023** is for “.... healthy indigenous plant communities and robust populations of native birds and other wildlife. Our biodiversity corridors and healthy waterways provide connectivity for native fauna within the municipality and beyond,... As a result of Council's strategic investment in biodiversity actions, the area of public land actively managed by Council to protect and enhance local biodiversity has increased from around 36 hectares in 2013 to 45 hectares in 2023....Our residents are active participants in biodiversity protection, enhancing local biodiversity through community projects as well as activities in their backyards, schools and on public land” (refer to p25 for the full Vision statement).

A set of **eight principles** have also informed the strategy's broader objectives and sub-strategies, being:

1. The community protects what it loves.
2. Biodiversity is worth protecting for its intrinsic value alone.
3. Healthy ecosystems are critical to the health of the community.
4. Biodiversity is a community asset that should be protected for future generations.
5. Projects can be designed to deliver multiple benefits rather than single outcomes.
6. Biodiversity protection can be integrated with other uses of our open space network.
7. Prioritise action according to impact.
8. Leadership by Council with the community.

The Urban Biodiversity Strategy for Boroondara (2013-2023) identifies four **overarching objectives**:

Objective one: To protect and enhance biodiversity in Boroondara on public land.

Objective two: To reduce land use and development impacts on biodiversity.

Objective three: To increase community support for biodiversity protection and enhancement.

Objective four: To ensure policy decision making and actions are based on sound knowledge and up-to-date evidence.

To achieve these long term objectives, Council aims to take a strategic approach to action over the next ten years. The foundation strategies focus on:

- adopting an ‘asset management’ approach to biodiversity protection and enhancement – recognising natural areas are community assets needing ongoing

maintenance and progressive restoration and upgrade to improve habitat connectivity. An asset lifecycle management approach provides a framework for investing resources over a long timeframe.

- **strengthening biodiversity protection through the Boroondara Planning Scheme**, as the *Inventory of Indigenous Flora and Fauna* clearly identifies sites and natural processes that warrant greater protection from land use and development impacts.
- **engaging more residents and private land owners** (eg golf clubs, schools) to become involved in biodiversity conservation (including responsible pet ownership) and ‘citizen science’ initiatives.

With strong implementation and monitoring for continuous improvement, the Strategy will make a significant difference to the future of biodiversity protection in Boroondara and the ongoing enjoyment that residents experience from the presence of nature so close to home.





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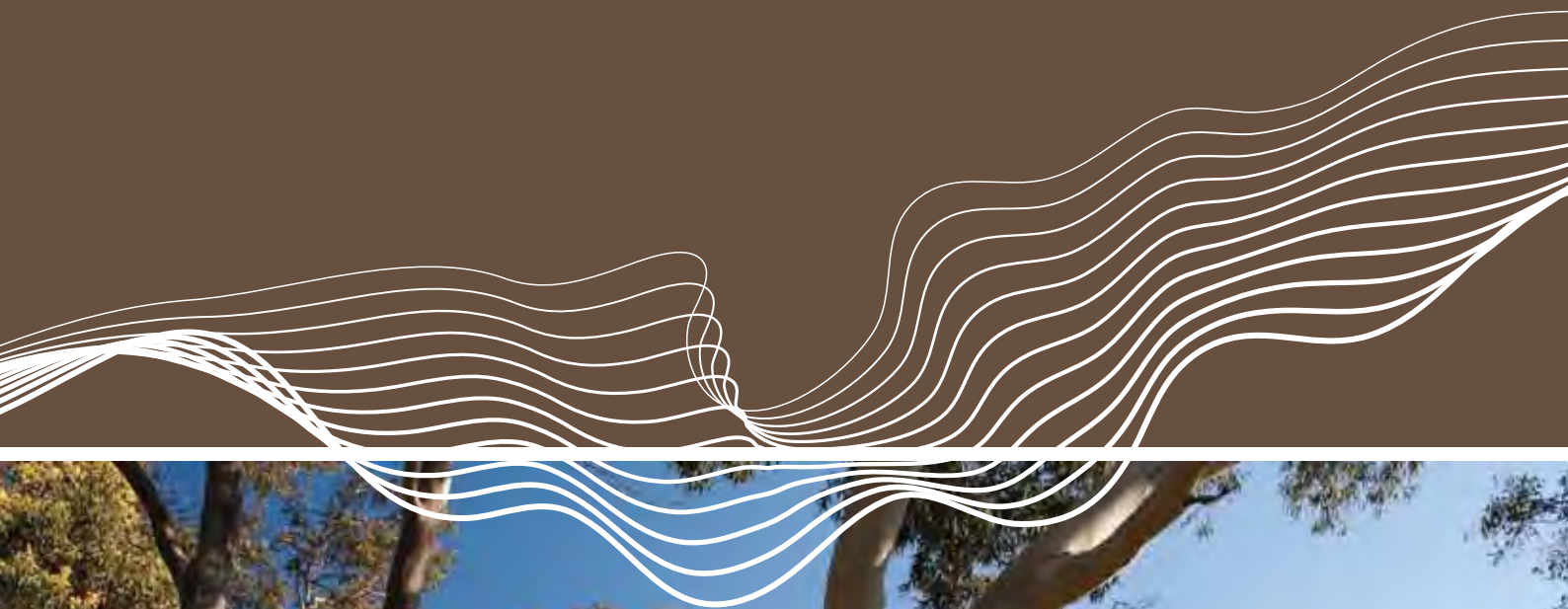
03



04

- 01 Boroondara Mayor, Jack Wegman, CEO Phil Storer and Director of City Planning John Luppino exploring the Yarra River with Ian Penrose, Yarra Riverkeeper Association (YRKA). Photo © YRKA
- 02 The locally native Cut-leaf Daisy is a perfect indigenous plant for home gardens that attracts native butterflies. Photo © Ian Moodie
- 03 The Marbled Gecko is common in Boroondara but is well camouflaged and sometimes hard to find. Photo © Ian Moodie
- 04 Balwyn North Backyard Biodiversity group community planting activity. Photo © City of Boroondara

02][Introduction



Biodiversity loss is a serious and urgent national and global issue. There are huge challenges ahead to stem the dramatic decline of natural environments and accelerating species loss. Communities around the world, where able, have an important responsibility to protect and foster biodiversity in their local area.

Biodiversity is the range of all forms of life on earth — the micro-organisms, plant and animal species, the genes they contain and the communities they belong to. In the context of this Strategy, biodiversity conservation means ensuring the persistence of indigenous (that is, locally native or original) flora and fauna and the ecosystems that they are part of.

Despite our highly modified environment, Boroondara has many high value natural areas worth protecting. These areas are home to a rich diversity of indigenous flora and fauna and provide opportunities for residents to connect with nature close to home. The Yarra River, Melbourne's natural playground, borders the City's northern suburbs and provides a major wildlife corridor bringing wildlife to our suburbs and gardens. Smaller creeks flowing through our municipality are gradually being improved and are attracting more native wildlife.

A significant proportion of Boroondara's remaining native fauna species are under threat (see Table 1, p 11). Hundreds of flowering indigenous plant species have been recorded in the City's natural areas. Sadly, many of these are also at risk of extinction locally as well as in other parts of Victoria. Unfortunately the pressures brought about by urban development — especially habitat fragmentation, waterways pollution and exotic weeds — are an ongoing challenge to maintaining local populations of many species.

A new plan for protecting local biodiversity

The City of Boroondara's first biodiversity strategy was adopted by Council in 2003. Implementation of the original biodiversity strategy has guided on-ground biodiversity restoration and management of threats and issues; prompted further research to improve evidence-based planning; and provided opportunities for residents, schools, kindergartens and community groups to become involved in biodiversity protection and enhancement.

This Urban Biodiversity Strategy for Boroondara (2013-2023) replaces the original biodiversity strategy and sets out a ten year plan to build on the substantial achievements to date. The process of preparing this strategy has enabled stakeholders from Council and the community to work together to confirm current issues and agree a strategic path forward.

Together with stakeholder consultation, a number of important reference documents have informed the drafting of this updated strategy:

- **Biodiversity Corridors Plan (2005)** which identifies a strategic network of habitat links for native fauna to move more easily through the urban landscape. Fifteen wildlife corridors – major, creek, linear and stepping stones – were mapped and continue to be developed and restored by Council with assistance from Melbourne Water, Friends Groups and residents.








Refer to Map 1 (page 14) for a graphic summary of the corridors network.
- **Inventory and Assessment of Indigenous Flora and Fauna in Boroondara (2006)** is the core reference document informing our knowledge of local native animals, indigenous plants, environmental weeds, biologically significant sites and natural resource management issues. The Inventory was based on thousands of hours of research, fieldwork and interviews and provides technical data on:
 - fauna species present today and species previously recorded in this area but now locally extinct
 - flora species (both indigenous and exotic) and their status
 - sites of national, state, regional and local biological significance (58 sites in total)
 - significant indigenous trees on private and public land.

The data presented in the Inventory confirms that Boroondara makes a significant contribution to Victoria's biodiversity.



- 05 An aerial photograph shows one of many pockets of native vegetation across our municipality. These provide important refuges and corridors for wildlife. Photo © City of Boroondara
- 06 Biodiversity in the most surprising places! These Greenhood Orchids were photographed close to Camberwell Road. Photo © City of Boroondara
- 07 A wildflower meadow on the roof of Minifie Park Kindergarten provides habitat for insects and birds and helps keep the building cool in summer and warm in winter. Photo © City of Boroondara

Table 1: Native fauna and indigenous flora species recorded in Boroondara¹

Fauna Group		Number of species ²	% of these species threatened in Boroondara
Amphibians		8	87%
Birds		153	21%
Butterflies		19	No data available
Fish		12	75%
Mammals		14	28%
Reptiles		15	86%
Indigenous ferns and flowering plants		335	79%

- **Protecting and Enhancing Biodiversity in Boroondara: Existing Planning Provisions and Potential Strategies (2012)** was prepared for the City of Boroondara to provide an independent analysis of existing planning scheme provisions and key issues. It suggests potential planning scheme amendments, strategies and projects to address major issues affecting local biodiversity.

- **(Draft) Biodiversity Asset Management Plan (BAMP)** is designed to document and assess existing and potential biodiversity sites. It takes an 'asset management' approach (including mapping and quantifying the extent of maintenance zones, and assessing asset condition) to guide long-term investment in protecting and maintaining them into the future.

The next section briefly summarises the dramatic history of land-use change and the significant natural and ecological assets that remain in our stewardship.

¹ Figures shown in Table 1 are taken from the *Inventory and Assessment of Indigenous Flora and Fauna in Boroondara (2006)*. Ongoing data collection is important to ensure we have a clear and up-to-date picture of local species.

² Apart from butterflies, invertebrate species (animals without backbones) are not documented in the Inventory. It's worth noting that invertebrates make-up some 75% of species globally; the number of species locally is unknown. Invertebrates are a critical source of food for other species and play an essential role in ecosystem processes such as pollination.

03] [Boroondara's local environment



The City of Boroondara's suburbs are highly regarded for their tree-lined streets, heritage homes and established gardens, and extensive parks and reserves.

Despite the predominantly urban character of Boroondara, the City still retains significant remnants of the original vegetation, magnificent indigenous trees (some hundreds of years old), and substantial revegetated areas that provide critical habitat for native birds, butterflies, reptiles, frogs and other animals.

The original landscape and indigenous people

Before European settlement, Boroondara's natural landscape was dominated by majestic River Red Gums, Yellow Gums and Manna Gums, extensive floodplains, wetlands and rivers. Wildflower meadows and grasslands carpeted valleys, and woodlands and grasslands dominated rises and escarpments. This landscape supported the needs of the traditional custodians.

The Wurundjeri people had (and continue to have) a strong spiritual and physical connection to the land and lived in perfect harmony with the environment.

'The Wurundjeri people believed Bunjil (Wedge-tailed Eagle), the great creator spirit created both land, the law (LORE) and life. The people understood the cycles of the seven seasons of Wurundjeri and lived off abundant natural resources providing food and fibre. This included fresh fish and eels, wallabies and possums, birds and their eggs and a huge variety of plants yielding berries, tubers and nectar. Today there are a few scattered trees carrying the scars from bark removed for canoes, shields or containers and stone tool sites around the city. With all the difficulties that Wurundjeri have endured in the last 200 years, Wurundjeri culture is still strong and the community welcomes others to learn about the traditional people of the area and their way of life.'

Bill Nicholson, Project Officer and Elder

Wurundjeri Tribe Land & Compensation Cultural Heritage Council Incorporated.

Early land use and nature conservation³

In 1803 an official survey party crossed Dight's Falls to explore the Studley Park area. Records from this excursion provide the first descriptions of the landscape and its flora. Further surveys occurred in the 1830s led by Robert Hoddle, the official government surveyor. He used the Aboriginal name Boroondara – literally, 'a shady place' – for the district. Land was initially cleared by timber cutters as cattle stations, farms and settlements grew around Kew, Camberwell, Hawthorn, Balwyn and Glen Iris. The provision of services (water and gas) and extension of the metropolitan rail network to Hawthorn and then to Camberwell and beyond saw rapid land development and expansion from the 1880s.

The area now known as Yarra Bend Park was gazetted as a parkland reserve in 1877 primarily because of its lack of grazing potential. A private garden established in Balwyn was purchased by the former City of Camberwell in 1920 to become Maranoa Gardens, now a well renowned showcase of diverse Australian native flora. Belmont Park was created when the widow of early settler Robert Reid gifted seven acres of land along Mont Albert Road to Camberwell City Council, for the primary purpose of protecting majestic eucalypts. The City of Camberwell also acquired land along Ashburton Creek⁴, known as the 'Old Gum Tree Forest' to protect native flora. Surprisingly, Boroondara was home to two private native wildlife sanctuaries, both established in Balwyn in the 1930s.

Urban land management today

The majority of the remaining natural vegetation in Boroondara occurs on Crown land managed either by Council, Parks Victoria, Department of Sustainability and Environment (DSE) or VicTrack. The City manages 260 open space reserves parks, gardens, ovals and bushland sites that account for around 10% (598 hectares) of the City's total land area. Approximately 36 hectares of that land is actively managed for biodiversity by Council.

The City has four golf courses nestled along the Yarra River. Their billabongs and natural vegetation provide some of the most valuable wildlife habitat in the city.

³See *City of Boroondara: Thematic Environmental History of Boroondara* (May 2012) for detailed information on the history of Boroondara including early land use, nature conservation and settlement.

⁴Ashburton Creek was a branch of Back Creek that extended west from Glen Iris Road to the Alamein railway line.

Map 1: Boroondara's biodiversity corridors, biogeographical zones and biologically significant sites



The Yarra River Corridor

The Yarra River and Yarra Bend Park are of national biological significance. There are a further nine sites along the river that are biologically significant for Victoria.

River fauna

The Yarra River and its remaining billabongs support a rich diversity of fish including the nationally vulnerable Australian Grayling and the nationally endangered Macquarie Perch. Nine native fish species including the Australian Grayling migrate between the Yarra River and the sea as a necessary part of their lifecycle.

Platypus are occasionally sighted in the lower reaches of the river. More common and sometimes mistaken for Platypus is Rakali – a golden bellied native water rat. This small mammal has a long white-tipped tail and looks something like an otter with its webbed feet and waterproof coat.

Microbats use the river corridor by night to catch insects on the wing. They nest during the day in tree hollows. Thousands of Grey-headed Flying Foxes live in trees at Bellbird Picnic Area in Kew. At dusk they noisily leave their camp and use the reflected moonlight to follow the river before setting off across the suburbs in search of fruit and flowers. The Grey-headed Flying Fox is listed nationally as vulnerable to extinction. The Flying Fox is an important seed disperser and pollinator of both native and exotic trees.

The river and its riparian habitat provide nesting sites and food for various ducks and other waterbirds. Azure Kingfishers and Nankeen Night Herons are relatively common along the river and feed on small fish, insects and crustaceans. Small terrestrial birds nest in foliage and locally endangered Spotted

Pardalotes nest in riverbank burrows. Several species of raptors have been recorded here too and their ongoing presence suggests a stable abundance of food.

Bluetongue Lizards, Gippsland Water Dragons and various snakes and skinks live amongst the reeds and vegetation along the river and are regularly spotted in gardens close by.

Vegetation

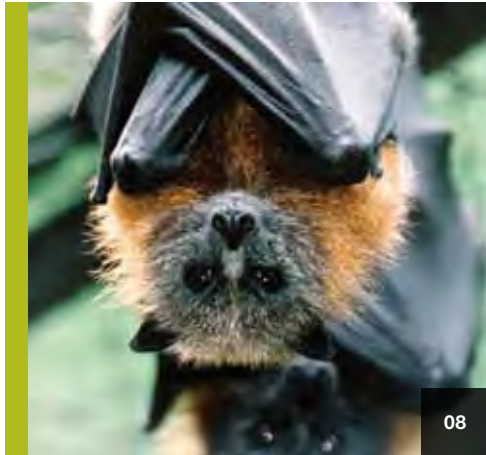
There is an almost unbroken corridor of vegetation extending along the Yarra River from Yarra Bend Park to Freeway Golf Course and beyond. This vegetation includes many rare and endangered plant species and eight of 12 threatened habitat types or Ecological Vegetation Classes (EVCs) found in Boroondara.

Key sites of significance along the Yarra River Corridor

Yarra Bend Park is Boroondara's premier site for nature conservation (Lorimer 2006). Its large area (143 hectares) is managed by Parks Victoria and supports a rich array of vegetation types. It is home to threatened habitats, seventy species of plants considered rare or threatened in Melbourne (and Victoria) including a critically endangered species of eucalypt *Eucalyptus studleyensis*. In addition to all the native animals that live in and around the river, the woodlands and grasslands on surrounding slopes provide habitat for insects and birds such as honeyeaters and hollow-dependent parrots. Grassy woodlands are an overlooked ecosystem in the state and country and even smaller remnants (such as those in Boroondara) make an important contribution to larger biodiversity goals beyond the City.

Key to significant sites

- | | | |
|--|--|--|
| 1 Winfield Road Reserve, Balwyn North | 19 Gardiners Creek Corridor | 39 Kew Residential Services Redevelopment |
| 2 Koonung Creek Reserve, Balwyn North | 20 Burke Road South Reserve, Glen Iris | 40 Willsmere Estate, Kew |
| 3 Koonung Creek East of Bulleen Rd, Balwyn North | 21 Nettleton Park Reserve, Glen Iris | 41 River Red Gum at 83 Walpole St, Kew |
| 4 Freeway Golf Course, Balwyn North & Bulleen | 22 Eric Raven Reserve, Glen Iris | 42 River Red Gum at 10-12 Gellibrand St, Kew |
| 5 Yarra Flats, Balwyn North | 23 Dorothy Laver Reserve, Glen Iris | 43 Xavier College, Kew |
| 6 Burke Road Billabong, Kew East | 24 Ryburne Avenue Reserve & Neighbouring Tree | 44 Kellett Reserve, Kew |
| 7 Kew Golf Club | 25 Clifford Close Reserve, Ashburton | 45 Hilda Crescent, Hawthorn |
| 8 Greenacres Golf Course, Kew East | 26 Markham Reserve, Ashburton | 46 Grace Park's Yellow Gums, Hawthorn |
| 9 Willsmere Park, Kew East | 27 South Surrey Park, Surrey Hills | 47 Lennox St Rail Reserve, Hawthorn |
| 10 Chandler Park, Kew | 28 Back Creek – Riversdale Rd to Cornell St | 48 St James Park, Hawthorn |
| 11 Yarra Bend Park, Kew | 29 Back Creek – Toorak Rd to Denman Av, Camberwell | 49 John Gardiner Reserve, Hawthorn East |
| 12 River Retreat Reserve, Kew | 30 Rail Reserve – Burwood Station to Alamein Station | 50 Cato Park, Hawthorn East |
| 13 Victoria Bridge Escarpment, Kew & Hawthorn | 31 Outer Circle Railway Corridor | 51 Canterbury Gardens' River Red Gum, Canterbury |
| 14 Pridmore Park Riverbank, Hawthorn | 32 Outer Circle Linear Park at Asquith Street, Kew | 52 John August Reserve, Balwyn |
| 15 Yarra Bank Reserve, Hawthorn | 33 Stradbroke Park, Kew East | 53 Beckett Park, Balwyn |
| 16 Riverbank, Fairview Park Area, Hawthorn | 34 Kew High School Woodland | 54 Maranoa Gardens, Balwyn |
| 17 Scotch College, Hawthorn | 35 Hays Paddock, Kew East | 55 Belmont Park, Canterbury |
| 18 Yarra River, Hawthorn and Kew | 36 Kilby Park Stud, Kew East | 56 Deepdene Park's River Red Gums, Balwyn |
| | 37 Victoria Park, Kew (72 River Red Gums some centuries old) | 57 Bundy Tree on Belmore Rd, Balwyn North |
| | 38 Boroondara General Cemetery, Kew | 58 Leigh Park, Balwyn North (no sig rating) |



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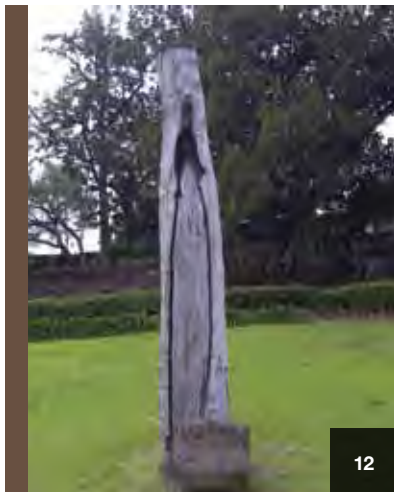
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- 08 The Grey-headed Flying Fox, a threatened species, is an important pollinator of flowering trees and disperser of seeds. Photo © Ian Moodie
- 09 Maranoa Gardens in Balwyn has the largest collection of wattles in any Australian botanic gardens. Standing amongst the winter blooms are Angus, Aimee and Paul. Photo © Fairfax Syndication
- 10 Looking across Ashburton Rail Reserve at bright Yellow Bulbine Lilies, one of many species of native wildflower that appear each Spring in this significant reserve. Photo © Graeme Lorimer
- 11 While there have been no confirmed sightings of platypus in Boroondara, platypus have been seen in Merri Creek and closer to the City and therefore must pass along our section of the Yarra River. Photo © CESAR Consulting
- 12 This scarred River Red Gum stump in Yarra Bend Park provides evidence of Aboriginal occupation in the area. The tree was probably carved for a shield or container. Photo © City of Boroondara
- 13 Boroondara's fantastic biodiversity poster prepared together with *The Connies* depicts native fauna against a background of wetland and grassy woodlands, once common habitats in Boroondara.

Natural billabongs remain along the Yarra River's floodplains, including **Burke Road Billabong** and **Willsmere Billabong** and the more seasonal **Chandler Billabong**. During drought, water levels contract; during heavy rain, the river spills across its banks and adjacent floodplains to fill the billabongs again. River Red Gums, some centuries old, still occur along the floodplains. These large old indigenous trees are hollow-bearing and provide a whole range of environmental and habitat benefits for other species. Understory species include the delicately perfumed Tree Violet (*Melicytus dentatus*) and various wattles that provide habitat for small birds such as Thornbills, Scrub Wrens and Superb Fairy-wrens.

The private **Kew** and **Greenacres Golf Courses** along the Yarra River and **Freeway Golf Course**, a public course managed by City of Boroondara, are all sites of biological significance to Victoria. The golf fairways were constructed on floodplains and are marked by water hazards (wetlands, billabongs) and corridors of eucalypts and understorey shrubs. Wallabies and kangaroos are occasionally seen grazing on the fairways along with seed eating Red-rumped Parrots.

Kew Golf Course is considered the most zoologically significant site in Boroondara because of the rare fauna found in its wetlands (particularly breeding colonies of waterbirds) and is also highly significant for rare plants (Lorimer 2006).

Greenacres Golf Course has 56 large old River Red Gums providing critical habitat for hollow-dependent animals. The course also features a large old Manna Gum (along the 12th Fairway) with a trunk diameter of 1.7 metres, making it one of the largest trees in Boroondara.

Freeway Golf Course has extensive wetlands and billabongs that provide habitat for threatened fauna species including Striped Marsh Frog, Spotted Marsh Frog and Glossy Black Skink.

Creek Corridors

Gardiners Creek forms a natural fauna corridor along the south-western boundary of Boroondara. The creek begins in Box Hill and is a tributary of the Yarra River. Although highly modified with poor water quality, it still supports a diversity of indigenous flora and fauna. Four species of native fish use the creek – three of which migrate between the sea and the creek. White-faced Herons, Chestnut Teal and other waterbirds move up and down the corridor. Major revegetation works by Council and the local Friends Group have helped attract other wildlife to the area (see page 21).

A number of other small creeks have been 'barrel drained' for part of their length; however, where they are open, they provide an important wildlife refuge.

Koonung Creek joins the Yarra River at Freeway Golf Course. Where the creek runs underground in Koonung Creek Reserve, the network of open space still serves

as an ecological corridor. The constructed wetlands in the reserve are important for herons, cormorants and frogs.

Major improvements to **Back Creek** have increased the amenity and natural values of this waterway as it feeds into Gardiners Creek. Over 24 bird species have been recorded in the tiny section between Cornell and Riversdale Road by a local amateur ornithologist. Breeding species include Tawny Frogmouths and Eastern Spinebills. Occasional visitors include the Pink Robin and Collard Sparrowhawk.

Linear Corridors and other biologically significant sites

The **Outer Circle Linear Corridor** and the **Alamein Rail Line Corridor** retain indigenous vegetation along cuttings and ridges that make a special contribution to linking the City's biodiversity.

The **rail reserve from Ashburton to Burwood Station** is ecologically significant at a state level. It includes remnants of endangered habitats and has populations of plant species not recorded elsewhere in Boroondara. Wildflowers recorded at the site include: Milkmaids (*Burchardia umbellata*), native Bluebells (*Wahlenbergia multicausilis*) and butterfly attracting Rice Flowers (*Pimelia humilis*). In spring, this small but precious site has one of the best wildflower displays in Boroondara.

Beckett Park, Balwyn is one of most biologically significant sites in Boroondara because of the large number of indigenous plant species present. Whilst it was mown up until 1990, restoration work means the site is now dominated by wattles, grasses and spectacular native wildflowers. Animals sighted here include Echidna, Gang-gang Cockatoo, Southern Boobook Owl and Southern Brown Tree Frog.

Amazingly, the tiny **Belmont Park in Canterbury** has sixty-seven River Red Gums and more Swamp Gums – all remnants of pre-European flora. A special feature of the site is an abundance of Kneed Wallaby Grass, a vulnerable indigenous grass species.

Stepping stone corridors and encouragement areas

Stepping stone corridors and surrounding encouragement areas are designed to **create links** between the Yarra River, creek corridors, linear corridors, existing reserves and other natural areas outside the municipality (such as Wattle Park). For example, **Kew High School's River Red Gum woodland** and adjacent **Stradbroke Park** are important stepping stones for wildlife heading to Hays Paddock and the Yarra River. Residents in surrounding areas have taken part in Council's Backyard Biodiversity project which encourages wildlife-friendly home gardening (see page 22 for more details).

04][Success stories with local partners



In partnership with local Friends Groups and other stakeholders, Council has been making significant progress protecting and restoring some of the remaining natural areas in Boroondara. There have been many successful initiatives, a number of which are highlighted below.

For more examples of partnership projects, refer to the 2003 Biodiversity Strategy Review available to download from Council's website.

Wurundjeri Garden – a wonderful local resource

The Wurundjeri Garden has been revegetated and restored by members of Hawthorn Historical Society to reflect the original plants that once grew there and to highlight Aboriginal food plants and materials. Dorothy Sutherland, from the Friends of Wurundjeri Garden, shares her story:

'Though challenging at times and a steep learning curve, with a few mistakes made along the way, it's been a fascinating journey of discovery for those associated with the garden's development. Today, visitors to the garden are amazed that it is not a natural piece of bushland. There is a surprising amount of birdlife, including sightings of Nankeen Night Heron, Kookaburras, nesting Lorikeets and smaller species like Thornbill. The cheeky Willy Wagtail has been a constant presence since the beginning and has become the mascot for the volunteer friends group, some of whom have worked there on a monthly basis since 1990.'

Restoring Burke Road Billabong

In 2007 Burke Road Billabong reserve was a ten-hectare area on the Yarra with some magnificent River Red Gums but significant amounts of weeds and debris, a legacy of neglect and the old Kew rubbish tip. The land is traversed by the main Yarra shared trail and has one of the few remaining natural billabongs that occur along the Yarra River floodplain. A Committee of Management (and Friends Group) was set-up to rehabilitate the site, and since then weeds including Boxthorn, Gorse, and Bitou bush have been eliminated, and substantial inroads made with the Blackberry, Hawthorn, Cruel Vine, and Wandering Creeper.

Thousands of indigenous plants have been propagated and planted, and a picnic area and table constructed. RMIT students use the area for practical work in their Conservation and Land Management studies. The City of Boroondara assists the Friends Group with the provision of tools, mulch and advice.

A series of roosting boxes for micro-bats have been installed and a monitoring project shows these are well used. The area has attracted locally rare marsupials including a wombat and kangaroo; and when the billabong and wetland fill, waterbirds and frogs return to the area.



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Opposite: Friends of Wurundjeri Garden work on the banks of the Yarra River in Glan Avon Road, Hawthorn to re-establish indigenous plants, including Aboriginal food plants and materials. Photo © Fairfax Syndication

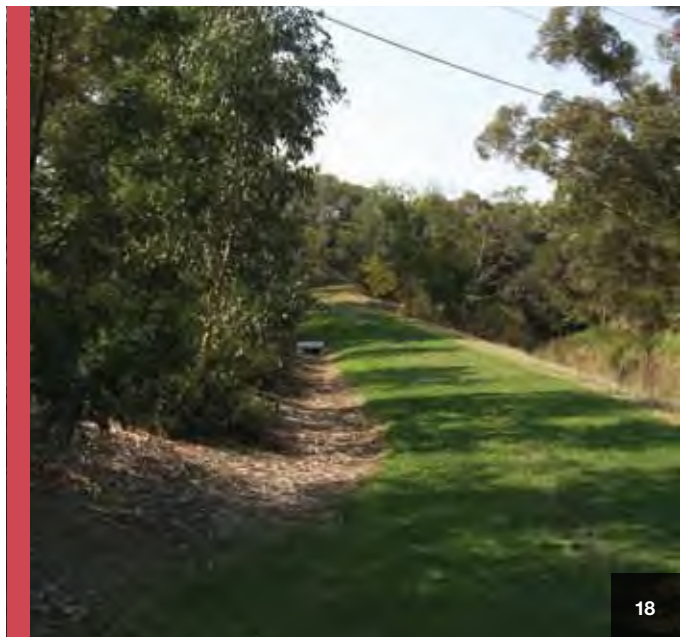
- 14 Gould's Wattled Bats in a specially designed microbat nestbox. Photo © Robert Bender
- 15 Jess, a local volunteer checks a bat nesting box. Photo © Robert Bender



16



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- 16 A male and female Superb Fairy Wren. Photo © Ian Moodie
 17 Markham Reserve planting. Photo © City of Boroondara
 18 Markham Reserve planting, five years on. Photo © City of Boroondara

Bringing back the birds to Gardiners Creek

Since 2002, Friends of Gardiners Creek Valley and Council officers have worked to restore the area along Gardiners Creek between Nettleton Park and Markham Reserve. Before planting began, the land was dominated by weed species such as Desert Ash and Willow.

The revegetation and restoration work has transformed the landscape and created a functioning biodiversity corridor. In recent years, community members and staff have been delighted to witness the gradual return of small birds, including families of Superb Fairy-wrens, which are settling along the corridor as habitat condition improves.

At Nettleton Park, the beautiful native grass and wildflower meadow beneath the River Red Gums provides a delightful display in Spring and many enthusiastic local residents and Scout groups have contributed to planting efforts over the years.

Creek improvements and riparian plantings by Melbourne Water at Eric Raven Reserve have created critical habitat for many species, including the Rakali (also known as the native water rat).

Long-term residents of the area have reflected on the transformation:

'Twenty-five years ago, the land by Gardiner's Creek in Ashburton was just a paddock. It's been transformed over the years. Even the high tension power lines aren't so evident!'

'I can remember what the rail lines and drainage lines were like; just concrete gutters. Now many have been carefully returned to what they were like originally.'

Glen Iris Wetland brings water quality and biodiversity gains

In 2009 a substantial wetland was constructed on the site of the former Glen Iris and Tooronga Bowls Club (behind the University of the Third Age). The project was developed by Council in partnership with Melbourne Water and developers Stockland Corporation.

The specially designed wetland acts as a natural filter for stormwater from the local catchment on the north side of Gardiners Creek. It reduces the amount of nitrogen, phosphorous, suspended sediment and other pollutants in the stormwater before it enters the creek. More than 10,000 native plants, trees and ground covers were planted in and around the wetlands, with reeds and rushes now providing excellent spring breeding habitat for native ducks.

This is a great example of water sensitive urban design improving the ecological health of our waterways, while providing habitat for birds and an enjoyable area to relax, walk or cycle around.

19 Kay Johnston (below left) with Adrian Hotchin, a biodiversity environmental officer with Boroondara Council, volunteers with Friends of Gardiners Creek Valley to reduce weed and exotic species and re-establish indigenous flora and fauna habitat. Photo © Fairfax Syndication



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Transformation of South Surrey Park

For sixteen years, the Friends of South Surrey Park and Council officers have rejuvenated Back Creek between Union and Riversdale Roads. The Park had contained many willows and other weed species, which were removed with the help of the City of Boroondara and Melbourne Water. The weeds have been replaced with plantings of native grasses, sedges, shrubs and trees. The transformation has been so effective that the ambience when resting on the installed seats makes it hard to believe the Park is only 12 kilometres from the CBD. There are now regular sightings of Kookaburras, Tawny Frogmouths and microbats amongst the native animals that visit the park.

A local resident has enjoyed the gradual transformation:

'It's been fantastic to watch how South Surrey Park has changed from a wasteland to a wonderful and accessible community resource. It now has fantastic natural vegetation and native fauna.'

Residents embracing gardening for 'backyard biodiversity'

Over 3000 copies of *'Backyard Biodiversity – A guide to creating wildlife-friendly gardens in Boroondara'* have been picked up by our residents; along with hundreds of vouchers for free indigenous plants. Following a successful pilot in 2009/10, Council has been rolling out the *Backyard Biodiversity* community initiative, an intensive habitat gardening program targeting residents living in or near biodiversity corridors and encouragement areas. Since its inception the project has engaged 170 households living in Camberwell, Ashburton, Glen Iris, Balwyn, North Balwyn, Kew and Hawthorn and has resulted in 6000 indigenous plants in the ground as well as new neighbourhood connections made, skills shared and a Friends Group established. The Backyard Biodiversity project was a finalist in the 2011 United Nations World Environment Day Awards and a stand-out project contributing to Boroondara being named 2012 Sustainable City of the Year in the Keep Australia Beautiful Victoria Awards.



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20 Ready for planting at South Surrey Park. Photo © Friends of South Surrey Park

21 A participating *Backyard Biodiversity* garden. Photo © City of Boroondara

22 Glen Iris Wetlands provide a great stop off-point for passing cyclists and organised activities such as this Council-led Catchment Crawl. Photo © City of Boroondara

Our residents value having access to natural landscapes within the City

Wonderful places to visit

*'The atmosphere at **Willsmere/Chandler Park** is fantastic. Such magnificent River Red Gums and river views.'*

*'**Burke Road Billabong** has stunning River Red Gums. It's a great spot to see wildlife including microbats. I love the grasslands, trees, birdlife and the large and varied character of the reserve.'*

*'**Yarra Bend Park** is a wonderful area for walking and has a great animal and plant reserve.'*

*'It's amazing to see kangaroos along the **Yarra River** bike path'.*

*'I love being able to see the native garden beds, the plants and the birds around Lynden Park and the little corridor alongside **Back Creek**.'*

*'We enjoy the peaceful walking tracks near **Ferndale Park**. One of the River Red Gums along the path has a hollow which provides a nesting spot for cockatoos - the parent birds are often peeking out of the hollow.'*

*'As a family living in a small flat, we really appreciate all the different areas to explore in Boroondara. Along **Gardiners Creek** for example, there's always something interesting to show the children.'*

*'We love the southern part of **Gardiners Creek Corridor** with its trees and vegetation; it's great for bird watching.'*

... to relax, learn and feel connected...

*'Having access to nature in the suburbs is psychologically **calming**. It lets me escape from the rat race!'*

*'Restoring the environment gives me a lot of **pleasure**.'*

*'Birdlife is very important to me – it provides a **sense of connectedness** and helps me feel as though we must be reducing our impact on the environment.'*

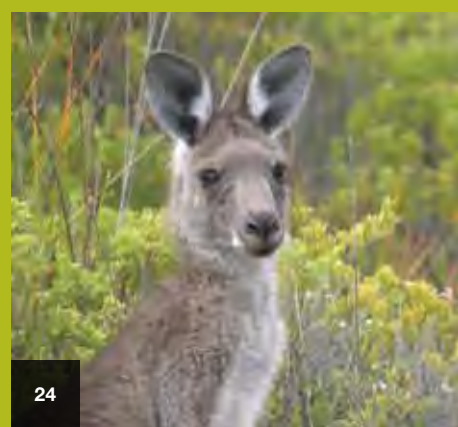
*'Through planting locally native species in my garden and in reserves, I'm **reversing some of the damage** to the environment.'*

*'I've noticed increasing biodiversity in the suburbs and enjoy the fact that **creatures spill into our everyday life**. We've had large numbers of ducks breeding in our swimming pool and when the ducklings are old enough we watch them waddle off to the creek. We've had around 500 local school children coming to our garden to check out the ducks. It's Ace!'*

*'The Friends Groups are a **great way to meet people with common interests**.'*



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23 Residents at Dunlop St lake, Gardiners Creek. Photo © City of Boroondara

24 Eastern Grey Kangaroos are occasionally sighted along the Main Yarra Trail. Photo © Tony Wilson

25 Rainbow Lorikeets and other parrots use local tree hollows for nesting. Photo © Ian Moodie

26 A Backyard Biodiversity garden in Ashburton.

05][Our long term vision and guiding principles



Students from Solway Primary School, a five star AuSSI Vic school, painted and installed nestboxes as part of their biodiversity activities. Photo © Bob Winters

Our Vision for 2023

The City of Boroondara has healthy indigenous plant communities and robust populations of native birds and other wildlife. Our biodiversity corridors and healthy waterways provide connectivity for native fauna within the municipality and beyond, contributing to genetic diversity and building resilience. Protecting local habitats in Boroondara is an important part of restoring threatened areas across Victoria.

As a result of Council's strategic investment in biodiversity actions, the area of public land actively managed by Council to protect and enhance local biodiversity has increased from around 36 hectares in 2013 to 45 hectares in 2023. The work of Council and other land managers together with the community has resulted in an increasing abundance of indigenous flora and fauna. In Melbourne, Boroondara provides a dynamic example of integrating biodiversity and habitat into an intense urban environment.

Boroondara's residents value the City's natural assets and appreciate opportunities to explore and experience nature in the City. Our residents are active participants in biodiversity protection, enhancing local biodiversity through community projects as well as activities in their gardens, schools and on public land.

Guiding principles

1. The community protects what it loves

Personal experiences shape our values. Educational and community engagement activities in urban areas can help residents to connect with nature and to better understand and value their local environment. A community that values biodiversity in its 'backyard' appreciates the value of biodiversity globally.

2. Biodiversity is worth protecting for its intrinsic value alone

Most people recognise that biodiversity has intrinsic value – that biodiversity (the diversity of all life forms that comprise natural ecosystems) has value in its own right, beyond the services or usefulness it provides to humans.

3. Healthy ecosystems are critical to the health of the community

Plants, animals and micro-organisms provide functions that are critical to human survival and wellbeing. These 'ecosystem services' include carbon sequestration, oxygen production, nutrient cycling, pollination of crops and native vegetation, flood prevention and climate regulation.

4. Biodiversity is a community asset that should be protected for future generations

Biodiversity within natural ecosystems needs pro-active protection if it is to be held in trust for future generations. In doing so, we also reduce the risk that critical ecosystem services are further compromised now or in the years to come.

5. Projects can be designed to deliver multiple benefits rather than single outcomes

Projects that can deliver multiple benefits are preferred to those that deliver single outcomes.

With further integration of sustainability thinking into Council's capital works and renewal projects, there are greater opportunities to deliver co-benefits for biodiversity. Water Sensitive Urban Design (WSUD) infrastructure is a good example since well designed projects can address drainage problems and improve river health, as well as provide habitat for wildlife, improved neighbourhood amenity, and opportunities for community education.

6. Biodiversity protection can be integrated with other uses of our open space network.

The attainment of biodiversity outcomes should be balanced with maintaining opportunities for the community to engage in active recreational pursuits on public land or related objectives of the Municipal Public Health and Wellbeing Plan.

7. Prioritise action according to impact

When there are so many competing demands for resources and funding, it is critical to prioritise according to greatest impact. Choosing which of Council's biodiversity sites to focus staff and other resources on requires weighing up a range of factors such as current condition and potential for improvement, relative significance of site, presence of threatened species and community expectations.

8. Leadership by Council with the community

Implementation of this Strategy demonstrates Council's commitment and leadership to the community, key stakeholders, other councils and Council staff. Extensive and ongoing works on Council managed land showcase what can be achieved, encouraging and complementing similar works on adjacent land, resulting in more and better habitat across public and private property boundaries.

06][Issues and challenges for local biodiversity conservation



Rubbish including garden waste dumped in parks and reserves contributes to the spread of weeds.
Photo © City of Boroondara

Council and other major public land managers (including Melbourne Water and Parks Victoria) must deal with a range of complex issues and competing agendas for land use that make managing flora, fauna and natural areas extremely challenging.

Urban development continues to impact on environmental and landscape values

Residential extensions, sub-divisions and multi-unit developments (especially when adjacent to biodiversity corridors, waterways and biodiversity sites) have potential to reduce environmental values both during and after construction.

Typical impacts may include:

- clearing of vegetation (including canopy trees) on private land
- run off from building sites adding sediment and pollutants to waterways
- chemical use on site
- erosion of surrounding landscapes
- dumped building rubble
- construction vehicles accessing sites via public land and reserves.

In October 2012, the State Government introduced a planning scheme amendment that aims to better control development along the Yarra River corridor and to recognise the importance of the corridor as a significant conservation, open space and recreation area within Boroondara. This provides a key opportunity to better protect biodiversity along the Yarra River corridor.

Environmental and biodiversity values along other waterway corridors (eg Gardiners Creek, Back Creek etc) remain at risk from development impacts because of limited controls in the Boroondara Planning Scheme. In these areas, Council planners currently have limited scope to challenge planning applications to protect important environmental areas and their natural and landscape values.

Key urban development concerns along these corridors include the large footprint of some dwellings, minimal setbacks, large areas of paving causing significantly increased run-off, clearing of trees and vegetation, and landscaping that adds little if any biodiversity value.

Environmental weeds – a most serious threat to indigenous flora

The Inventory and Assessment of Indigenous Flora and Fauna in Boroondara lists 210 species of introduced plants that are now well established in our reserves. Weeds can out-compete mature indigenous plants, prevent germination, generally make habitat less fit for native fauna and provide better conditions for introduced species by creating shade or concentrating nutrients. Dumped garden waste by residents leads to new weed infestations and takes up valuable staff time in removal. Effective weed management is complex and can be especially challenging in relatively wet years.

Climate change impacts - small remnant sites are most at risk

Climate change poses very serious threats to biodiversity and ecosystem health both globally and locally. Impacts in urban environments over the next decade are likely to be more subtle and will interact with and may compound other threats to biodiversity conservation.

Climate change modelling predicts a long term shift to a warmer and drier climate in South-east Australia with an increase in the frequency and severity of extreme weather events (storms, heavy rain and strong winds).

The effects on the local environment are likely to include increased flooding and damage to waterways, a decline in vegetation health, reduced survival of young plants during extended dry periods, long term shifts in plant and animal distribution and the timing of natural events (flowering, seed setting, breeding).

Especially vulnerable are the smaller and more isolated biodiversity sites across the municipality – a product of past land use and development. Flora and fauna surviving in these remnants may lack genetic diversity and be at risk from inbreeding. Creating links between isolated sites, by improving the biodiversity corridors network and creating habitat 'stepping stones' in private gardens, should reduce the vulnerability of these otherwise isolated plant and animal populations.



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27 Myrtle Rust affects plant species from the Myrtaceae family which includes eucalypts, bottlebrush, tea tree and many other species. Photo © State of Victoria, Department of Primary Industries 2012. Reproduced with permission

28 Litter traps along the Yarra River collect huge amounts of rubbish and litter that flow into waterways from stormwater. Photo © YRKA

29 Weeds such as *Tradescantia fluminensis* (Wandering Creeper), can survive in dumped garden waste for long periods. It grows quickly, smothering small native plants and so reducing the success rate of remnant seed germinating in bushland sites. Photo © City of Boroondara

30 Domestic cats are voracious hunters

31 Poorly managed development along waterways contributes to erosion and pollution in waterways. Photo © YRKA

32 Foxes are well established in Boroondara and are prey on a variety of native and introduced fauna.

The Urban Stream Syndrome – degrading waterways

Without water sensitive urban design, continued urbanisation will result in poorer river health. This is not just a local problem. As Boroondara is part of the Yarra catchment, pollution in our waterways affects water quality downstream in the Yarra River and Port Phillip Bay.

As gardens and lawns are replaced by extensions and hard landscaping, stormwater flows (together with litter, nutrient and pollution loads) to our creeks can rise and fall dramatically. This causes erosion and further degrades aquatic and riparian habitat. Water quality in Back Creek, Gardiners Creek and Koonung Creek is very poor as a result.

Heavy metals such as cadmium and mercury are present in river sediment - a legacy of early industrial activity along the Yarra and less stringent pollution controls. Other heavy metals (zinc from roofs and lead from roadways) continue to be washed into waterways via the stormwater system during rain.

Melbourne's sewerage system has inbuilt spill points (Emergency Relief Structures) which allow pressure to be taken off the system during extreme rainfall events.

During these rare events, Melbourne Water undertake controlled release of sewage (highly diluted with stormwater) into suburban creeks and waterways to avoid uncontrolled spills from manhole covers, fittings in houses (ie, toilets) and gully traps. These sewage releases increase the nutrient load (E.coli bacteria) in our waterways making them unsafe for human contact for a short period of time. Melbourne Water notifies the EPA and the local community when a sewage release occurs..

Domestic dogs and cats can threaten wildlife and disturb habitats

Many water birds such as the Nankeen Night Heron breed in Kew Golf Course and not in nearby Hays Paddock or Willsmere Park where dogs off leash are common (Lorimer 2006). The physical presence and the smell that dogs leave can disturb birds and other native animals (Kern 2012). Uncollected dog faeces can also contribute to waterway pollution. Dogs have ready access to some significant wetlands, sensitive habitats and waterways.

Cats (both stray and registered animals) that are free to roam and express their hunting instinct can threaten and kill native birds, lizards and other wildlife. Some have been caught in fox traps set in natural reserves. There is currently no cat curfew in Boroondara, and the extent of the impact is not well understood.

Other issues

- **Myrtle Rust** is a fungal disease introduced from South America and now well established in Australia. The rust spores are bright yellow and appear first on young growth. The spores spread easily in the wind and on clothing. Myrtle Rust affects plant species from the Myrtaceae family which includes eucalypts, bottlebrush, tea tree and many other species. Council is cooperating with the Victorian Department of Primary Industry (DPI) to monitor the spread of this potentially devastating disease.
- **Foxes** are established in Boroondara and are efficient predators of native wildlife.
- **Indian Mynas** are well established in Boroondara and are highly aggressive and compete with native fauna for nesting hollows.
- **Feral bees** (honey bees that have left managed hives) compete with native fauna for tree hollows and for nectar and pollen.
- **Dieback in large old trees** is caused by drought stress, over grazing by possums (stressed trees exude sweet leaf exudates that attracts possums) and out of control populations of lerps (normally controlled by small insect eating birds). Signs of dieback include a loss of tree canopy and decline in overall tree health.
- **Biodiversity values may compete with other open space uses.** For example, indigenous flora such as grasses and wildflowers need to be left unmown long enough to allow flowering and seed setting. This competes with the expectation from some community members about mowing of public open space.
- **Light pollution commonly called 'light spill'** is likely to impact on the behaviour and biology of insects, bats and birds. Sources of light spill in Boroondara include street lights, sportsground and park lighting. The specific impacts of light spill into significant biodiversity sites and corridors is not well studied or documented.

07][Significant opportunities



A number of significant opportunities exist to protect and enhance local biodiversity.

Investing in an ‘asset management’ approach to biodiversity protection

Biodiversity sites can be viewed as natural assets requiring ongoing maintenance and renewal. To improve the ecological function and connectivity of these assets, adjacent zones that were previously mown or under-maintained could be managed to regenerate or be revegetated.

Council has developed a draft **Biodiversity Asset Management Plan (BAMP)** that establishes a detailed baseline of the extent and condition of all the biodiversity sites (‘assets’) identified in the flora and fauna inventory and/or Biodiversity Corridors Plan and through research associated with preparation of the BAMP. It provides a long-term framework for a staged approach to improving the condition and connectivity of areas currently managed for biodiversity as well as a strategy for managing new zones at existing biodiversity sites and some new sites as well. The BAMP outlines the long-term potential, given adequate resourcing, for up to 65 hectares of Council land to be managed for biodiversity outcomes.

Strengthening protection of biodiversity corridors and sites through statutory measures

A significant opportunity exists to revise the Municipal Strategic Statement (MSS) within the Boroondara Planning Scheme to reflect updated objectives and strategies for biodiversity protection across the City and to propose more effective policies and resources to guide decision-making by statutory planning staff.

Protection of significant ecological sites along the Yarra River was strengthened through gazettal of the Victorian Planning Provisions Amendment VC96 in October 2012. This Amendment to the State Planning Framework and Boroondara Planning Scheme imposes controls on land development (including maximum building heights) and indigenous vegetation removal along the Yarra River Corridor. It is an interim Amendment, and open to consultation until 31 October 2014.

Opposite: Public and private golf courses in Boroondara present exciting opportunities for habitat conservation and enhancement. Photo © City of Boroondara

Beyond the areas protected by Amendment VC96, *The Inventory and Assessment of Indigenous Flora and Fauna in Boroondara* clearly identifies other sites and corridors that may warrant protection through the application of revised zones and overlays.

Relevant overlays currently in the Boroondara Planning Scheme include:

- **Environmental Significance Overlay (ESO)**
 - Schedule 1: Yarra River Corridor Protection (New)
 - Schedule 2: Beckett Park Environmental Significance Area
- **Design and Development Overlay (DDO)**
 - Schedule 31: Yarra River Corridor Protection (New)
- **Vegetation Protection Overlay (VPO)**
 - Schedule 1: Willsmere Vegetation Protection Area
 - Schedule 2: Kew Residential Services Significant Protection Overlay

The habitat quality of biodiversity corridors is dependent on more than the public land footprint they occur on. The habitat in (private) gardens can make a significant contribution to the value of a corridor. An animal will not differentiate between habitats based on legal lines created by humans (Kern 2012).

Engaging golf course managers and schools in biodiversity protection

Golf courses in Boroondara present an important biodiversity opportunity because of their size and proximity to the Yarra River and because it is feasible to accommodate a great golfing experience as well as significant habitat improvements. Boroondara’s private golf courses are critical sites for local biodiversity providing some of the best examples of large old indigenous trees and threatened flora and fauna. Staff and committees of management must be encouraged and supported to protect and enhance their natural assets. Work undertaken by Council at Freeway Golf Course provides an excellent model.

Schools (especially those located along the Yarra River) provide a unique opportunity to involve students and staff in restoring remnant vegetation and increasing local biodiversity on school grounds.

Improving water quality through a more 'water sensitive city'

Integrating Water Sensitive Urban Design (WSUD) into new developments, streetscape renewals and landscapes on Council and private land helps address 'urban stream syndrome'. Many design options, such as constructed wetlands and raingardens, can also provide valuable new habitat. Strategic opportunities and targets are now being explored as part of developing an Integrated Water Management Plan for Boroondara. Strengthening partnerships and advocacy with stakeholders such as Melbourne Water and other municipalities in our catchment is a critical part of this work.

Protecting significant trees

Boroondara's Tree Protection Local Law aims to protect large canopy trees on private and public land and those registered on Council's Significant Tree Register. Further promotion and resourcing could lead to many more trees on public and private land being nominated and assessed for inclusion on the Significant Tree Register. Significant trees identified in the *Inventory and Assessment of Indigenous Flora and Fauna in Boroondara* should also be included on this Register.

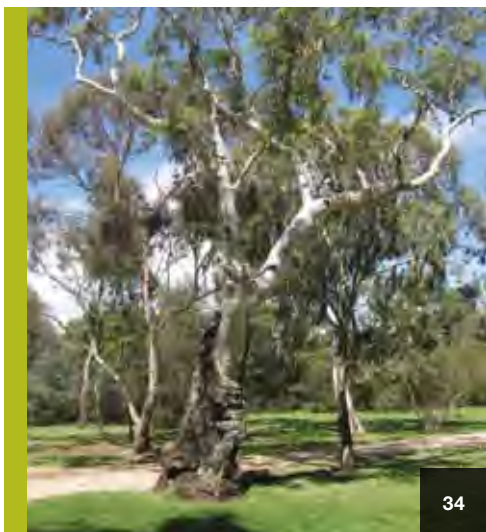
Increasing indigenous vegetation in our streetscapes

There are opportunities (where appropriate) to increase the use of indigenous or native tree species to provide better habitat, especially in streets adjacent to or linking up existing biodiversity corridors. Encouraging residents to establish and maintain (appropriate) indigenous plantings on nature strips will also increase local biodiversity and showcase indigenous plants.

Increasing community participation in local biodiversity projects

Within our community there are residents of all ages passionate about protecting the natural environment. We need to harness this interest and support community education activities, planting projects and increase volunteer opportunities. Residents with some experience or knowledge should also be able to contribute to biodiversity monitoring through simple data collection and surveys in local reserves.

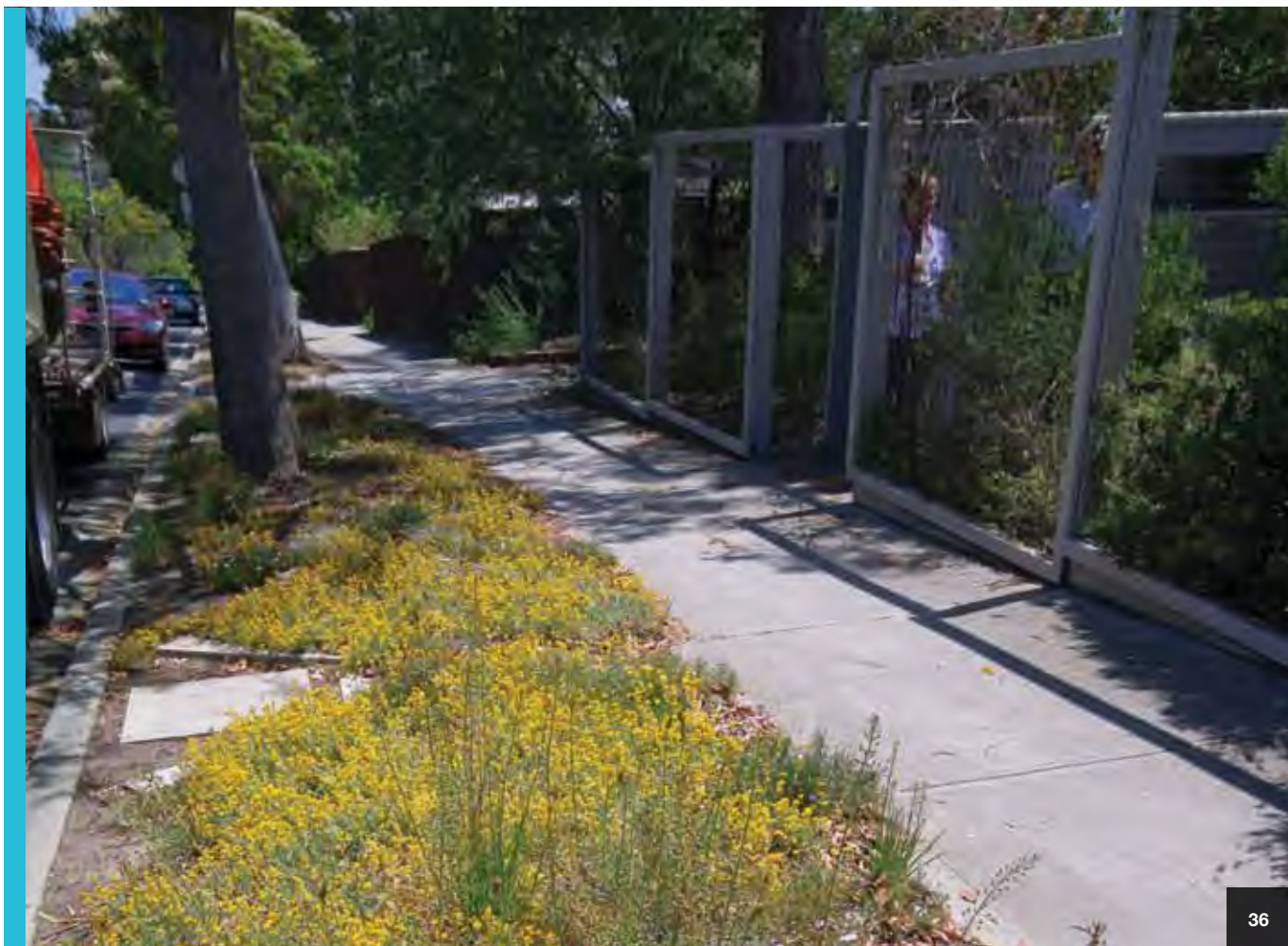




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- 33 The BAMP identifies new habitat zones at existing biodiversity sites across the City.
Photo © City of Boroondara
- 34 Some large River Red Gums in Boroondara are centuries old and cannot be replaced
in a human time span. Photo © Dr Graeme Lorimer
- 35 Council vouchers offered to new residents and provided at festivals and events enable
residents to pick-up free indigenous plants for their garden. Photo © City of Boroondara
- 36 Council's naturestrip guidelines provide information on planting naturestrips with indigenous
plants. Photo © City of Boroondara

08][Objectives and related strategies



To progress the strategy's Vision, four overarching objectives have been identified. A combination of strategies is proposed as a means to achieve each objective. Sample actions have also been set out below to illustrate how the various strategies will be delivered.

Objective 1: To protect and enhance biodiversity on public land

Related strategies

- Protect and restore remnant vegetation and existing ecologically significant sites for habitat and ecological values. Including:
 - Progressively implementing a Biodiversity Asset Management Plan (BAMP) to improve habitat condition of remnant vegetation and existing areas under biodiversity management.
 - Installing signage at remnant vegetation sites that are actively managed to alert mowing contractors.
- Extend revegetation to improve connectivity between biodiversity sites and along corridors. Including:
 - Progressively extending management to new zones within existing biodiversity sites without compromising recreational opportunities.
 - Continuing to work with other public land managers (Melbourne Water, Parks Victoria, VicTrack) to enhance habitat condition and connectivity across the municipality.
 - Investigating private land acquisition, especially along waterway corridors, where the land purchase would benefit corridor function.
- Respond to existing issues (e.g. foxes, significant weeds) and emerging threats (e.g. Myrtle Rust) to indigenous flora and fauna.
- Protect our waterways as natural landscapes and for their ecological values. Including:
 - Developing an Integrated Water Management Strategy to support transition to urban form and landscapes that mimic natural hydrological regimes, improve water quality and provide biodiversity co-benefits.
- Protect significant habitat trees on public and private land. Including:
 - Resourcing the updating of Boroondara's Significant Tree Register.
 - Increasing community awareness of the Tree Protection Local Law.
- Use streetscapes to support indigenous flora and fauna, especially in streets adjacent to and near biodiversity corridors.

Objective 2: To reduce land use and development impacts on biodiversity

Related strategies

- Prepare an amendment to the Boroondara Planning Scheme (in particular Clause 21-06 Natural Environment) to reflect the Urban Biodiversity Strategy (2013) as adopted.
- Ensure that development within and adjacent to sensitive ecological sites and designated biodiversity corridors protects and enhances indigenous flora and fauna values. Including:
 - Reviewing the effectiveness of existing zones and overlays over significant sites and waterways.
 - Investigating the development of an Environmental Significance Overlay or other relevant overlay to better protect sites of biological significance along waterway corridors.
- Ensure new developments in the municipality use water sensitive urban design principles and onsite stormwater management infrastructure to reduce stormwater runoff and control pollution entering waterways.

Opposite: Silveryeyes are beautiful little birds and are often seen in Boroondara. They migrate between the Australian mainland and Tasmania. Photo © Ian Moodie

Objective 3: To increase community support for biodiversity protection and enhancement

Related strategies

- Promote and deliver community education projects and activities that encourage positive behaviours and values towards biodiversity conservation.
- Encourage indigenous restoration, revegetation and gardening across the municipality. Including:
 - Providing indigenous plant vouchers and other habitat gardening resources to residents, schools, Friends Groups members and businesses.
 - Continuing to roll-out the Backyard Biodiversity Project or similar to residents living around biodiversity corridors.
- Design and install educational signage at strategic sites to promote key natural history messages and support management objectives.
- Encourage responsible pet ownership to minimise the impact of domestic pets on native fauna and their breeding habitat.
- Work with Friends groups and other community organisations that contribute to biodiversity conservation locally and engage residents in biodiversity actions.
- Encourage private land owners with significant habitat (eg golf clubs, schools etc) to protect, manage and enhance indigenous flora and fauna habitat.

Objective 4: To ensure policy decision making and actions are based on sound knowledge and up-to-date evidence

Related strategies

- Identify monitoring processes for individual sites and for ecological values across the City to demonstrate progress and measure overall effectiveness. Including:
 - Developing a monitoring framework to facilitate the gathering and analysis of data on biodiversity improvements across the City.
- Support the technical (ie. ecological) knowledge and capacity of staff, contractors and Friends Group volunteers.
- Review and update key guiding documents to address remaining gaps in knowledge and data.
- Contribute data to relevant state and national biodiversity inventories.





- 37 Professional ecologists are occasionally engaged to assist with fauna surveys and provide management recommendations. Photo © City of Boroondara
- 38 Over the next ten years Council will aim to increase the area of land managed for biodiversity from 36 hectares to 45 hectares. Photo © Bob Winters
- 39 Council plans to offer interested residents the chance to take part in citizen science projects. Photo © City of Boroondara
- 40 Council is keen to encourage responsible pet ownership to protect sensitive and vulnerable native fauna. Photo © Bob Winters

09][Implementation and monitoring



Our implementation plan

A series of medium term implementation plans will guide Council actions to achieve the high level objectives and strategies set out in this document. As well as actions identified on previous pages, some additional actions will be drawn from community consultation.

The initial implementation plan will phase actions over three to five years and will be revisited in 2016 and again in 2019. This phasing is designed to link with Council's budget planning. A broader review of how Council is tracking against the Strategy's Vision and targets will also take place in 2018.

Monitoring implementation and impacts of this strategy

An early action will be to develop a monitoring framework for this Strategy (recommended action under Objective 4, page 36). Staff will then be able to measure and report on progress toward the 2023 Vision target of 45 hectares of land actively managed for biodiversity and related aspirations.

Monitoring will:

- Provide tangible evidence of outcomes to those involved in on-ground restoration and management, and highlight opportunities to improve projects or practice.
- Provide evidence of long term trends.
- Capture conservation success stories to share with the community.

A range of progress indicators could be developed and monitored, including:

- Biodiversity asset management:
 - number of indigenous plants planted (by Council and contractors), as well as through Friends Groups and community planting events⁵
 - number of sites/corridors being actively managed
 - square metres/hectares being actively managed
 - condition of vegetation sites being actively managed
 - dollars invested by Council and external funders.

- Land use and development impacts:
 - Local planning scheme amendments to protect and enhance biodiversity
- Number of planning permit applications referred for assessment against planning scheme triggers in the Natural Environment Section of the MSS and associated amendments.
- Community awareness and engagement:
 - community engagement activities undertaken by Council (number of activities and participants, participant feedback)
 - community-based biodiversity initiatives and interest groups eg within Schools, Friends Groups, Backyard Biodiversity groups (number of initiatives/groups, participation, feedback)
 - data on illegal dumping of weeds, nominations to the Significant Tree Register, referrals and assessments under the Tree Protection Local Law, VINC voucher redemption etc.

Council will also liaise with Port Phillip and Westernport Catchment Management Authority to develop measurable condition targets that feed into the Regional Catchment Strategy and capture the regional significance of local efforts.

Engaging the broader community in data gathering and monitoring

In addition to monitoring undertaken directly by Council officers, there is potential to access data collected by contractors, Friends Groups, not for profit organisations, ecological consultants and government departments, some of whom may already be recording and collecting information in the local area. Residents with professional expertise or amateur skills may be willing to assist. Encouraging 'citizen science' to gather valuable data can potentially save money and also help engage and empower local communities.

The key is to ensure that an overall monitoring process and framework is developed so that many parties of different skills can contribute. Professional ecologists may need to develop the methods and framework and undertake analysis but the data can come from diverse sources.

Opposite: A Yellow-banded Dart lands on a biodiversity checklist.
Photo © Dr Graeme Lorimer

⁵Note: This type of reporting provides an indication of investment and effort but provides no indication of longer term impacts. One of the major difficulties with reporting on plants in the ground is that extraneous factors such as unprecedented rainfall, flooding and subsequent growth of weeds has a major impact on regeneration and revegetation.

10][References

Boroondara City Council (2003). *Biodiversity Strategy 2003*

Boroondara City Council (2005). *Biodiversity Corridors Plan 2005*

Boroondara City Council (2012). *Draft Biodiversity Asset Management Plan (BAMP) 2012 (internal document)*

Boroondara City Council (2012). *Protecting and enhancing biodiversity in Boroondara: Biodiversity Strategy 2003. Summary of implementation, achievements and outcomes*

Boroondara City Council (2012). *Draft Boroondara Open Space Strategy (BOSS)*

Boroondara City Council (2012). *Guide to Recognising and Controlling Weeds*

Boroondara City Council (2012). *Backyard Biodiversity – A guide to creating wildlife-friendly and sustainable gardens in Boroondara*

Boroondara City Council (2012). *Planning Scheme Review (internal document)*

Boroondara City Council (2010). *Tree Policy*

Boroondara City Council *Tree Protection Local Law 1F*

Boroondara City Council (2012). *City of Boroondara Thematic Environmental History: May 2012*

ANTar Boroondara (2008). *Boroondara Connections: Stories of Aboriginal Connection by Residents of Boroondara*. Published by ANTAr Boroondara

Eastern Alliance of Greenhouse Action (EAGA) (2010). *Bushland and Urban Biodiversity Management in a Changing Climate*. Copy of a summary report and full reports can be found on the Municipal Association of Victoria website

Ehrlich PR and RM Pringle. (2008). *Where does biodiversity go from here? A grim business-as-usual forecast and a hopeful portfolio of partial solutions*. Proceedings of the National Academy of Sciences of the United States of America 105:11579-11586

Kern, L (2012). *Protecting and enhancing Biodiversity in Boroondara: Existing Planning Provisions and Potential Strategies*. Report prepared for Boroondara City Council. (internal document)

Lorimer, G. (2006). *Inventory and Assessment of Indigenous Flora and Fauna in Boroondara*. Report prepared for Boroondara City Council

Lindenmayer D. And P. Gibbons. (2012). *Biodiversity Monitoring in Australia*, CSIRO Publishing



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