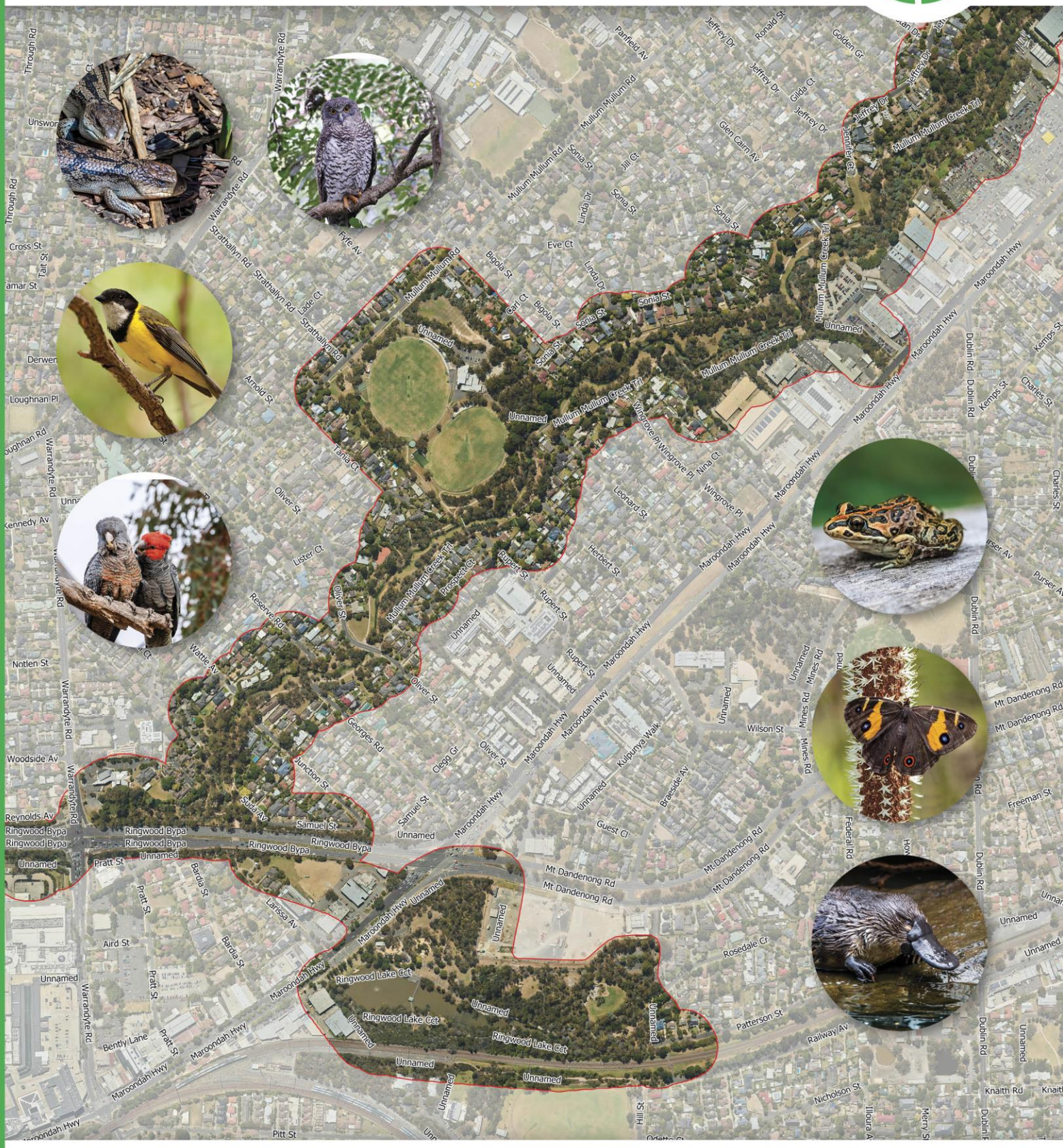
Mullum Mullum Creek Biolink Action Plan 2025-2035

Working towards a clean green and sustainable community



2040 MAROONDAH

Maroondah City Council

Contents

The Mullum Mullum Creek Biolink forms part of the Traditional Country of the Wurundjeri Woi-wurrung people of the Kulin Nation.
We, in the spirit of Reconciliation, acknowledge the Wurundjeri People of the Kulin Nation as traditional custodians of the land now known as the City of Maroondah, where Indigenous Australians have performed age-old ceremonies. We acknowledge and respect their unique ability to care for Country and their deep spiritual connection to it. We pay our respects to their Elders, past, present and emerging.

About this plan

This plan presents a range of actions that have been identified as needed to establish and sustain the Mullum Mullum Creek Biolink as a functioning wildlife corridor.

Collectively these actions are designed to progress towards a shared vision for the biolink and have been identified by a group of key stakeholders from within and external to Maroondah City Council (refer Appendix 1 for the full list of stakeholders).

This plan sets a clear direction for establishing the Mullum Mullum Creek Biolink and is expected to provide guidance to Council and other organisations for the next ten years or more to drive implementation of actions and advocating for further external support and investment.

The actions will be implemented through a collective effort of relevant organisations, with a focus on the actions identified as the highest priority. The steps being taken by Council and other organisations towards implementing these actions will be documented in an accompanying rolling two-year implementation plan that will be reported on and extended annually.

It is proposed that implementation will be overseen by a coordination group to continually review and reassess actions to confirm the highest priorities and assign lead roles for advocacy, pursuit of external funding, internal budgeting and implementation.

A full list of the actions in table form is provided in Appendix 3.

What has led us to this point?

Maroondah 2040: Our future together

Developed with our community, partners and service providers, and endorsed by Council in June 2014, "*Maroondah 2040: Our future together*" provides a roadmap for our community, Council and other levels of government to partner together and create a future that enhances Maroondah as a great place to live, work, play and visit. Updated in June 2021, "*Maroondah 2040: Our future together*" states the following:

Outcome: A clean, green and sustainable community.

Key direction 4.6: Work in partnership to protect and restore biodiversity and habitat corridors for local plants and animals.

Biodiversity in Maroondah - Volumes 1 & 2 2020

The consultancy Biosphere Pty Ltd was engaged in 2018 to provide a contemporary assessment of Maroondah's biodiversity with a focus on indigenous species, communities, and habitats. The resulting report, *Biodiversity in Maroondah Volumes 1 & 2 2020*, is a key component of the municipal-wide vegetation review arising from the Maroondah Housing Strategy 2016. This study also provides an updated assessment of sites originally identified in the 1997 report *Sites of Biological Significance in Maroondah*. The two-volume report has informed the development of both the *Maroondah Vegetation Strategy 2020 - 2030* and the *Maroondah Habitat Connectivity Plan 2021*.

Maroondah Vegetation Strategy 2020 - 2030

Developed with community input firstly through an Issues and Options Paper, then a draft strategy, the *Maroondah Vegetation Strategy 2020 - 2030* was adopted by Council in March 2020. The strategy states the following:

Outcome 2: More nature throughout Maroondah.

Priority Action 2.3(b): Review the 2005 Habitat Corridor Strategy to confirm priority linkage routes and align with this strategy's focus on habitat for a suite of 'focal' species.

Maroondah Habitat Connectivity Plan 2021

The consultancy Eco Logical Australia was engaged in June 2020 to utilise the spatial modelling decision framework General Approach to Planning Connectivity from Local to Regional Scales (GAP-CloSR) to identify the 'pathways of least resistance' through the Maroondah landscape that offer the best potential for improving habitat connectivity. Guided by an advisory group of internal and external stakeholders with relevant knowledge and expertise, the resulting *Maroondah Habitat Connectivity Plan 2021* identified a number of priority locations that together formed a number of biolinks or wildlife movement corridor pathways.

In order to depict these biolinks on a map, a 50-metre buffer was drawn around each priority location with eight biolinks identified and named. The Mullum Mullum Creek Biolink was the first selected to undergo more detailed action planning.

Council Plan 2021-25 (2023/24 update)

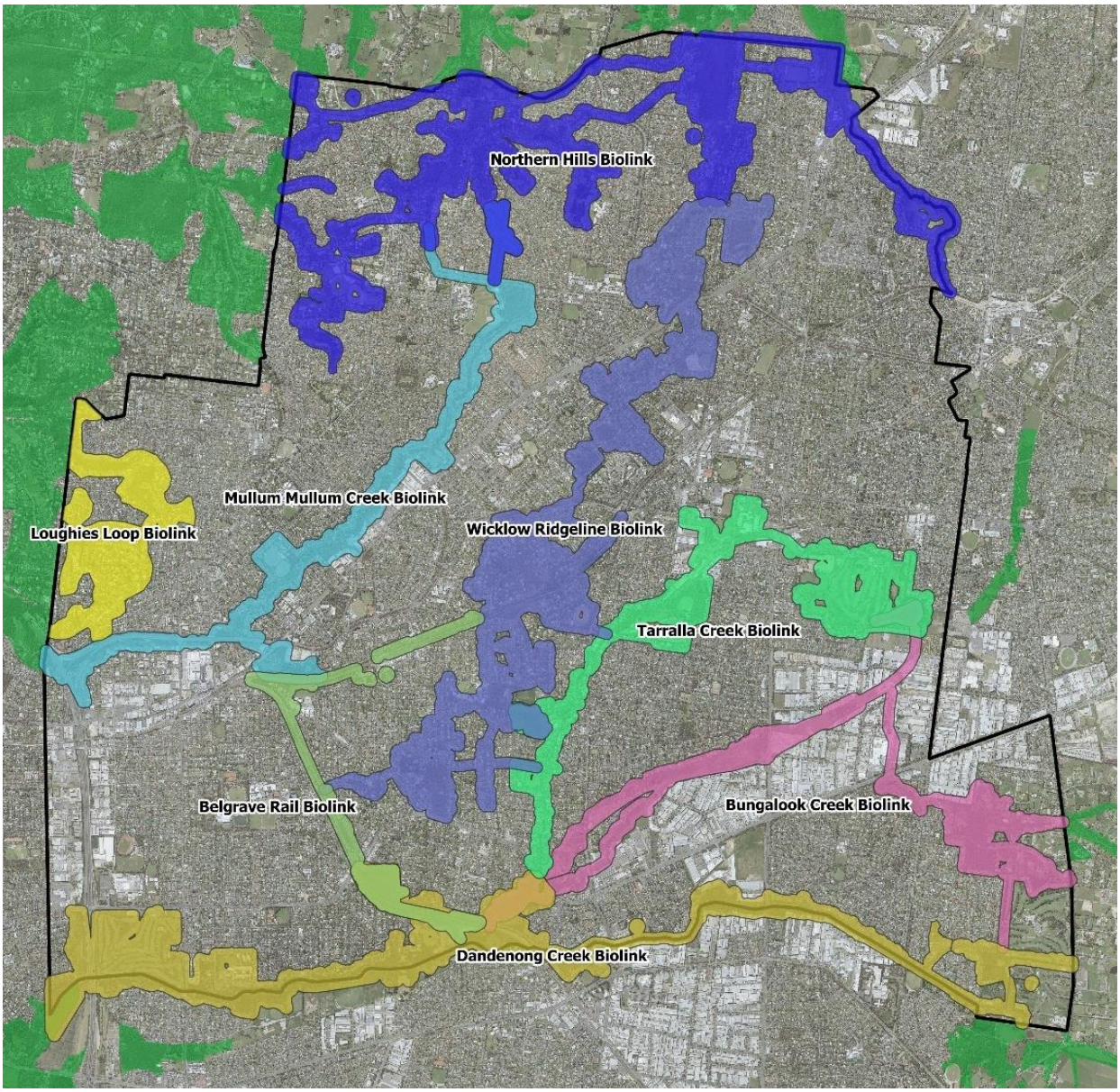
The *Council Plan 2021-2025* has been informed by the participation and recommendations of a Deliberative Panel of 40 community members in 2021 who, over a period of six weeks, deliberated on key topics in Maroondah 2040. Panel members strongly supported improving habitat corridors and increasing biodiversity in Maroondah and recognised the role that the natural environment plays in promoting economic and community wellbeing. Each year Council undertakes a revision of the four-year Council Plan to ensure that it continues to be aligned with *Maroondah 2040 - Our future together* and is responsive to emerging community needs and aspirations. The 2023/24 update includes the following:

Outcome: A clean, green and sustainable community.

Priority Action (for years 2021/22, 22/23, 23/24, 24/25 onwards): Prepare and implement a series of Biolink Action Plans that implement the Maroondah Habitat Connectivity Study.

The Mullum Mullum Creek Biolink

Biolinks can be defined as the routes that represent the best opportunities for improving habitat connectivity and facilitating wildlife movement through a landscape.



The eight biolinks identified in Maroondah

The Mullum Mullum Creek Biolink is one of eight biolinks in Maroondah that have been identified through a process of spatial modelling (for more detail on the modelling process view the consultancy report here)

These eight biolinks represent the best opportunities for enabling more nature to disperse throughout Maroondah.

The biolinks are identified 'pathways of least resistance' through the landscape that will each require a wide range of on-ground actions to become functioning wildlife movement corridors. Once created, each biolink is expected to enable a wide range of fauna to move

more easily along and into adjacent areas, so that there is more nature throughout Maroondah, and more people in Maroondah able to connect with nature as part of their daily lives.

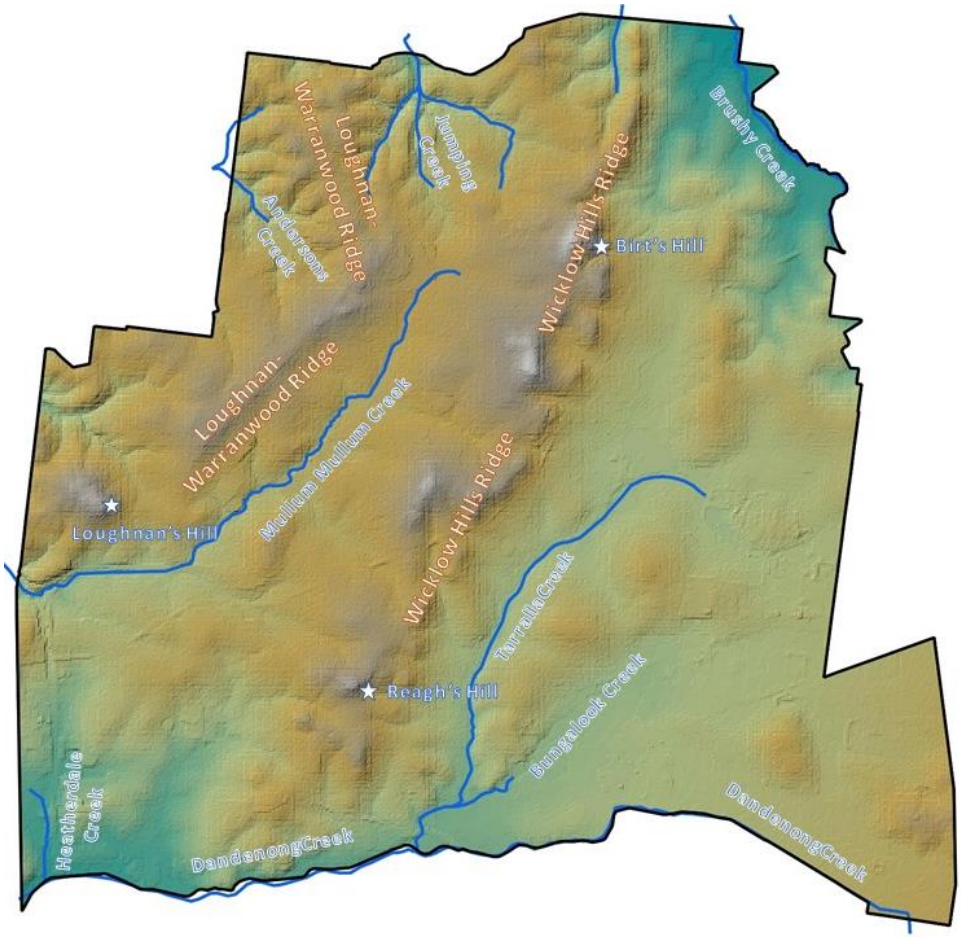
The Mullum Mullum Creek biolink was selected as the first to undergo more detailed planning of the actions needed to create it, and this plan presents the actions that have been identified to not only establish, but also to support, sustain and connect people to, the biolink.

Actions in this plan are many and varied and will take considerable time and concerted effort to implement, but if implemented collectively, are expected to create a functioning habitat corridor following the Mullum Mullum Creek through Maroondah.

Landscape context

The Mullum Mullum Creek flows through the traditional lands of the Wurundjeri-Woi Wurrung people, and its name is thought to mean "place of many big birds" in the Woi Wurrung language.

The current form of the Mullum Mullum Creek and its valley comprises a predominantly surface-flowing stream flanked by a series of patches of bushland and open space forming a narrow ribbon of nature through the surrounding urbanised landscape.



Digital Elevation Model of the Maroondah landscape

The Mullum Mullum Creek is incised into a plateau formed by the Wicklow Hills Ridge to Reagh's Hill in the east, Bedford Road and Maroondah Highway in the south, and the Loughnan's - Warranwood Ridge to the west. The Mullum Mullum Creek has its headwaters on the northern tip of this plateau in Maroondah, originating close to Birt's Hill off Richardson Road in Croydon North. From its source the current day creek now flows through stormwater pipes until the creek first appears above ground in the Douglas Maggs Reserve near the Yarra Valley Grammar bushland reserve and remains aboveground for the rest of its length.

Drier mixed species forests gradually give way to Swamp Gums and Manna Gums as the creek flows in a south-westerly direction passing remnant orchards, bushland and parks through Ringwood and past Eastland Shopping Centre and the Ringwood Bypass, under the Eastlink tollway, and then flows in a north-westerly direction through Whitehorse and Manningham local government areas before joining the Yarra River (Birrarung) in Templestowe.

Many thousands of years ago the creek once turned and flowed south of Maroondah Highway, near New Street, down the now dry bed of the upper Heatherdale Creek to the Dandenong Creek and Port Philip Bay. Since then, a natural "river capture" (a geomorphological phenomenon caused in this case by headwater erosion of the lower Mullum Mullum Creek) has now taken the waters of the creek and diverted them through a narrow gap in the hills to become a tributary of the Yarra River.

The Mullum Mullum Creek and its valley forms part of a much broader major north-south vegetated corridor that stretches from the Great Dividing Range to the Yarra River, then down along the Dandenong Valley Parklands to Port Philip Bay. Unlike many waterways associated with cities, the upper reaches and surrounds are more modified and urbanised, compared to the lower reaches (in Whitehorse and Manningham) which are more natural and is sometimes described as an ‘upside down’ creek.

The total stream channel length is estimated at around 19 kilometres, of which about 5 kilometres is within Maroondah.

The Mullum Mullum Creek Biolink applies to the section of creek within the Maroondah municipality only, with its boundary extending 50 metres either side of the priority locations identified for this biolink in the *Maroondah Habitat Connectivity Plan 2021* and covers a total area of approximately 193 hectares.

As such, the Mullum Mullum Creek Biolink is not limited to the public creek corridor and extends into neighbouring residential and commercial areas. An estimated 68 parcels of public land (excluding roads) fall wholly or partially within the biolink and cover an estimated 74 hectares. Conversely, an estimated 777 parcels of private land fall wholly or partially within biolink and cover an estimated 139 hectares.

Pre-settlement vegetation

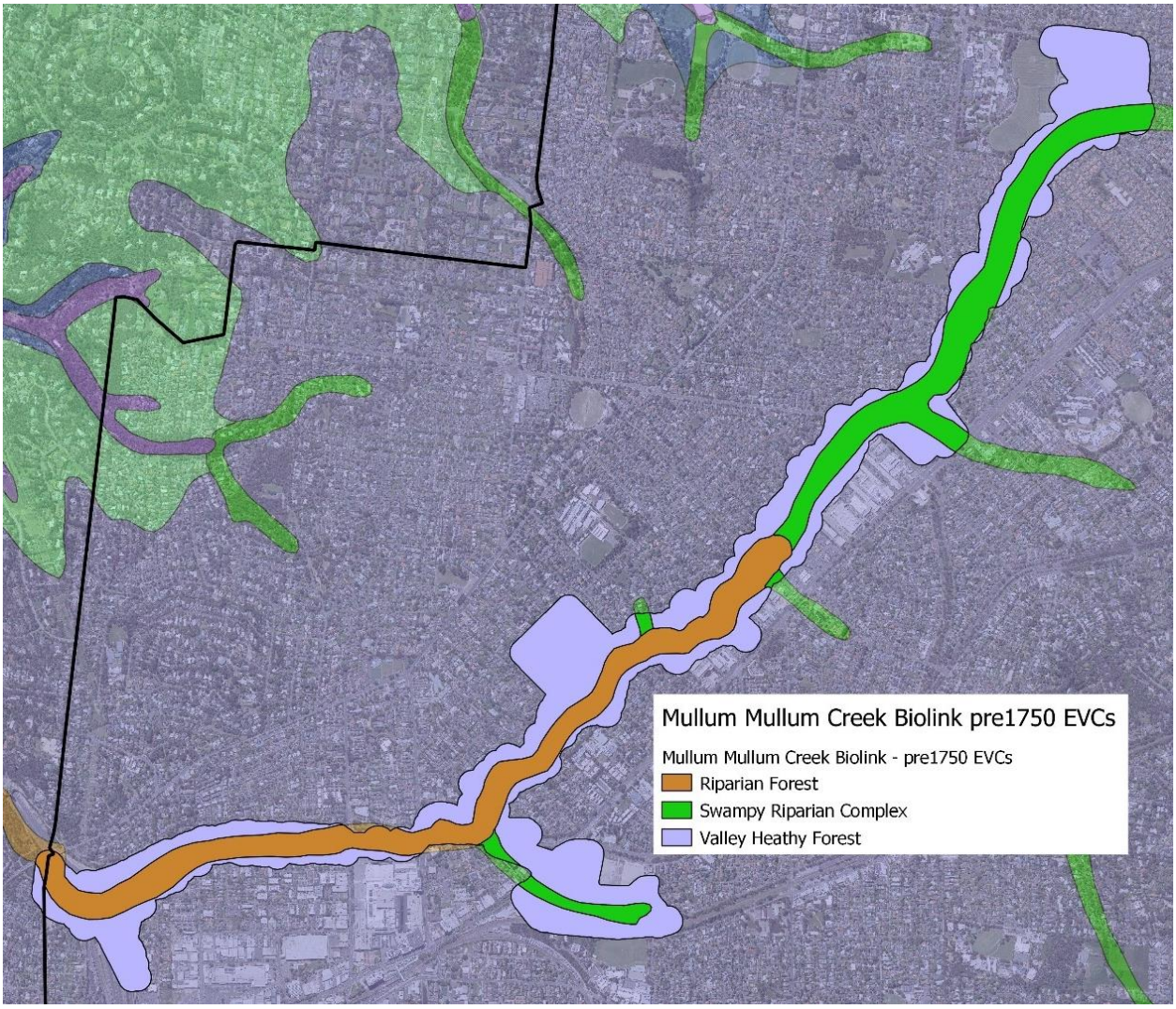
Based on factors such as climate, soil, topography and vegetation strata the Victorian Government have established a state-wide classification scheme for different vegetation types in Victoria called 'Ecological Vegetation Classes', or EVCs. The distribution of EVCs presumed to have been present prior to European settlement have been modelled and provide a guide for efforts to restore or recreate natural habitats.

The three main EVCs within the Mullum Mullum Creek Biolink are:

Riparian Forest - the dominant eucalypt species typically being Manna Gum (*Eucalyptus viminalis* subspecies *viminalis*)

Swampy Riparian Complex - the dominant eucalypt species typically being Swamp Gum (*Eucalyptus ovata*)

Valley Heathy Forest - no single dominant eucalypt species with Silver-leafed Stringybark (*Eucalyptus cephalocarpa*), Bundy (*Eucalyptus goniocalyx*), Messmate Stringybark (*Eucalyptus obliqua*), Red Stringybark (*Eucalyptus macrorhyncha*) and/or Narrow-leaved Peppermint (*Eucalyptus radiata*) usually present



Modelled pre-1750 distribution of Ecological Vegetation Classes (EVCs)

Vision, focal species, and actions needed for the biolink

This action plan presents:

- a vision for the biolink (page 12).
- seven focal fauna species (page 13) and their habitat needs.
- actions needed to meet these habitat needs (pages 14 to 30).
- actions needed to support function of the biolink (pages 31 to 32).
- actions needed to sustain the biolink' (pages 33 to 35).
- actions needed to connect people to the biolink (pages 36 to 37).

In more detail, the actions focus on:

- habitat creation and improvement (eg availability of food resources, shelter, breeding, dispersal opportunities) and threat reduction (eg from predation, competition, toxins, pollution, extreme flows). These actions are expected to serve the needs of a wide range of plant and animal species and not just the seven focal species.
- supporting the functioning of the biolink, such as making streets and residential properties more wildlife-friendly.
- sustaining the biolink, by maintaining the existing and created habitats, and keeping threats at bay.
- connecting people to the biolink through awareness, learning, and contributing.

Vision

"In 2040, when you are in the Mullum Mullum Creek Biolink …

- ***you are enriched by your surroundings.*** *Day and night is abuzz with the sights and sounds of nature; the rich mosaic of vegetation and the murmurings of the creek convey healthiness. You can hear the chorus of insects, birds and frogs and you might catch a glimpse of a Platypus in the creek or a Powerful Owl in the treetops.*

- ***you are immersed in a culture of caring.*** *All around you can sense the rich history of the Wurundjeri people - language, stories and practices being shared. You can see people admiring, respecting, and enjoying being with nature. Individuals, businesses and organisations are working together to play their part in caring for it.*

- ***you feel kinship with this place.*** *Nurtured by feeling part of something bigger, you leave happier, healthier and more knowledgeable. You accept a responsibility of custodianship and are eager to return****".***

Focal species

Seven different fauna species were selected to provide a focus for provision of habitat and other requirements. Their selection was based on the premise that their collective habitat requirements would also serve the needs of a much wider range of species likely to occur in, or potentially be attracted into, the Maroondah area.

These focal species were selected from a larger range of 'engagement species' (see Appendix 2) previously identified through the spatial modelling project that determined the best routes through the Maroondah landscape for improving habitat connectivity.

To learn more about this project visit https://www.maroondah.vic.gov.au/Development/Natural-Environment/Biodiversity-and-habitat-connectivity.

The seven focal species are:

Blotched Bluetongue Lizard

Golden Whistler

Gang Gang Cockatoo

Sword Grass Brown

Platypus

Powerful Owl

Spotted Marsh Frog

Focal species habitat requirements and actions needed

Details for each of the seven focal species including their habitat requirements (with an illustration of suitable habitat), actions needed to meet these requirements and details of other species likely to be served by the actions are provided.

1. Blotched Bluetongue Lizard (*Tiliqua nigrolutea*)

Requirements

Like many lizards, this species prefers relatively open bushland with good solar access and lots of ground cover such as tussocky grasses or leaf litter and large rocks and logs to shelter under. They eat a variety of plants, especially those with fleshy fruits and small, slow-moving invertebrates including slugs and snails.

Bluetongues, particularly the young, are easy prey for suburban dogs and cats, foxes, and predatory birds like kookaburras. They can also be poisoned by eating slugs and snails that have consumed toxic snail bait.

Actions needed

Habitat creation and improvement

1.1 In locations within the biolink where there are relatively dry, open and sunny areas with minimal overhead tree canopy, establish areas of diverse understorey vegetation (aim to replicate understorey vegetation primarily associated with the EVC #127 Valley Heathy Forest), particularly tussocky grasses, sedges and berry-producing species with plenty of leaf litter, scattered logs and rocks (inc small rock piles).

1.2 In locations where there are steep slopes that are relatively dry, open and sunny, create rocky escarpments with interspersed plantings of tussocky grasses, sedges and berry-producing species.

Threat reduction

1.3 Encourage dog owners using off-lead areas (Peter Vergers Reserve and south-eastern oval of Mullum Mullum Reserve) to manage their dogs and ensure they remain in permitted areas only, and do not stray into bushland areas.

1.4 Encourage dog owners to keep their dogs on lead at all times when not in off-lead areas and Council's Animal Management Officers to conduct patrols for compliance with Council's on-leash requirements.

1.5 Fence all or parts of selected lizard habitat areas to exclude dogs.

1.6 Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.

1.7 Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.

1.8 Target fox control efforts around the open habitat patches.

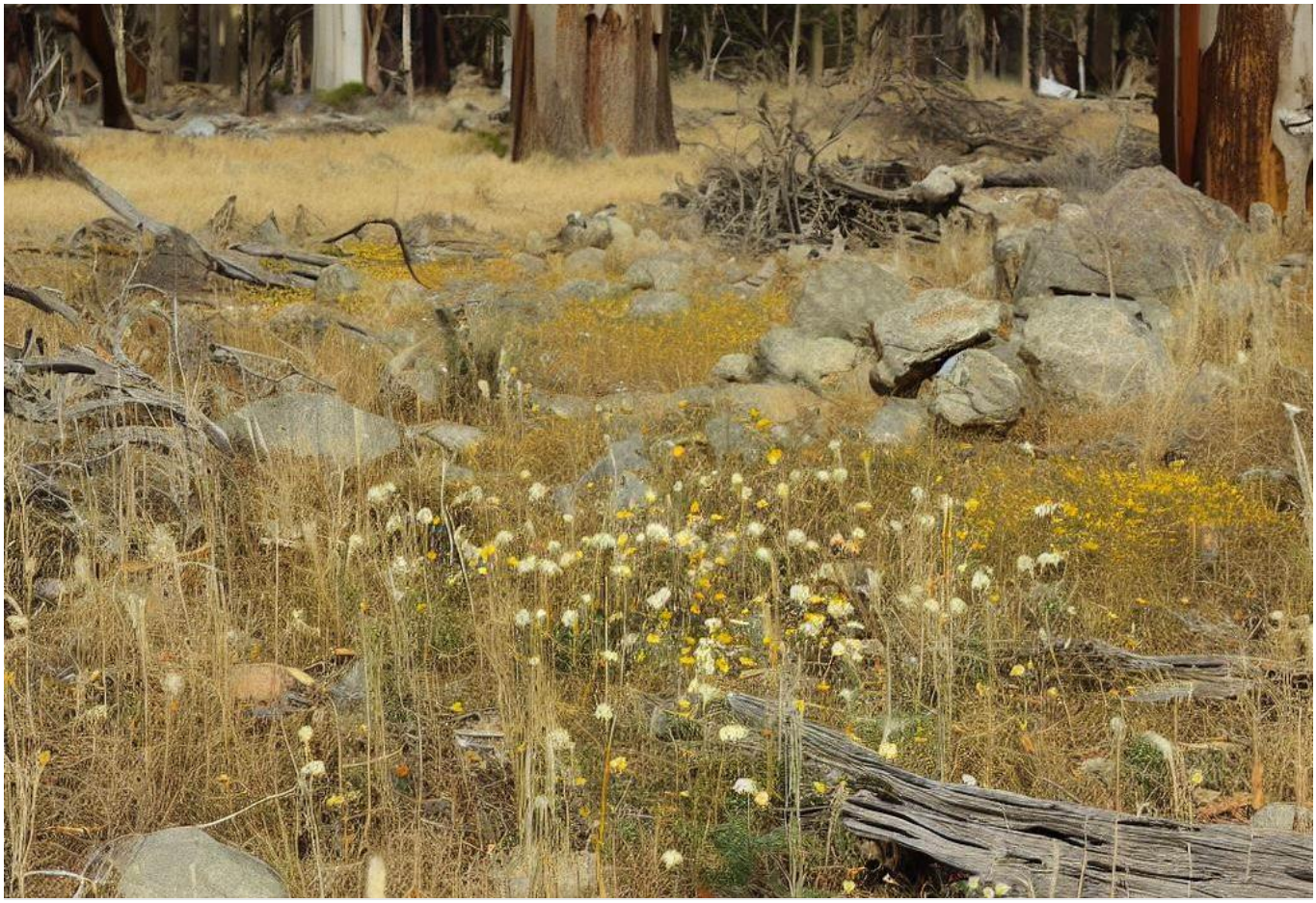
1.9 Encourage residents within the biolink to avoid using toxic snail baits in their garden, by using organic or physical alternatives if they are having issues with snails or slugs.

Other species likely to be served by these actions

These actions are also likely to serve other species including:

- Small reptiles such as Pale-flecked Garden Sunskink, Delicate Skink, Weasel Skink and Eastern Bluetongue Lizard.
- A wide range of invertebrates such as ants, worms, beetles, moths, butterflies, and spiders that in turn provide food for insectivorous species including microbats and many local birds such as thornbills and Superb Fairy-wren.
- Seed-eating bush birds such as Red-browed Finch and Common Bronzewing.
- Understorey plant species associated with the EVC #127 Valley Heathy Forest through establishment of new populations and improved opportunities for cross-pollination and seed dispersal.

Suitable habitat



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2. Golden Whistler (*Pachycephala pectoralis*)

Requirements

This species likes most indigenous wooded habitats, with a preference for areas with denser foliage that provides shelter, especially in tree canopies and in taller shrubs.

They need access to a reliable supply of food in the form of insects, spiders and other small arthropods that are picked from leaves and bark mostly from the lower or middle tree level. Berries are also eaten.

Within the biolink, the quality of much of the available habitat has been degraded due primarily to environmental weed species altering the vegetation structure and/or outcompeting and reducing the diversity of middle and ground storey species.

In Maroondah, they are likely to be at risk of predation from cats.

Actions needed

Habitat creation and improvement

2.1 In locations close to the creek itself, retain or create areas of open forest vegetation with diverse and relatively dense shrub and understorey layers, including berry producing species (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest, #83 Swampy Riparian Woodland, and #127 Valley Heathy Forest).

Threat reduction

2.2 Manage habitat-altering environmental weed species to restore habitat quality.

2.3 Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.

2.4 Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.

Other species likely to be served by these actions

These actions are also likely to serve other species including:

- Small and medium bush birds such as thornbills, robins, honeyeaters, fantails and pardalotes, as well as White-browed Scrubwren, Grey Shrikethrush and Grey Butcherbird.
- A wide range of invertebrates such as ants, worms, beetles, moths, butterflies, and spiders that in turn provide food for insectivorous species including microbats and many local birds.
- Plant species associated with the EVCs #18 Riparian Forest, #83 Swampy Riparian Woodland, and #127 Valley Heathy Forest through establishment of new populations and improved opportunities for cross-pollination and seed dispersal.

Suitable habitat

(Valley Heathy Forest (EVC #127) at Dublin Road Reserve, Ringwood)

3. Gang Gang Cockatoo (*Callocephalon fimbriatum*)

Requirements

The Gang Gang Cockatoo is an “altitudinal migrant” meaning that during spring and summer, it is mainly found at higher altitudes where they breed in tree hollows in tall mountain forests and woodlands, with dense shrubby understoreys. There have however been some reports of them successfully breeding at lower altitudes. In autumn and winter, they will move to lower altitudes into drier, more open forests and woodlands, and may be seen by roadsides and in parks and gardens of urban areas, where they forage for food.

They mainly feed in the tree canopy on seeds of native trees and shrubs, with a preference for eucalypts and wattles. They will also eat berries, fruits (including those of introduced fruiting shrubs such as cotoneaster and hawthorn), nuts and insects and their larvae. They mainly come to the ground only to drink.

Within the biolink, the quality of much of the available habitat has been degraded due primarily to environmental weed species altering the vegetation structure and/or outcompeting and reducing the diversity of middle and ground storey species. In Maroondah, they are likely to be at risk of predation from cats and foxes.

Actions needed

Habitat creation and improvement

3.1 Throughout the terrestrial parts of the biolink, retain, restore or create areas of open forest and woodland vegetation (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest, #83 Swampy Riparian Woodland, and #127 Valley Heathy Forest), incorporating indigenous eucalypts and wattles, with a scattering of berry and cone producing shrubs.

3.2 Enable access to water, for example by placing logs and branches to extend into the creek or wetlands in locations relatively secure from cats and foxes.

Threat reduction

3.3 Manage habitat-altering environmental weed species to restore habitat quality.

3.4 Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.

3.5 Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.

3.6 Target fox control efforts around high-quality habitat patches.

Other species likely to be served by these actions

These actions are also likely to serve other species including:

- Other large parrots and cockatoos such as King Parrot, Crimson Rosella, Galah and Yellow-tailed Black Cockatoo
- Small and medium bush birds such as thornbills, robins, honeyeaters, fantails and pardalotes, as well as White-browed Scrubwren, Grey Shrikethrush and Grey Butcherbird.
- A wide range of invertebrates such as ants, worms, beetles, moths, butterflies, and spiders that in turn provide food for insectivorous species including microbats and many local birds.
- Plant species associated with the EVCs #18 Riparian Forest, #83 Swampy Riparian Woodland, and #127 Valley Heathy Forest through establishment of new populations and improved opportunities for cross-pollination and seed dispersal.

Suitable habitat

(Riparian Forest (EVC #18) along Mullum Mullum Creek)

4. Sword-grass Brown *(Tisiphone abeona)*

Requirements

Sword-grass Browns inhabit open woodlands, and swampy and wetland habitats that support Saw Sedges (*Gahnia* spp). The adults are assumed to feed on nectar-producing plants that occur in these habitats, whereas their caterpillars feed exclusively on the Saw Sedges, with the Red-fruit Saw-sedge (*Gahnia sieberiana*) being a particularly favoured species.

This *Gahnia* species, however has not been recorded as naturally occurring within the Mullum Mullum Creek corridor, and it is unclear if the caterpillars feed on Thatch Saw-sedge (*Gahnia radula*) which does occur within the biolink.

Actions needed

Habitat creation and improvement

4.1 In low-lying areas within the biolink, particularly where EVCs Swampy Woodland (EVC #937), Swampy Riparian Woodland (EVC #83), and Swamp Riparian Complex (EVC #126) are thought to have occurred, plant or stimulate growth and spread of patches of *Gahnia* species, in particular Thatch Saw-sedge (*G. radula*), as part of restoring swampy vegetation.

4.2 Encourage the incorporation of Red-fruit Saw-sedge (*G. sieberiana*) into habitat creation in urban gardens and selected locations within the biolink.

4.3 In locations where they are lacking or in short supply, incorporate appropriate flowering species associated with the above-mentioned EVCs to provide food for the adult butterfly - eg Sweet Bursaria (*Bursaria spinosa*).

Other species likely to be served by these actions

These actions are also likely to serve other species including:

- Many invertebrates such as ants, worms, beetles, moths, butterflies (such as the Spotted Skipper and Donnysa Skipper) and spiders that in turn provide food for insectivorous species including microbats and many local birds.
- Small bush birds such as thornbills, honeyeaters and pardalotes, as well as Superb Fairy-wren and White-browed Scrubwren.
- Swampy plant species associated with the EVCs Swampy Woodland (EVC #937), Swampy Riparian Woodland (EVC #83), and Swamp Riparian Complex (EVC #126) through establishment of new populations and improved opportunities for cross-pollination and seed dispersal.

Suitable habitat

(Patch of Thatch Saw-sedge for illustrative purposes only)

5. Platypus (*Ornithorhynchus anatinus*)

Requirements

Platypus are semi-aquatic egg-laying mammals, and reliant on rivers, creeks and bodies of good quality freshwater. These waterways need to have relatively natural flow regimes that produce stable earthen banks, and indigenous riparian vegetation that provides shading of the water and cover near the banks.

Platypus feed mainly during the night, searching for a wide variety of mainly bottom-dwelling aquatic invertebrates (eg worms, insect larvae) in both slow-moving and rapid (riffle) parts of creeks. The presence of logs, twigs, leaf litter and roots, as well as instream cobbled or gravel substrate result in increased aquatic invertebrate fauna, and the Platypus also tends to be more abundant in areas with pool-riffle sequences.

When not foraging, the Platypus spends most of the time in its burrow in the earthen bank of the river, creek or pond. The burrow also serves as a nest for raising young. At times, individuals will use rocky crevices and stream debris as shelters, or they burrow under the roots of vegetation near the stream.

Platypus need to be able to move up and down stream in search of food, to search for a mate during the breeding season, and for young to disperse to find their own home territory. During periods of low rainfall/low creek flows there needs to be one or more suitable ‘drought refuge pools’ of permanent water that provide a reliable supply of food and shelter during dry spells.

According to the Atlas of Living Australia, Platypus have been recorded relatively recently in the downstream reaches of the Mullum Mullum Creek in Manningham, but only once (in 2015) in the section of creek within Maroondah.

The catchment of the Mullum Mullum Creek in Maroondah is highly urbanised with high levels of impervious surfaces (roofs, roads, etc.) that directly drain falling rain into the creek via stormwater pipes. As a result, periods of high rainfall result in large volumes of water flowing at speed into and along the creek causing erosion, destabilising creek banks and flushing out aquatic plants and invertebrates, particularly further downstream where the creek flows through Manningham. This runoff can also carry with it sediment, litter, and pollutants such as grease, oils and metals arising from roads and roofs that degrade water quality in the creek and can impact on Platypus and other species, including their food sources.

Given its close proximity to the creek and the nature of the businesses there, stormwater runoff from the Maroondah Highway Employment Precinct (that includes many new and used car sellers and repairers) between Maroondah Highway and the creek has a high potential to carry a wide range of pollutants into the creek. Many of these businesses are presumed to have washdown areas that are required to have triple interceptor traps to prevent grease, fat, oil, silt, sand, sludge and other substances from entering the sewer system. Interceptor traps that are not well maintained are likely to be result in some of these pollutants being washed into the creek. The Ringwood Metropolitan Activity Centre with its high concentration of retail, commercial and entertainment businesses, and the associated carparking, is also likely to be a significant source of stormwater-carried pollutants including litter but does have a series of litter traps designed to prevent much of these entering the creek.

Similarly, Eastlink and the Ringwood Bypass have stormwater treatment wetlands designed to treat run off from these major roads before it enters the creek.

Various pollutants can also arise from accidental spills and other isolated sources and causes and be transported into the creek by stormwater.

The quality of much of the riparian vegetation has been degraded due primarily to environmental weed species altering the vegetation structure and/or outcompeting and reducing the diversity of middle and ground storey species.

In Maroondah, Platypus are very likely to be at risk of predation from dogs and foxes, and to a lesser extent, cats. Other risks include entanglement in litter items and being entrapped in illegal yabby/fish traps (ie 'opera house' traps)

Actions needed

Creek navigability

5.1 Assess the feasibility for platypus to access the full length of the creek to identify any obstacles and barriers to movement up and down the creek and recommend solutions.

5.2 Where identified as feasible, remove/replace/modify culverts and other instream barriers (eg weirs) so they are readily traversable (minimum internal diameter of 250 mm, stepped or slanted entry/exit structures (ideally < 30^{o}), baffles and textured or uneven floor surfaces to reduce flow velocities and improve grip, vertical-slot fishways designed to enable medium-to-large fish to travel past weir walls can be utilised for the same purpose by platypus - ie with apertures at least 150 mm, water depth along the length of a fishway at least 200-300 mm)

Habitat creation and improvement

5.3 Undertake a technical investigation (this investigation could be combined with the assessment of navigability outlined above) to identify viable locations where:

a. creating one or more instream or offline drought refuge pools is feasible.
b. there is potential to convert hardened creek edges (ie rock, concrete) to stable earthen banks.
c. there is potential to widen and/or deepen the creek channel.
d. there is potential to add rock weirs to create a series of pools and riffles without negative implications for flows and flood management.
e. instream habitat is poor, and habitat elements (stony substrates, aquatic vegetation, large woody debris) could be added.
f. the addition of creek side riparian vegetation is needed.

5.4 Create refuge pool/s at one or more identified viable locations, based on achieving attributes of ~80m long, 500m2 surface area, 1-4m deep, steep and stable earthen banks, instream aquatic vegetation, overhanging indigenous tree and shrub vegetation, reliable volumes and quality of incoming water, little or no artificial light spill.

5.5 In suitable locations close to the creek itself, retain, restore or create areas of open forest vegetation with diverse and relatively dense shrub and understorey layers following the Australian Platypus Conservancy guidelines to shade the water and provide shelter, leaf drop, bank stability, etc. (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest and #83 Swampy Riparian Woodland).

5.6 Where feasible, install numerous rock "weirs" to create a series of pools and riffles along the entire length of the creek.

5.7 Gather information on the nature and extent of macroinvertebrate populations along the creek and improve instream habitat as needed to ensure there is an ongoing food supply available.

5.8 Where practical and feasible, add instream aquatic vegetation, and potentially cobbled or gravel substrate, to sections of the creek where it is noticeably absent.

Threat reduction

5.9 Manage habitat-altering environmental weed species to restore riparian habitat quality.

5.10 Avoid creating, and remove where possible, hard creek edges (rock/concrete) to create relatively stable earthen creek banks.

5.11 Undertake a specialised investigation of the wider creek catchment that:

a. identifies opportunities to slow flows, increase soil infiltration and improve quality of stormwater runoff.
b. estimates the number, size, location and type of stormwater treatments needed in the catchment to restore near natural flows and water quality in the creek:
    - at property scale (eg rainwater tanks, rain gardens).
    - at street scale (eg water sensitive urban design (WSUD) streets)
    - at sub-catchment scale, eg:
        - stormwater harvesting (capture, treatment and reuse of stormwater where there is a suitably sized catchment above and a nearby suitable demand for non-potable water such as sports field irrigation. Location considerations include Yarra Valley Grammar, Mullum Reserve, Ainslie Park and East Ringwood Reserve).
        - stormwater detention that can slow peak flows and enable more water to soak into the soil. Location considerations include Lipscombe Park and Maroondah Highway Employment Precinct
        - sediment traps and treatment wetlands that remove pollutants and provide wetland habitat. Location considerations include Peter Vergers Reserve and Ringwood Lake.
c. assesses the feasibility and estimated cost of implementing the identified mix of treatments.

5.12 Based on the findings of the above, introduce planning controls in the urbanised catchment area that maximise pervious surfaces, require WSUD treatments and/or development contributions to support larger scale stormwater treatments.

5.13 Liaise with the Environment Protection Authority to deliver an education program and inspection of businesses in the Maroondah Highway Employment Precinct for understanding of and adherence to sewer connection requirements, including the effective functioning of interceptor traps, and penalise ongoing breaches accordingly (potentially after an amnesty period that provides adequate time to rectify breaches).

5.14 Identify and document the location, maintenance responsibilities and minimum maintenance requirements of all known stormwater treatment wetlands, litter traps and gross pollutant traps, and ensure they are managed and maintained to best practice standards.

5.15 Encourage dog owners using off-lead areas (Peter Vergers Reserve and south-eastern oval of Mullum Mullum Reserve) to manage their dogs and ensure they remain in permitted areas only, and do not stray into bushland areas.

5.16 Encourage dog owners to keep their dogs on lead at all times when not in off-lead areas and Council's Animal Management Officers to conduct patrols for compliance with Council's on leash requirements.

5.17 Fence area around refuge pools to exclude dogs (ensure does not impede high flows and is readily maintainable).

5.18 Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.

5.19 Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.

5.20 Target fox control efforts around the refuge pools.

5.21 Avoid use of artificial lighting around the refuge pools.

Other species likely to be served by these actions

These actions are also likely to serve other species including:

- Aquatic/semi-aquatic vertebrates such as Rakali, Common Galaxias, Climbing Galaxias, Southern Shortfin Eel and Eastern Long-necked Turtle.
- Many aquatic-breeding invertebrates such as yabbies, dragonflies, water beetles, worms and true bugs that in turn provide food for other species including waterbirds.
- Plant species associated with the EVCs #18 Riparian Forest and #83 Swampy Riparian Woodland, as well as aquatic species, through establishment of new populations and improved opportunities for cross-pollination and seed dispersal.

Suitable habitat

(*Image of pool and riffle for illustrative purposes only*)

6. Powerful Owl (*Ninox strenua*)

Requirements

The Powerful Owl is Australia's largest owl species, a nocturnal predator that can be found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses in eastern Australia. It is an opportunistic, nocturnal hunter that preys mainly on medium to large tree-dwelling mammals, particularly the Eastern Ringtail Possum and Sugar Glider.

They roost by day, perched on a large branch in the shade of dense mid-storey or tree canopy foliage, often with the previous night's prey held in its talons. Riparian eucalypts and Blackwood Wattles are often used, however non-indigenous trees (pines, oaks, willows) are sometimes used, provided they have dense canopy foliage.

Their main prey species require well-connected canopy to limit the need to come to ground where they are vulnerable to predation from introduced predators, as well as tree hollows for shelter and breeding. In the case of the Eastern Ringtail Possum, densely foliaged tall shrubs (such as Sweet Bursaria) are favoured for building their dreys (communal nests). With substantial populations of possums now occurring in built-up areas, Powerful Owls are increasingly being recorded in the suburbs, including recent records in and close to Maroondah.

The availability of prey and suitable habitat are the main influencers of the extent of their home range, along with the availability of a suitable nesting hollow. They typically nest in a large vertical hollow high up in a large old living eucalyptus tree, typically located within a densely treed gully.

Within Maroondah, there are likely to be very few (if any) naturally occurring tree hollows suitable for nesting, so although there is limited evidence of successful utilisation, artificial hollows may still offer the best available alternative.

Indirect ingestion of rat poisons through their prey (second generation anticoagulant rodenticides are especially toxic and more persistent in organs of the poisoned animal) is also another possible threat, although rats don't make up a large part of their diet, and possums are unlikely to take rat baits in large quantities.

Actions needed

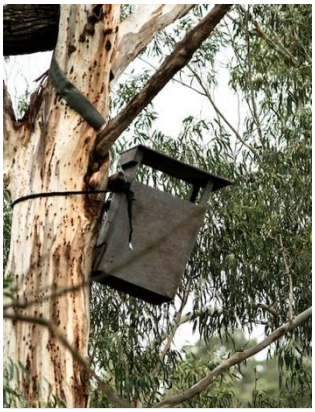
Habitat creation and improvement

6.1 Retain, restore and create stands of large indigenous trees to create wide (up to 50 metres) and largely continuous corridor of canopy and mid-storey foliage, incorporating a mix of eucalypts and Blackwood (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest and #83 Swampy Riparian Woodland).

6.2 Ensure tree spacing allows for growth of wide canopies with large horizontal branches for roosting, and in the long term, hollow creation following branch drops.

6.3 Install suitably sized artificial hollows (eg nest boxes (timber or 3D printed), chainsaw hollows, salvaged tree sections with hollows (dimensions - internally 70-150cm deep, 40-50cm wide, with 150-300mm wide entrance hole, mounted at least 10 metres above the ground) in a large, healthy living tree with good canopy foliage, located within existing stands of established large trees. Consideration should be given to including the ability to safely monitor use and occupation from the ground (eg internal camera).

Powerful Owl nest box designs



Timber construction

Salvaged hollow tree section

3-D printed

6.4 For their prey, retain and protect hollow bearing trees, and retain and/or create dense stands of tall indigenous midstorey habitat including prickly shrub species, whilst balancing the need for more open and unshaded understorey vegetation that provides habitat for other species.

6.5 For their prey, also use large-canopied indigenous tree species as street trees to improve canopy connectivity, especially over roads that cut across the biolink.

Threat reduction

6.6 Deliver an education program to discourage the use of second-generation rodenticides within the biolink.

6.7 Gradually remove large tree species considered to be weedy (eg pines and willows) in a staged manner and replace with large indigenous tree species. Prior to any removals check for current use as roosting sites.

Other species likely to be served by these actions

These actions are also likely to serve other species including:

- Larger forest birds such as cockatoos, Brown Goshawk, Southern Boobook, Tawny Frogmouth, Fan-tailed Cuckoo, Laughing Kookaburra and Black-faced Cuckooshrike.
- Arboreal mammals such as Sugar Glider, Common Brushtail Possum and Eastern Ringtail Possum (although these are also likely to form much of the diet of the Powerful Owl!).
- Plant species associated with the EVCs #18 Riparian Forest and #83 Swampy Riparian Woodland through establishment of new populations and improved opportunities for cross-pollination and seed dispersal.

Suitable habitat

(Large Manna Gums on Mullum Mullum Creek)

7. Spotted Marsh Frog (*Limnodynastes tasmaniensis*)

Requirements

Spotted Marsh Frogs inhabit dams, roadside ditches, marshy areas, flooded grasslands, streams and ponds with grassy areas, sheltering in cracks in the ground, burrows made by other small animals, beneath logs or rocks, or in dense ground vegetation, near the edge of temporary or permanent water.

Adult frogs are ground dwelling hunters, and mostly active during the night, hunting insects, spiders and other invertebrates. Tadpoles feed in the water, mainly on algae and other plant life, and occasionally (typically dead) invertebrates.

They breed mainly during spring and autumn, but also in winter or summer after heavy rains. Eggs are laid as a foamy mass on the surface of a small temporary or permanent water body, and as the tadpoles take around three and a half months to develop into frogs, the water bodies they float their eggs on need to retain water for at least that long.

A shortage of small and/or ephemeral wetlands suitable for habitat and breeding is likely to be a limiting factor for their distribution across Maroondah. Predation on eggs and tadpoles from the introduced Eastern Mosquitofish (*Gambusia holbrooki*) is likely to be a significant threat. Predation on adults by kookaburras and larger waterbirds is expected and natural, however adults are also likely to be taken by foxes, cats and dogs.

Actions needed

Habitat creation and improvement

7.1 In locations within the biolink where there are lower-lying or poorly drained, open and sunny areas with minimal overhead tree canopy, create a series of small and medium sized permanent and semi-permanent habitat wetlands with the following characteristics:

- Aim to have 50-100cm depth at deepest point with over 50% submerged and 20-40% floating/emergent, indigenous aquatic vegetation cover, and gently sloping edges and terracing providing a variety of depths supporting emergent and semi-aquatic fringing wetland vegetation.
- Within the surrounding 10 metres, ensure overshadowing canopy and shrubby vegetation is kept to a minimum, and provide 10-20% cover of logs and rocks.
- If a wetland is also expected to provide a sediment trapping function design them to enable desilting (and draining to control Mosquitofish), with minimal disturbance to its ongoing habitat function.
- ideally space wetlands within 500m (and no more than 1000m) of each other.

7.2 Encourage the creation of frog bogs/small habitat wetlands or ponds in private residential gardens within the biolink.

Threat reduction

7.3 Encourage dog owners using off-lead areas (Peter Vergers Reserve and south-eastern oval of Mullum Mullum Reserve) to manage their dogs and ensure they remain in permitted areas only, and do not stray into bushland areas.

7.4 Encourage dog owners to keep their dogs on lead at all times when not in off-lead areas and Council's Animal Management Officers to conduct patrols for compliance with Council's on leash requirements.

7.5 Fence selected habitat wetland areas to exclude dogs.

7.6 Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.

7.7 Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.

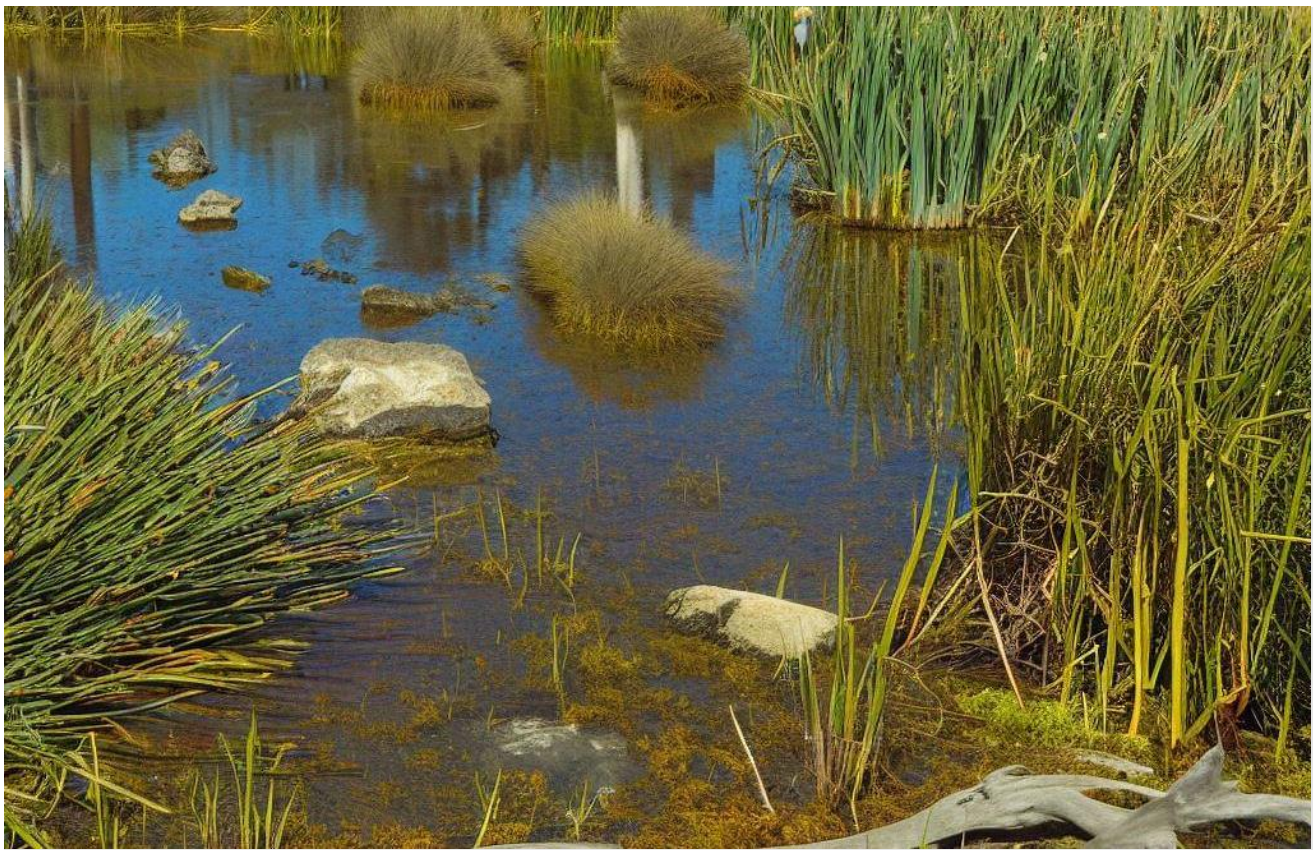
7.8 Target fox control efforts around selected wetland habitat areas.

Other species likely to be served by these actions

These actions are also likely to serve other species including:

- Other frog species such as Southern Banjo Frog and Verreaux's Tree Frog.
- Wetland birds such as White-faced Heron, Buff-banded Rail, Eastern Great Egret and Nankeen Night-Heron.
- Species that regularly prey on frogs and tadpoles such as larger waterbirds, Laughing Kookaburra, Rakali, fish, larger reptiles (including snakes) and predatory invertebrates.
- Many aquatic invertebrates such as dragonflies, water beetles, worms and true bugs that in turn provide food for other species including waterbirds, and potentially the rare shrimp *Koonunga cursor* (originally described from a specimen found at 'Mullum Mullum Creek at Ringwood').
- Aquatic and semi-aquatic wetland plant species through establishment of new populations and improved opportunities for cross-pollination and seed dispersal.

Suitable habitat



(AI-generated image - for illustrative purposes only)

Actions to support the biolink

8. General actions to support the biolink

There are several additional actions that aim to support the function of the biolink in general, such as making streets and residential properties more wildlife-friendly, including:

8.1 Manage existing planted and remnant indigenous vegetation patches to optimise their habitat value, primarily through managing environmental weed species to improve vegetation structure, species diversity and habitat quality.

8.2 Incorporate the use of suitable indigenous species into street tree replacement planning along street sections that fall within the biolink.

8.3 Incorporate water sensitive urban design features into street renewal projects that fall within the biolink.

8.4 On residential properties within the biolink, encourage residents to create habitat in their gardens with information, advice and support provided through participation in Council's Nature Havens* program.

8.5 Facilitate the creation and ongoing maintenance of understorey habitat on nature strips within the biolink, such as creating planting plan templates for interested landowners that meet Council's permit requirements (a suitable planting plan and permit from Council are required).

8.6 Design public lighting, especially lighting of shared trails, to be wildlife-friendly by minimising light spill and potential impacts on nearby habitats without reduction in public safety.

8.7 Through pre-application meetings and internal referrals to Environmental Planning, encourage elements of new developments to contribute to the functioning of the biolink (eg indigenous landscaping).

8.8 Introduce planning and development controls (eg an Environmental Significance Overlay over the entire biolink) that:

a. encourages new developments adjacent to the public creek reserve to face the creek rather than turn their back on it (incorporating design templates).
b. requires large setbacks from the creek reserve and landscaping with indigenous plant species that mimic the relevant EVCs.
c. encourages building and landscaping designs that contribute to the biolink function (eg biodiverse green roofs, indigenous landscaping design templates, incorporation of artificial hollows).
d. protects the biolink from future development and construction that may impact on its function.
e. collects development contributions to support larger scale stormwater treatments.

**Nature Havens is a Council program that supports Maroondah residents to make their gardens more wildlife friendly by creating habitat 'stepping stones' for native animals such as birds, insects, lizards and small mammals. The program includes on-site advice and guidance from Maroondah's Bushland Management team and a Nature Havens garden report including recommendations specific to your garden and a list of indigenous plants suitable to your garden and to the wildlife you'd like to attract.*

Creating understorey habitat on nature strips (illustrative example)

Proposed actions to sustain the biolink

9. Management and maintenance actions to sustain the biolink

The existing and newly created habitats, and efforts to reduce threats, described in the preceding sections will require ongoing management and maintenance actions in order to sustain the biolink as a functioning habitat corridor for the long term.

Managing and maintaining public land

Public land comprises much of the core parts of the Mullum Mullum Creek Biolink, however its ownership and responsibilities for management are complex. This includes:

- Maroondah City Council owns and manages 32 land parcels covering 33.3 hectares.
- The Department of Energy, Environment and Climate Action (DEECA, formerly Department of Environment Land Water and Planning) own 18 land parcels covering 20.4 hectares (unreserved Crown land).
- Between them, the Department of Education, VicTrack, the Department of Families, Fairness & Housing, and the Department of Transport own and manage another 13 land parcels covering 19.5 hectares.
- Melbourne Water have management responsibilities for the 'bed and banks' of the Mullum Mullum Creek (including fish/platypus passageways).

Responsibilities for maintaining Council-owned land are spread across several teams:

- Council's Bushland Team manages and maintains indigenous vegetation, trees and habitat creation and management, WSUD stormwater treatment measures, targeted fox control measures, community engagement and volunteer support (including the Nature Havens program).
- Council's Parks Maintenance Team manages and maintains areas of mown grass and nature strips (including the permit process for planting on nature strips).
- Council's Tree Maintenance Team manages and maintains street and park trees.
- Council's Engineering Team manages and maintains renewal and maintenance of roads and drainage infrastructure.
- Council's Assets Team manages and maintains trails, playgrounds, furniture, signs and other built assets, and also has responsibilities for open space and capital works planning.
- Council's Local Laws team implement the new Community Local Law 2023 - that includes regulations for managing cats and dogs.

The DEECA-owned land is unreserved Crown land meaning it has not been set aside for a particular public use. DEECA do not maintain this land and as a result this land receives a minimal level of maintenance from Maroondah City Council by default.

DEECA have expressed interest in Maroondah City Council taking on the role of Committee of Management for their unreserved Crown land within the biolink meaning it could be reserved for a particular public use (eg to serve the biolink).

Maroondah Council's Bushland Team has indicated it would be prepared to take on the role of Committee of Management for this land provided commensurate resources for ongoing habitat creation, management and maintenance were made available (and which DEECA say they are unable to provide).

The Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation have an established Natural Resource Management (NRM) team, referred to as the Narrap Team, to support their aspiration of working on Country.

Bushfire risk

The CFA have assessed there is a low risk of bushfire within the biolink due to several factors:

- the biolink shape and its position in the landscape (largely urbanised).
- there has been no record of bushfire in the area for the past 50 years.
- the area is not listed in the Victoria Fire Risk Register.
- the network of trails, roads, and mown grassy areas provide discontinuity of fuels and numerous access options that in the event of a fire starting would limit fire spread and support suppression efforts.

Actions aimed at creating new habitat (ie revegetation) should seek to maintain this low level of bushfire risk by ensuring new areas of vegetation retain sufficient discontinuity of fuels, and avoid butting up to adjacent property fencing.

9.1 Provided additional, specialist staff resources are made available on an ongoing basis, Maroondah City Council take on the role of Committee of Management for the unreserved Crown land within the Mullum Mullum Creek Biolink to serve the functioning of the biolink.

9.2 With the creation of substantial new areas of indigenous vegetation and habitat identified through this plan, and the unique and complex nature of managing waterways and wetlands, one or more specialised waterway biolink positions be added to Council's Bushland Team specifically to maintain riparian, semi-aquatic and wetland vegetation and habitats on public land within the Mullum Mullum Creek Biolink and along other waterways within Council's responsibility.

9.3 Create a role within Council to coordinate all actions associated with creek-based biolinks and liaise with relevant external agencies.

9.4 When opportunities arise, engage the Wurundjeri Narrap Team to help maintain the Mullum Mullum Creek Biolink.

Managing and maintaining private land

Private residential land

9.5 Residents within the biolink that have, or wish to create, habitat in their gardens to be provided with information, advice and support upon request through Council's Nature Havens program.

Yarra Valley Grammar

The bushland reserve at Yarra Valley Grammar is a significant and valuable area of habitat within the biolink.

9.6 Yarra Valley Grammar to initially seek advice on managing bushland from Council's Bushland Team.

9.7 Yarra Valley Grammar to explore options for ongoing specialist management of their bushland to protect and optimise its habitat values.

Eastland

Eastland owns and manages a narrow strip of land between the shopping centre and the creek reserve.

9.8 Eastland to pursue options for improving and maintaining the habitat values of their land, particularly for lizards and other small ground dwelling fauna.

Maroondah Highway Employment Precinct

9.9 Ensure future development of the Maroondah Highway Employment Precinct incorporates measures to:

a) protect existing habitat within the precinct.
b) incorporate Water Sensitive Urban Design (WSUD) features that enable stormwater flows (from the precinct, as well as the wider catchment) to be slowed, pollutants removed, and soil infiltration increased before it reaches the creek.
c) contribute to the biolink by creating habitat patches that build on and extend from adjacent habitat - eg landscaping that provides habitat values (terrestrial and wetland), incorporate biodiverse green (and blue) roofs into design of new buildings.

EastLink (ConnectEast)

As part of their lease arrangements, ConnectEast manages over 480 hectares of open space landscaping along the EastLink corridor from Springvale Road to the Frankston Freeway, including along the Ringwood Bypass.

9.10 ConnectEast to maintain and establish landscaping along the Ringwood Bypass area and adjacent Mullum Mullum Creek within EastLink's lease boundary to provide more habitat opportunities (without increasing the risk of exposing flora and fauna to threats posed by proximity to vehicular traffic).

Managing and maintaining threat prevention measures:

Private residential land

9.11 Council's Bushland Team, Local Laws and Communications and Engagement Teams to design and deliver community education programs around the use of snail and rat baits, and the need to keep dogs on leads and cats indoors.

Maroondah Highway Employment Precinct

9.12 Individual businesses within the Maroondah Highway Employment Precinct to maintain their washdown areas, interceptor traps and other legally required pollution prevention measures to the minimum required standards**.**

9.13 Individual businesses within the Maroondah Highway Employment Precinct to manage employee and contractor understanding and behaviours to prevent pollutants being added to stormwater drains.

9.14 EPA to provide education services on environmental duty of care and follow up compliance inspections and reporting of businesses within the Maroondah Highway Employment Precinct.

EastLink (ConnectEast)

ConnectEast has responsibility for maintaining 63 stormwater runoff treatment facilities along the length of EastLink. Quarterly inspections are assessed against a strict Code of Maintenance Standard to ensure best-practice operation and maintenance of these facilities. Two treatment wetlands are located within the Mullum Mullum Creek Biolink and treat runoff before it enters the creek.

9.15 ConnectEast to ensure regular inspection, maintenance and reporting of the two stormwater runoff treatment wetlands located within the biolink.

Eastland

9.16 Eastland to ensure regular inspection, maintenance and reporting of their litter traps.

Coordinating, monitoring and driving action

9.17 Establish a Mullum Mullum Creek Biolink Action Plan oversight group to:

a) Monitor and report on progress with implementing actions
b) Help resolve issues with action delivery
c) Regularly review and reassess priorities
d) Identify and agree on proposed new actions (consistent with achieving the vision)
e) Track agreed measures of success
f) Identify opportunities to promote progress and successes
g) Oversee a review of the action plan after 5 years

Actions to connect the community to the biolink

10. Promotional, learning and engagement actions to connect people to the biolink

Critical to sustaining the biolink as a functioning habitat corridor for the long term are the connections people make with the biolink and the breadth of support from the community. The biolink will need to be understood, valued and actively cared for by many sectors of the community requiring actions that build community awareness and understanding of its purpose and values, engage people in experiencing it, and provide opportunities to actively contribute to and care for it.

Key to people accessing and experiencing the biolink is the Mullum Mullum Creek Trail and its numerous offshoots and connecting trails. The Mullum Mullum Creek Main Trail has been identified as a strategically important link in the Maroondah Principal Pedestrian Network and the Victorian Strategic Cycling Corridor Network.

10.1 Create learning opportunities for students of Yarra Valley Grammar:

Design environmental studies programs with a focus on the school's bushland reserve, potentially incorporating:

a) Collecting data on the reserve's flora and fauna.
b) Monitoring of owl nest box use.
c) Engaging external ecological expertise and educational programs.

10.2 Create learning opportunities for people using the trails through the biolink:

a) Refresh (or replace) the existing cultural heritage interpretive trail (eg update existing signage, refresh yarning circle space, link to interpretive brochures and/or story telling through audio guides). Involve Wurundjeri in selecting the themes and drafting the content, and options for artwork to be incorporated into their design.
b) Incorporate Wurundjeri art, language, stories and other cultural elements into wayfinding signage along the trails.
c) Add interpretive signage and audio guides to existing trails that provide information on habitats, flora and fauna (including the focal species), and ecology of the biolink (eg linked with wayfinding signage at trail entry points).
d) Create creek nature viewing areas (eg a hide to overlook but not disturb, a platypus refuge pool)
e) Incorporate public art installations that feature elements of the biolink.
f) Investigate options for separating faster moving trail users (eg runners and commuting cyclists) from slower moving users such as alternative trails and offshoots to points of interest and/or rest places.

10.3 Create learning opportunities for people living within the biolink:

a) Prepare and distribute promotional material about the benefits of creating habitat in gardens, and the offer of information, advice and support from Council's Nature Havens program.
b) Deliver community education programs around use snail and rat baits, and the importance of keeping dogs on leads and cats indoors.

10.4 Create learning opportunities for people visiting the biolink:

a) Design and deliver community events and activities in the biolink that showcase, celebrate and help people learn about the creek, the biolink and its biodiversity (potentially through reinvigoration of the Mullum Mullum Festival and/or the Friends of Mullum Mullum Valley).
b) Design and deliver community events and activities in the biolink that showcase, celebrate and demonstrate Indigenous/Wurundjeri culture, language, stories, people and practices - Involve Mullum Mullum Indigenous Gathering Place and Wurundjeri in designing activities and events that utilise the yarning circle and other locations in the biolink.

10.5 Create opportunities for people from across Maroondah and beyond to contribute to sustaining the biolink:

a) Provide support to volunteers wishing to help build and maintain the biolink.
b) Provide citizen science opportunities for data collection and monitoring of different aspects of the biolink - for example observations of flora and fauna using the biolink (including the focal species), water quality, water sampling for eDNA testing.
c) Deliver photography competitions, “treasure hunts”, or similar that focus on, highlight and help promote elements of the biolink.

10.6 Promote the biolink to raise awareness, and build community support and involvement:

a) Establish a Council webpage dedicated to the Mullum Mullum Creek biolink, including information on:
    i. this action plan, its vision and the stakeholders who developed it.
    ii. updates on the progress of actions in the plan.
    iii. observations of flora and fauna - especially focal species.
    iv. community activities and events focused on the biolink.
    v. volunteering opportunities, including Nature Havens program.
    vi. volunteer groups actively involved in maintaining the biolink.
    vii. how this biolink will connect to other biolinks and habitat outside of Maroondah.

Appendix 1 - Key stakeholder group

A key stakeholder group was formed to guide action planning for the Mullum Mullum Creek Biolink.

Group members agreed to take a collaborative approach and contribute their knowledge, skills, influence, and other resources to:

- establish an agreed, shared vision for the Mullum Mullum Creek Biolink
- identify a small number of focal species that collectively if their needs are met then the needs of many more species will also be met
- identify and agree on, a suite of documented actions that will enable the biolink to function effectively as a habitat corridor, as well as provide other secondary benefits to the Maroondah community
- promote and encourage wide and active support for the agreed vision and action plan through group member networks and communication channels.

The stakeholder group also acknowledge the Traditional Owners:

The Mullum Mullum Creek Biolink forms part of the Traditional Country of the Wurundjeri Woi-wurrung people of the Kulin Nation. We acknowledge and respect their ongoing connection to, and culture of caring for, Country. We pay our respect to Elders past, present and emerging, and seek to honour their custodianship of its land, water, plants, and animals in creation of the Mullum Mullum Creek Biolink.

Key stakeholder group organisations

Melbourne Water **Department of Environment, Land, Water and Planning** **ConnectEast/Eastlink** **Eastland** **Commercial landowners, Maroondah Highway** **Yarra Valley Grammar**	**Community organisations** • *CRISP Nursery, Friends of Mullum Mullum Valley* • *Mullum Mullum Festival* • *Mullum Mullum Indigenous Gathering Place* • *Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation* **Maroondah City Council** • *Coordinator Strategic Planning and Sustainability* • *Strategic Environmental Planner* • *Team Leader Bushland Management* • *Team Leader Tree Maintenance* • *Team Leader Parks and Open Space* • *Team Leader Environmental Planning* • *Integrated Water Engineer* • *Asset Planner (Open Space)* • *Bushland Revegetation and Community Supervisor* • *Bushland Revegetation and Community Officer* • *Director Strategy and Development*

Appendix 2 - Engagement species

The advisory group who supported development of the Maroondah Habitat Connectivity Plan 2021 also agreed on a suite of 'engagement species'.

The purpose of having a suite of 'engagement species' is to provide a focus for communications and engagement around building support for creating biolinks in Maroondah.

The advisory group agreed on a suite of 23 fauna species as a mix of species that:

- represent different faunal groups (i.e. birds, reptiles, frogs, mammals, fish, insects, etc.).
- are associated with different habitats found in Maroondah (ie forests/woodlands, riparian, wetlands, creeks etc).
- have a high likelihood of being increasingly observed in more parts of Maroondah following connectivity improvement.
- represent a range of 'commonness' and/or conservation significance.
- could be potential indicators of ecosystem health and function, and/or connectivity improvement success.
- have a high likelihood of being present within or adjacent to the City of Maroondah
- are species that people would take delight in encountering, be relatively easily observed, and that people won't see as 'problematic'.
- six flora species were also added to complete the list.

The 'Engagement species' are:

Common name	**Scientific name**	**Common name**	**Scientific name**
Blotched Bluetongue Lizard	*Tiliqua nigrolutea*	Powerful Owl	*Ninox strenua*
Buff-banded Rail	*Gallirallus philippensis*	Prickly Moses	*Acacia verticillata*
Bulbine Lily	*Bulbine bulbosa*	Rakali (Australian Water Rat)	*Hydromys chrysogaster*
Common Blue-banded Bee	*Amegilla cingulata*	Red-browed Finch	*Neochmia temporalis*
Common Galaxias	*Galaxias maculatus*	Short-beaked Echidna	*Tachyglossus aculeatus*
Eastern Spinebill	*Acanthorhynchus tenuirostris*	Southern Short-fin Eel	*Anguilla australis*
Eastern Yellow Robin	*Eopsaltria australis*	Spotted Marsh Frog	*Limnodynastes tasmaniensis*
Gang Gang Cockatoo	*Callocephalon fimbriatum*	Krefft's Glider	*Petaurus notatus*
Glossy Grass Skink	*Pseudemoia rawlinsoni*	Superb Fairy-wren	*Malurus cyaneus*
Golden Whistler	*Pachycephala pectoralis*	Sword-grass Brown	*Tisiphone abeona*
Grey Parrot Pea	*Dillwynia cinerascens*	Tawny Frogmouth	*Podargus strigoides*
Kangaroo Grass	*Themeda triandra*	Victorian Smooth Froglet	*Geocrinia victoriana*
Kidney Weed	*Dichondra repens*	White Stringybark	*Eucalyptus globoidea*
Laughing Kookaburra	*Dacelo novaeguineae*	White-striped Mastiff Bat	*Austronomus australis*
Platypus	*Ornithorhynchus anatinus*		

Appendix 3 - Full list of actions

The full complement of actions articulated in this draft action plan are listed here in a table.

Proposed actions for creating the Mullum Mullum Creek Biolink

1. Actions to meet the needs of the Blotched Bluetongue Lizard	
1.1	In locations within the biolink where there are relatively dry, open and sunny areas with minimal overhead tree canopy, establish areas of diverse understorey vegetation (aim to replicate understorey vegetation primarily associated with the EVC #127 Valley Heathy Forest), particularly tussocky grasses, sedges and berry-producing species with plenty of leaf litter, scattered logs and rocks (inc small rock piles).
1.2	In locations where there are steep slopes that are relatively dry, open and sunny, create rocky escarpments with interspersed plantings of tussocky grasses, sedges and berry-producing species.
1.3	Encourage dog owners using off-lead areas (Peter Vergers Reserve and south-eastern oval of Mullum Mullum Reserve) to manage their dogs and ensure they remain in permitted areas only, and do not stray into bushland areas.
1.4	Encourage dog owners to keep their dogs on lead at all times when not in off-lead areas and Council's Animal Management Officers to conduct patrols for compliance with Council's on-leash requirements.
1.5	Fence all or parts of selected lizard habitat areas to exclude dogs.
1.6	Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.
1.7	Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.
1.8	Target fox control efforts around the open habitat patches.
1.9	Encourage residents within the biolink to avoid using toxic snail baits in their garden, by using organic or physical alternatives if they are having issues with snails or slugs.
2. Actions to meet the needs of the Golden Whistler	
2.1	In locations close to the creek itself, retain or create areas of open forest vegetation with diverse and relatively dense shrub and understorey layers, including berry producing species (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest, #83 Swampy Riparian Woodland, and #127 Valley Heathy Forest).
2.2	Manage habitat-altering environmental weed species to restore habitat quality.
2.3	Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.
2.4	Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.

3. Actions to meet the needs of the Gang Gang Cockatoo	
3.1	Throughout the terrestrial parts of the biolink, retain, restore or create areas of open forest and woodland vegetation (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest, #83 Swampy Riparian Woodland, and #127 Valley Heathy Forest), incorporating indigenous eucalypts and wattles, with a scattering of berry and cone producing shrubs.
3.2	Enable access to water, for example by placing logs and branches to extend into the creek or wetlands in locations relatively secure from cats and foxes.
3.3	Manage habitat-altering environmental weed species to restore habitat quality.
3.4	Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.
3.5	Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.
3.6	Target fox control efforts around high-quality habitat patches.
4. Actions to meet the needs of the Sword-grass Brown	
4.1	In low-lying areas within the biolink, particularly where EVCs Swampy Woodland (EVC #937), Swampy Riparian Woodland (EVC #83), and Swamp Riparian Complex (EVC #126) are thought to have occurred, plant or stimulate growth and spread of patches of *Gahnia* species, in particular Thatch Saw-sedge (*G. radula*), as part of restoring swampy vegetation.
4.2	Encourage the incorporation of Red-fruit Saw-sedge (*G. sieberiana*) into habitat creation in urban gardens and selected locations within the biolink.
4.3	In locations where they are lacking or in short supply, incorporate appropriate flowering species associated with the above-mentioned EVCs to provide food for the adult butterfly - eg Sweet Bursaria (*Bursaria spinosa*).
5. Actions to meet the needs of the Platypus	
5.1	Assess the feasibility for platypus to access the full length of the creek to identify any obstacles and barriers to movement up and down the creek and recommend solutions.
5.2	Where identified as feasible, remove/replace/modify culverts and other instream barriers (eg weirs) so they are readily traversable (minimum internal diameter of 250 mm, stepped or slanted entry/exit structures (ideally < 30^{o}), baffles and textured or uneven floor surfaces to reduce flow velocities and improve grip, vertical-slot fishways designed to enable medium-to-large fish to travel past weir walls can be utilised for the same purpose by platypus - ie with apertures at least 150 mm, water depth along the length of a fishway at least 200-300 mm.
5.3	Undertake a technical investigation (this investigation could be combined with the assessment of navigability outlined above) to identify viable locations where: a) creating one or more instream or offline drought refuge pools is feasible. b) there is potential to convert hardened creek edges (ie rock, concrete) to stable earthen banks. c) there is potential to widen and/or deepen the creek channel. d) there is potential to add rock weirs to create a series of pools and riffles without negative implications for flows and flood management. e) instream habitat is poor, and habitat elements (stony substrates, aquatic vegetation, large woody debris) could be added. f) the addition of creek side riparian vegetation is needed

5.4	Create refuge pool/s at one or more identified viable locations, based on achieving attributes of ~80m long, 500m2 surface area, 1-4m deep, steep and stable earthen banks, instream aquatic vegetation, overhanging indigenous tree and shrub vegetation, reliable volumes and quality of incoming water, little or no artificial light spill.
5.5	In suitable locations close to the creek itself, retain, restore or create areas of open forest vegetation with diverse and relatively dense shrub and understorey layers following the Australian Platypus Conservancy guidelines to shade the water and provide shelter, leaf drop, bank stability, etc. (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest and #83 Swampy Riparian Woodland).
5.6	Where feasible, install numerous rock “weirs” to create series of pools and riffles along the entire length of the creek.
5.7	Gather information on the nature and extent of macroinvertebrate populations along the creek and improve instream habitat as needed to ensure there is an ongoing food supply available.
5.8	Where practical and feasible, add instream aquatic vegetation, and potentially cobbled or gravel substrate, to sections of the creek where it is noticeably absent.
5.9	Manage habitat-altering environmental weed species to restore riparian habitat quality.
5.10	Avoid creating, and remove where possible, hard creek edges (rock/concrete) to create relatively stable earthen creek banks.
5.11	Undertake a specialised investigation of the wider catchments of the creek that: a) identifies opportunities to slow flows, increase soil infiltration and improve quality of stormwater runoff. b) estimates the number, size, location and type of stormwater treatments needed in the catchment to restore near natural flows and water quality in the creek: • at property scale (eg rainwater tanks, rain gardens). • at street scale (eg water sensitive urban design (WSUD) streets). • at sub-catchment scale, eg: i. stormwater harvesting (capture, treatment and reuse of stormwater where there is a suitably sized catchment above and a nearby suitable demand for non-potable water (eg sports field irrigation). Location considerations include Yarra Valley Grammar, Mullum Reserve, Ainslie Park and East Ringwood Reserve. ii. stormwater detention that can slow flows and enable more water to soak into the soil. Location considerations include Lipscombe Park and Maroondah Highway Employment Precinct. iii. sediment traps and treatment wetlands that both remove pollutants and provide/protect wetland habitat. Location considerations include Peter Vergers Reserve and Ringwood Lake. c) assesses the feasibility and estimated cost of implementing the identified mix of treatments
5.12	Based on the findings of the above, introduce planning controls in the urbanised catchment area that maximise pervious surfaces, require WSUD treatments and/or development contributions to support larger scale stormwater treatments.
5.13	Liaise with the Environment Protection Authority to deliver an education program and inspection of businesses in the Maroondah Highway Employment Precinct for understanding of and adherence to sewer connection requirements, including the effective functioning of interceptor traps, and penalise ongoing breaches accordingly (after an amnesty period that provides adequate time to rectify breaches).

5.14	Identify and document the location, maintenance responsibilities and minimum maintenance requirements of all known stormwater treatment wetlands, litter traps and gross pollutant traps, and ensure they are managed and maintained to best practice standards.
5.15	Encourage dog owners using off-lead areas (Peter Vergers Reserve and south-eastern oval of Mullum Mullum Reserve) to manage their dogs and ensure they remain in permitted areas only, and do not stray into bushland areas.
5.16	Encourage dog owners to keep their dogs on lead at all times when not in off-lead areas and Council's Animal Management Officers to conduct patrols for compliance with Council's on leash requirements.
5.17	Fence area around refuge pools to exclude dogs (ensure does not impede high flows and is readily maintainable).
5.18	Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.
5.19	Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.
5.20	Target fox control efforts around the refuge pools.
5.21	Avoid use of artificial lighting around the refuge pools.
6. Actions to meet the needs of the Powerful Owl	
6.1	Retain, restore and create stands of large indigenous trees to create wide (up to 50 metres) and largely continuous corridor of canopy and mid-storey foliage, incorporating a mix of eucalypts and Blackwood (aim to replicate forest vegetation associated with the EVCs #18 Riparian Forest and #83 Swampy Riparian Woodland).
6.2	Ensure tree spacing allows for growth of wide canopies with large horizontal branches for roosting, and in the long term, hollow creation following branch drops.
6.3	Install suitably sized artificial hollows (eg nest boxes (timber or 3D printed), chainsaw hollows, salvaged tree sections with hollows (optimal dimensions - internally 70-150cm deep, 40-50cm wide, with 150-300mm wide entrance hole, mounted at least 10 metres above the ground) in a large, healthy living tree with good canopy foliage, located within existing stands of established large trees. Consideration should be given to including the ability to safely monitor use and occupation from the ground (eg internal camera).
6.4	For their prey, retain and protect hollow bearing trees, and retain and/or create dense stands of tall indigenous midstorey habitat including prickly shrub species, whilst balancing the need for more open and unshaded understorey vegetation that provides habitat for other species.
6.5	For their prey, also use large-canopied indigenous tree species as street trees to improve canopy connectivity, especially over roads that cut across the biolink.
6.6	Deliver an education program to discourage the use of second-generation rodenticides within the biolink.
6.7	Gradually remove large tree species considered to be weedy (eg pines and willows) in a staged manner and replace with large indigenous tree species. Prior to any removals check for current use as roosting sites.

7. Actions to meet the needs of the Spotted Marsh Frog	
7.1	In locations within the biolink where there are lower-lying or poorly drained, open and sunny areas with minimal overhead tree canopy, create a series of small and medium sized permanent and semi-permanent habitat wetlands with the following characteristics: • Aim to have 50-100cm depth at deepest point with over 50% submerged and 20-40% floating/emergent, indigenous aquatic vegetation cover, and gently sloping edges and terracing providing a variety of depths supporting emergent and semi-aquatic fringing wetland vegetation. • Within the surrounding 10 metres, ensure overshadowing canopy and shrubby vegetation is kept to a minimum, and provide 10-20% cover of logs and rocks. • If a wetland is also expected to provide a sediment trapping function design them to enable desilting (and draining to control Mosquitofish), with minimal disturbance to its ongoing habitat function. • ideally space wetlands within 500m (and no more than 1000m) of each other.
7.2	Encourage the creation of frog bogs/small habitat wetlands or ponds in private residential gardens within the biolink.
7.3	Encourage dog owners using off-lead areas (Peter Vergers Reserve and south-eastern oval of Mullum Mullum Reserve) to manage their dogs and ensure they remain in permitted areas only, and do not stray into bushland areas.
7.4	Encourage dog owners to keep their dogs on lead at all times when not in off-lead areas and Council's Animal Management Officers to conduct patrols for compliance with Council's on leash requirements.
7.5	Fence selected habitat wetland areas to exclude dogs.
7.6	Promote the dusk till dawn cat curfew, including options available to residents if they encounter stray and nuisance cats.
7.7	Invite community input into future reviews of the Domestic Animal Management Plan including the cat curfew.
7.8	Target fox control efforts around selected wetland habitat areas.
8. General actions to support the biolink	
8.1	Manage existing planted and remnant indigenous vegetation patches to optimise their habitat value, primarily through managing environmental weed species to improve vegetation structure, species diversity and habitat quality
8.2	Incorporate the use of suitable indigenous species into street tree replacement planning along street sections that fall within the biolink.
8.3	Incorporate water sensitive urban design features into street renewal projects that fall within the biolink.
8.4	On residential properties within the biolink, encourage residents to create habitat in their gardens with information, advice and support provided through participation in Council's Nature Havens* program.
8.5	Facilitate the creation and ongoing maintenance of understorey habitat on nature strips within the biolink, such as creating planting plan templates for interested landowners that meet Council's permit requirements (a suitable planting plan and permit from Council are required).

8.6	Design public lighting, especially lighting of shared trails, to be wildlife-friendly by minimising light spill and potential impacts on nearby habitats without reduction in public safety.
8.7	Through pre-application meetings and internal referrals to Environmental Planning, encourage elements of new developments to contribute to the functioning of the biolink (eg indigenous landscaping).
8.8	Introduce planning and development controls (eg an Environmental Significance Overlay over the entire biolink) that: a) encourages new developments adjacent to the public creek reserve to face the creek rather than turn their back on it (incorporating design templates). b) requires large setbacks from the creek reserve and landscaping with indigenous plant species that mimic the relevant EVCs. c) encourages building and landscaping designs that contribute to the biolink function (eg biodiverse green roofs, indigenous landscaping design templates and species lists, incorporation of artificial hollows). d) protects the biolink from future development and construction that may impact on its function. e) collects development contributions to support larger scale stormwater treatments.
9. Management and maintenance actions to sustain the biolink	
9.1	Provided additional, specialist staff resources are made available on an ongoing basis. Maroondah City Council to take on the role of Committee of Management for the unreserved Crown land within the Mullum Mullum Creek Biolink to serve the functioning of the biolink.
9.2	With the creation of substantial new areas of indigenous vegetation and habitat identified through this plan, and the unique and complex nature of managing waterways and wetlands, one or more specialised waterway biolink positions be added to Council's Bushland Team specifically to maintain riparian, semi-aquatic and wetland vegetation and habitats on public land within the Mullum Mullum Creek Biolink and along other waterways within Council's responsibility.
9.3	Create a role within Council to coordinate all actions associated with creek-based biolinks and liaise with relevant external agencies.
9.4	When opportunities arise, engage the Wurundjeri Narrap Team to help maintain the Mullum Mullum Creek Biolink.
9.5	Residents within the biolink that have, or wish to create habitat in their gardens to be provided with information, advice and support through Council's Nature Havens program.
9.6	Yarra Valley Grammar to initially seek advice on managing their bushland from Council's Bushland Team.
9.7	Yarra Valley Grammar to explore options for ongoing specialist management of their bushland to protect and optimise its habitat values.
9.8	Eastland to pursue options for improving and maintaining the habitat values of their land, particularly for lizards and other small ground dwelling fauna.

9.9	Ensure future development of the Maroondah Highway Employment Precinct incorporates measures to: a) protect existing habitat within the precinct. b) incorporate Water Sensitive Urban Design (WSUD) features that enable stormwater flows (from the precinct, as well as the wider catchment) to be slowed, pollutants removed, and soil infiltration increased before it reaches the creek. c) contribute to the biolink by creating habitat patches that build on and extend from adjacent habitat - eg landscaping that provides habitat values (terrestrial and wetland), incorporate biodiverse green (and blue) roofs into design of new buildings.
9.10	ConnectEast to maintain and establish landscaping along the Ringwood Bypass area and adjacent Mullum Mullum Creek within EastLink's lease boundary to provide more habitat opportunities (without increasing the risk of exposing flora and fauna to threats posed by proximity to vehicular traffic).
9.11	Council's Bushland Team, Local Laws and Communications and Engagement Teams to design and deliver community education programs around the use of snail and rat baits, and the need to keep dogs on leads and cats indoors.
9.12	Individual businesses within the Maroondah Highway Employment Precinct to maintain their washdown areas, interceptor traps and other legally required pollution prevention measures to the minimum required standards.
9.13	Individual businesses within the Maroondah Highway Employment Precinct to manage employee and contractor understanding and behaviours to prevent pollutants being added to stormwater drains.
9.14	EPA to provide education services on environmental duty of care and follow up compliance inspections and reporting of businesses within the Maroondah Highway Employment Precinct.
9.15	ConnectEast to ensure regular inspection, maintenance and reporting of the two stormwater runoff treatment wetlands located within the biolink.
9.16	Eastland to ensure regular inspection, maintenance and reporting of their litter traps.
9.17	Establish a Mullum Mullum Creek Biolink Action Plan oversight group to: a) Monitor and report on progress with implementing actions. b) Help resolve issues with action delivery. c) Regularly review and reassess priorities. d) Identify and agree on potential new actions (consistent with achieving the vision). e) Track agreed measures of success. f) Identify opportunities to promote progress and successes. g) Oversee a review of the action plan after 5 years.
10. Promotional, learning and engagement actions to connect people to the biolink	
10.1	Create learning opportunities for students of Yarra Valley Grammar: Design environmental studies programs with a focus on the school's bushland reserve, potentially incorporating: a) Collecting data on the reserve's flora and fauna. b) Monitoring of owl nest box use. c) Engaging external ecological expertise and educational programs.

10.2	Create learning opportunities for people using the trails through the biolink: a) Refresh (or replace) the existing cultural heritage interpretive trail (eg update existing signage, refresh yarning circle space, link to interpretive brochures and/or story telling through audio guides). Involve Wurundjeri in selecting the themes and drafting the content, and options for artwork to be incorporated into their design. b) Incorporate Wurundjeri art, language, stories and other cultural elements into wayfinding signage along the trails. c) Add interpretive signage and audio guides to existing trails that provide information on habitats, flora and fauna (including the focal species), and ecology of the biolink (eg linked with wayfinding signage at trail entry points). d) Create creek nature viewing areas (eg a hide to overlook but not disturb, a platypus refuge pool). e) Incorporate public art installations that feature elements of the biolink. f) Investigate options for separating faster moving trail users (eg runners and commuting cyclists) from slower moving users such as alternative trails and offshoots to points of interest and/or rest places.
10.3	Create learning opportunities for people living within the biolink: a) Prepare and distribute promotional material about the benefits of creating habitat in gardens, and the offer of information, advice and support from Council's Nature Havens program. b) Deliver community education programs around use snail and rat baits, and the importance of keeping dogs on leads and cats indoors.
10.4	Create learning opportunities for people visiting the biolink: a) Design and deliver community events and activities in the biolink that showcase, celebrate and help people learn about the creek, the biolink and its biodiversity (potentially through reinvigoration of the Mullum Mullum Festival and/or the Friends of Mullum Mullum Valley). b) Design and deliver community events and activities in the biolink that showcase, celebrate and demonstrate Indigenous/Wurundjeri culture, language, stories, people and practices - Involve Mullum Mullum Indigenous Gathering Place and Wurundjeri in designing activities and events that utilise the yarning circle and other locations in the biolink.
10.5	Create opportunities for people from across Maroondah and beyond to contribute to sustaining the biolink: a) Provide support to volunteers wishing to help build and maintain the biolink. b) Provide citizen science opportunities for data collection and monitoring of different aspects of the biolink - for example observations of flora and fauna using the biolink (including the focal species), water quality, water sampling for eDNA testing. c) Deliver photography competitions, "treasure hunts", or similar that focus on, highlight and help promote elements of the biolink.
10.6	Promote the biolink to raise awareness, and build community support and involvement: a) Establish a Council webpage dedicated to the Mullum Mullum Creek biolink, including information on: • this action plan, its vision and the stakeholders who developed it. • updates on the progress of actions in the plan. • observations of flora and fauna - especially focal species. • community activities and events focused on the biolink. • volunteering opportunities, including Nature Havens program. • volunteer groups actively involved in maintaining the biolink. • how this biolink will connect to other biolinks and habitat outside of Maroondah.

To contact Council telephone 1300 88 22 33
visit our website at: www.maroondah.vic.gov.au
or call in to one of our service centres:

Realm Service Centre
Maroondah Highway
Ringwood

Croydon Service Centre
Civic Square
Croydon

Translating and Interpreter Service
13 14 50

National Relay Service (NRS)
13 36 77

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