# Supplementary Materials for:

# Developing Biodiversity Protection Strategies for Urban Greenspace in Melbourne

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# Appendix D – Important Greenspaces in Melbourne

Within the city, there are many different greenspaces that are managed by different organizations, exhibit their own unique features, and produce different challenges to the managers and the public. The history and background on several key greenspaces in Melbourne are listed in the sections below.

## D.1 Elsternwick Park Nature Reserve

Gio Fitzpatrick, EcoCentre's Youth Wildlife Ambassador, was conducting work in the Elster Creek area by installing nest boxes to encourage urban fauna activity. His research and partnership with EcoCentre and Earthcare St Kilda INC lead to the creation of the Friends of Elster Creek, a non-profit group dedicated to protecting the creek's biodiversity (Samuel-King, 2016). Because of this work, the EcoCentre is currently advising the Bayside City Council, the LGA adjacent to Port Phillip, on the creation of the Elsternwick Park Nature Reserve, shown in Figure 5 (see report Section 2.6).

Over the last few years, the Elsternwick Golf Course in Bayside City was slowly deteriorating with decreased attendance and profits, causing the owners to shut down and donate the land to the city. The land's sudden availability engaged community consultation and an extensive debate about the park's future for several years. Within the Bayside City Council, there were councilors, such as Alex del Porto, who said keeping the golf course was the most financially sensible option and could limit the burden of ongoing maintenance costs on ratepayers (Andrews, 2017). On the other side, councilors, such as Laurence Evans, highly advocated the park's establishment as a nature reserve, stating that in addition to the increased number of street trees, "it will allow for the creation of expanded wetlands that will help improve water quality for the Elster Creek and Port Phillip Bay." Evans also added that the park "provides the potential for flood mitigation works that would have impacts for properties in the cities of Bayside, Port Phillip and Glen Eira." The deliberative panel for the Elsternwick Park project has shown its support for creating an environmental park as a unique addition to the inner-metropolitan Melbourne (Bayside City Council, 2018). The Elsternwick Park and its part in city planning is illustrated in the map in Figure 28, showing the recreation zone is surrounded by neighborhood residential zones.

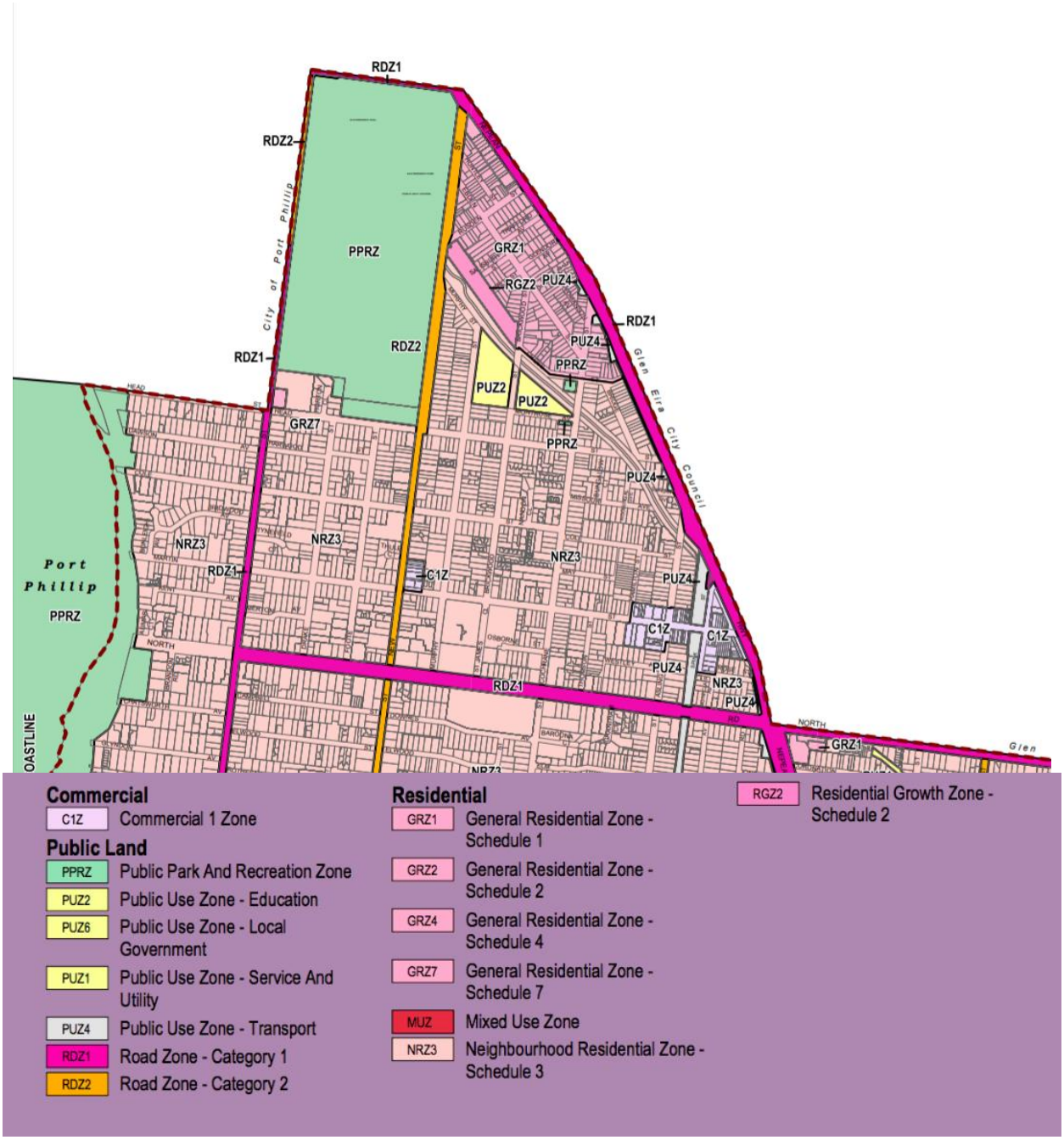


*Figure 28: Bayside City Planning Scheme (Planning Mapping Services, 2018)*

Through years of plan development by the Bayside City Council and the neighboring communities, three options were identified: 1) an environmentally focused park, 2) increased sport facilities, and 3) the retention of a golf course. The idea of an environmental focused park received an overwhelming amount of support from the communities. According to Arron Wood,

an Elsternwick Park Coalition member who believed the establishment of a wetland would be the best outcome; a survey delivered to 1,250 households around the park indicated strong support for a wetland and urban forest (Seedy, 2018). There was resistance from local sports groups who were looking for more practice space, particularly a local women's football team who advocated for additional space because the team tends to receive limited and inconvenient practice times (Lerner, 2017). This debate eventually reached a conclusion in early 2018 after the golf course operators decided to leave the site and the decision of an environmental focused park was confirmed (Bayside City Council, 2018). Port Phillip Council responded to the Bayside City Council's decision with their support for incorporating an urban forest and expanded wetlands into Elsternwick Park North to help reduce flooding. As shown in Figures 7 and 8 (see report Section 2.6), the golf course resides in an ideal location to reduce flooding of Elster Creek and Elwood Canal.

The Port Phillip Council recognized this as "an exciting opportunity [that] exists to reduce the frequency and duration of flooding during moderate rainfall events." The Council also hoped to gather evidence of reduced downstream flooding, improved water quality, public amenity, enhanced biodiversity, and opportunity for water harvesting and distribution (City of Port Phillip Media Unit, 2018). The Bayside Council later decided to consult the EcoCentre on the best ways to manage the new nature reserve.

As Melbourne has expanded, the number of stormwater wetlands has increased as well, serving as a natural method to store and redirect rainwater. However, most of these are highly polluted, containing sediment from water run-off from buildings and roads, which then negatively affect the health of the animals. 67 urban wetlands were observed, and it was found that the native tadpoles and fish were less responsive to predator cues due to the excessive pollution (Hale, Swearer, Sievers, & Coleman, 2018). A new wetland disconnected from the current stormwater would prevent wildlife from exposed to this pollution. Not only do inland wetlands benefit the flora and fauna in Melbourne, it helps with the residents living in the area. These environmental features provide a natural way to reduce the damage of floods, effectively acting as a sponge and soaking up excess water. For example, the riparian wetlands along the Mississippi River used to store 60 days of stormwater. However, the forestation of the wetlands led to an 80% decrease in the natural storage capacity and contributed to the severe flood damage in the Mississippi River in 1993 (Millennium Ecosystem Assessment, 2005). Residents in the

Elwood area have been significantly damaged by the flooding of Elwood Canal, as shown below in Figure 29, and continue to be exposed to this risk despite the precautions.


*Figure 29: The effects of flooding in Elwood (City of Port Phillip flash flooding Elwood canal (Elwood), 2013)*

The Elster Creek flows from Allnutt Park (not shown above) through Elsternwick Park (shown in the bottom right corner) and into the Elwood Canal, which winds northwest through

the city before terminating in the Port Phillip Bay. With a new wetland in Elsternwick Park, water will flow and disperse into the park rather than flooding the streets and damaging the neighborhoods around the creek while simultaneously providing wildlife with a natural habitat.

## D.2 Albert Park Golf Course

The Albert Park Golf Course is located within the City of Melbourne, bordered by Albert Park Lake, sports centers, schools, and other major urban buildings. The park and course contain over 5,000 flora species, both native and non-native (*Albert park visitor guide*, 2016). Albert Park Lake controls the stormwater treatment and provides habitat for aquatic species including many water birds. Some birds that frequent the park during migration seasons include the "great egret, the white-throated needletail and the sacred ibis." Other thriving species include nocturnal brushtail and ringtail possums and certain native birds, such as the kookaburras.

The course is managed by the state department, Parks Victoria, which recently proposed a Master Plan for the future of Albert Park (Parks Victoria, 2019-b). Some suggested additions include new wetlands in the southern sector of the park to provide habitats for various species and for filtering stormwater that lead into Port Phillip Bay. Boardwalks would be installed to allow visitors to easily observe and learn about different biodiversity habitats. One factor was the Albert Park Golf Course's size would be reduced by about half to develop an "Eastern Woodland" which would include a "major events area." This would also provide open green spaces to the nearby high school (Hunn, 2018). However, an overwhelming support for the course emerged because the Albert Golf Course is one of the few courses that are close to the city. Although the Master Plan had sections that incorporate plans for the environment, the initiatives tended to focus on planting trees and adding habitats that help with climate change rather than creating habitats for biodiversity. Since the golf course is to remain as is, the current management strategies are to be investigated to locate areas that could be enhances to encourage biodiversity.

## D.3 Malvern Valley Golf Course

The Malvern Valley Golf Course is located within the City of Stonnington, winding through the city along Gardiners Creek. The course has been known for many native species

including kookaburras, red-rumped parrots, and cockatoos (City of Stonnington, 2019). In 2006, Graeme S. Lorimer conducted a report for the Boroondara City examining indigenous flora and fauna in the area. It was found that the golf course provides a broad habitat range for native birds with its close proximity to Gardiners Creek and the other natural environments it exhibits. This biodiversity hotspot was recently identified by the Sustainable Environment Strategy Stonnington proposed by the City of Stonnington in 2018, calling for revegetation along Gardiners Creek to improve the health of the diverse wildlife (City of Stonnington, 2018). Apart from Lorimer's study in 2006, which briefly touched on the course's biodiversity, there is very limited works on the wildlife of Malvern Valley Golf Course.

## D.4 Caulfield Park

Caulfield Park is located within the Glen Eira municipal, northeast of Elsternwick Park and is surrounded by residential areas and has a major highway and train tracks bordering the eastern side. The family friendly park attracts citizens with its "dog off-leash" option in the center of the park, open greenspaces, a lake, and a large athletic complex that caters to croquet, tennis, soccer and other sports (Glen Eira City Council Recreation Services, 2019). In 2016, the Glen Eira City Council drafted the *Environmental Sustainability Strategy* (ESS) in order to further protect the environment in the city, which called for more indigenous plants in parks, street trees, and biodiversity awareness promotion and education. The City Council called for a direct report on the biodiversity within Glen Eira in order to focus efforts on maintaining urban wildlife. Graeme S. Lorimer (PhD) presented his observations of the biodiversity in Glen Eira and propositions for its further protection. Within this implementation plan, Lorimer identified nine hot spots where biodiversity thrived, three of which required "operational" work from the local government instead of only advocating for or increasing education of the area (Lorimer, 2016).

Caulfield Park is one of these three locations, where Lorimer surveyed a significant amount of indigenous, water and domesticated birds thriving around the lake (Lorimer, 2018). However, there were several issues that Lorimer observed for three months that could be addressed to further improve on the biodiversity in the park. For one, the there is only one native plant species that is commonly found on the lawns of most of the park, discouraging some species. Natural wetlands rarely form in the park due to the "steep, stone edging, polluted water

and consequent water purification work", causing most water birds and other aquatic wildlife to congregate at the lake. The western side of the park contains many non-indigenous trees while the southeastern sector and the playing fields have an abundance of non-native eucalypts. This leaves a considerable amount of space without native flora.

There are also some improvements that can be made for the fauna of the park. For instance, some birds are attracted to visitor's food waste, which is a major health risk to the birds and adds pollution to the lake, negatively affecting the aquatic wildlife. Additionally, the Aviary Garden in the northern sector of the park is a mere 800 square meters and only six meters from the path (Lorimer, 2016). The garden's close proximity to the busy path discourages most understory birds from entering. Furthermore, the plants within the aviary attract very few of the bird species that live in the northern part of Caulfield Park. Lorimer suggested several solutions to these issues including the installation of larger signs warning people against feeding the birds and a new design of the Aviary Garden. It was also proposed that Glen Eira consult local experts and other biodiversity advocates on the best plans on reinforcing the biodiversity both in and around the lake area (Lorimer, 2016).

## D.5 Westgate Park

Westgate Park is located within the Port Melbourne and lies underneath the Westgate Bridge, surrounded by suburbs and with the Yarra River on the East side. After the Westgate Bridge was constructed, Oscar Meyer generated the idea of the implementation of a park in 1970s, which was later funded by the state government in 1985 (Victoria State Government, 2018). There were many uses for the park for several years, some of which contributed to the features that can now be seen today for example, a sand mine was transformed into the pink salt water lake people are attracted to today (shown in Figure 9 in the report Section 2.6).

The Melbourne Parks and Waterways developed the idea of extending connectivity between water features by linking the park to the Yarra River to help generate a wetland. The volunteer group, Friends of Westgate Park, was founded in 1999 to aid in the maintenance and conservation of Westgate Park and continue to help the current owners, Parks Victoria (Victoria State Government, 2018). Today, Westgate Park is a thriving wetland, featuring diverse species of flora and fauna (Parks Victoria, 2019). The park is found to exhibit habitats that thrive on their own and form communities between wildlife species despite the proximity to growing suburbs

and busy roadways. These flourishing habitats are “set out in the Park in nine EVCs” and in order to best adapt to the varying landscapes and environment (Friends of Westgate Park, 2019). Studying the success of Westgate Park can help plan for managing the “heat island effect” within Melbourne and provide examples of flora species that can adapt to climate change.

## D.6 Rippon Lea Estate

The Rippon Lea Estate is a National Heritage suburban estate located in Elsternwick, 7 km from Melbourne’s central business district (CBD). The original site was completed in 1868 for the Sargood family and was originally twice the size of its current grounds. The estate’s owner, Frederick Sargood, was an avid gardener and imported many species of plants to suit his fancy, especially ferns and orchids. The estate was renovated over the next couple decades until Mr. Sargood’s death in 1903. The property was purchased by Thomas Bent who became Premier of Victoria in 1904. Bent partitioned the land and sold pieces of it through his ownership but he died in 1909, ending the subdivision of the estate. In 1910, the estate was bought by Benjamin Nathan, another avid gardener who paid special attention to orchids. Rippon Lea’s orchids won various awards in this time period, establishing it as a gardening destination for local visitors. Several native plant species were added to the garden during this period as well.

Ms. Louis Jones inherited the estate with the death of her father 1935. She made a number of internal renovations to the estate and maintained the gardens. She sold a piece of the land in the early 1950s to ABS for television studios. The government then ordered the acquisition of 4 more acres of the estate, an action that Mrs. Jones, along with 10,000 people, protested and fought in the High Court, but to no avail. In 1963 she arranged to have the gardens protected under the National Trust, her children approved, and the Trust inherited the property following Mrs. Jones death in 1972. The Estate opened to the public on February 22, 1974 and has been a destination for plant and garden enthusiasts since (National Trust Australia – Victoria, 2019).

While the estate has always been a hotspot for gardeners, more recently it has begun to get attention from local bird watchers and ecologists. While Rippon Lea has a few native species, it is made up of mostly exotic ones. Most urban ecology planning initiatives tend to focus on the planting of native species to attract local fauna, especially birds. These methods have struggled to attract rare native species on account of another bird, the noisy miner. While also indigenous,

the noisy miner (*Manorina melanocephala*) tends to be a nuisance in public parks as they favor the open landscape interspersed with trees. They are also extremely defensive of their territory and often kick out competing species. A study discovered “as noisy miner population density increased from zero per hectare to 0.6 per hectare, the number of species of small bush birds halved” (Fitzpatrick, 2018). Rippon Lea is unique as it does not feature these habitat characteristics on account of its more exotic history and maintenance. Therefore, noisy miners are absent and less common species that aren’t found in neighboring native focused parks are present with examples being eastern spinebills, brown thornbills, silvereyes, spotted pardalotes, grey fantails, and Nankeen night herons (Fitzpatrick, 2018).

# Appendix G – Interview Summaries

## G.1 - Government Representatives

### G.1.1 Barry Kennedy – Port Phillip and Westernport Catchment Management Authority

Barry Kennedy works as the Regional Landcare Coordinator for the Port Phillip and Westernport Catchment Management Authority (PPWCMA) and started at this position about six months ago. The opinions expressed below are his own and do not reflect the views of the organization as a whole.

Barry Kennedy complements the vast array of volunteer organizations in the Port Phillip and Westernport catchment. There are 86 landcare groups across the Port Phillip region and several other volunteer groups as well. There are 13 paid part-time facilitators he works with closely to coordinate events, meetings and training sessions. These sessions work to bring environmental experts' knowledge to the general public. The PPWCMA releases a survey to determine what the most important topics are in the region for these organized events. Two of the most recent events they held focused around building and reviving groups and a coastal awareness event working with local Aboriginal groups. The former was an all-day event that focused on teaching groups how to better manage themselves to maximize effectiveness and how they work as a team. The latter was a workshop where members from the Wurundjeri Aboriginal group brought members from the PPWCMA around to different locations and gave them tips on identifying artifacts and how attention to detail can have a profound ecological impact. Involving indigenous groups an emerging effort in the field, adding a lot of legitimacy to any initiative and Barry sees a lot of potentially beneficial outcomes but it is still early. Overall, these events try to address skill shortages within the various groups, ranging from planting practices to grant writing. While the paperwork is just as important as land management, they see that some organizations are more interested in the practical side of planting. They also work to increase the diversity of the catchment's volunteers and to provide grants to several volunteer organizations.

The PPWCMA uses multiple different resources for advertisement, including group email, newsletters, surveys, social media, and day-today interactions. Newsletters are a crucial part to most work within the CMA. Face-to-face forums tend to do well in getting groups to communicate with each other and can be easy to organize paid employees. However, it can be difficult to get community developers, government officers, and volunteers together because of

varying commitments and schedules. Overall, in-person forums depend on the target audience. Barry suggests starting contact with groups early when trying to reach as many people as possible. One successful event that PPWCMA hosted was a conservation breakfast for several organizations. They approached landcare managers ahead of time to gauge interest through an online survey tool. In addition, they had some influential people talk at the breakfast including the head of Zoos Victoria. The combination of the early notice and strong incentive was successful in getting people to attend.

For on-the-ground work, the PPWCMA does not tell each group how they should manage their land because the groups themselves have the knowledge of the land and are best suited to make those decisions. Instead, the authority works to provide these groups with access to the information, funding, and communication resources that will enable them to successfully achieve their justifiable goals. They also do a fair amount of monitoring work during and after their implementation. This is an important step as the PPWCMA needs to justify to their governing bodies that all the projects they are invested in are worthwhile and will have an impact in the future.

As the PPWCMA is involved heavily in communication with volunteer organizations, Barry has seen a few problems common in struggling groups as well as some common themes in successful groups. Barry says some groups are struggling as a result of interpersonal dynamics. Groups that tend to fail might not be on the same page, not have a clear leader, and could be poorly organized. It seems that these groups will continue to struggle until they get organizational help regardless of implementation assistance. On the other hand, successful groups often have a long-term, impactful plan with a goal they diligently work towards. These groups often are those who attend workshops and seek help even if they may not need it the most.

The PPWCMA does some habitat connectivity work and one successful project is Yarra for Life, which focused on protecting two endemic and endangered species of honeyeater and possum along the Yarra River. The groups involved were diverse including Friends groups, Zoos Victoria, private groups, and philanthropic donors. The PPWCMA officers themselves tend to facilitate habitat connections so all the groups can work together towards the common goal of protecting the space or species.

### G.1.2 Paul Gibbs and Amy Weir – City of Bayside

Paul Gibbs, the Bayside Open Space Coordinator, and Any Weir, the Open Space Planning and Policy Officer, were interviewed together as they both worked closely in creating the Bayside Biodiversity Action Plan. Their primary focus is conducting work on the city-managed greenspaces including sports grounds, parks and the foreshore area. One of the key strategies they use in increasing biodiversity is revegetation of the seven bushland reserves and the coastland which are the primary areas that house remnant vegetation (vegetation predating European settlement). One of their most successful management practices are controlled burns of the heathland areas, allowing for natural plant regeneration. They conduct two small burns, a year covering 4 hectares annually, which helps in vegetation regeneration. Although they have a passionate volunteering community, Amy and Paul say much of the general public still need to be educated on the type of vegetation that thrives in Australia as many people expect to see "big green showy plants" often found in the UK. Amy states that "It's all very diverse when it flowers, but it's really small" and one challenge is "most people view the natural vegetation as just ugly scrub" when it is in fact beneficial to the environment. The areas they burn are often fenced off for safety purposes but then the public is unaware these patches of vegetation exist.

Considering education programs, Paul states there are about 17 Friends groups in Bayside and each helps with education with over 200 volunteers. The city tries to promote biodiversity as much as they can through multiple different channels such as holding four or five annual garden days at the Bayside Community Plant Nursery. The city holds some education programs for schools however this often depends on the relationship with the schools and if teachers are interested or able to incorporate it into their curriculum.

Bayside has taken several steps towards transforming Elsternwick Park into a nature reserve. They received feedback from the community by speaking with local interest groups and experts as well as surveying the community about what they wanted from the project. There was significant opposition to the nature reserve's creation including sports groups wanting more fields and a large group of people who want to walk their dog off leash unconstrained by the rules of a nature reserve. This was challenging for the City Council because as a government entity, they must consider all opinions and try to appease every party. Apart from Elsternwick Park, Paul stated that they have been able to conduct work on the many golf courses in Bayside that are not privately owned as they already exhibit a high biodiversity value. They also

explained many private owners are aware of this value and cater towards biodiversity by purchasing indigenous plants from the community nursery.

Paul and Amy expressed the difficulty in creating biolinks and developing new land geared towards conservation because the prices for space are very high due to Bayside rising in popularity. As the city expands, residents have fewer gardens to manage for biodiversity and, while Gardens for Wildlife has helped with assessing and generating suggestions for residential gardens, these efforts have dwindled. Next, they began making nurseries more accessible, so people are more likely to buy native plants from these locations. Paul and Amy aim to have more publicity on the council website and online for people to access. They explained they hardly speak with other LGAs about environmental protection. While there are a few organizations such as Living Links and the Victoria Government Association that connect LGAs, there is still limited communication and sharing of biodiversity and land management practices.

The city acknowledges that citizen science is an important part of increasing biodiversity and monitoring the existing wildlife. One issue that Paul discussed was although the volunteers have collected a substantial amount of data over the years, a lot is not recorded an easily accessible way. Most groups are run by people of the older generation who have either never kept records of the gathered information (simply keeping it in their head) or they have kept the information in ways that are hard to share and access such as scraps of paper. Additionally, the city has found that sometimes there are discrepancies between the monitoring standards different citizen science groups use. This could include the methods of gathered information, the layout and organization of the data, or the terminology used to describe the data. This lowers the credibility and restricts the Council from accessing this knowledge to apply to their work.

There are several key challenges that Paul and Amy hope to overcome. One is increasing the amount of people involved in protecting the environment and participating in the existing programs. They want to reach out to the younger and middle generations. They are also looking for a way to easily share information between community groups and the LGAs and increase communication between all groups. One potentially effective way is conducting workshops with representatives from each group.

### G.1.3 Chloe Horner – City of Stonnington

Chloe Horner is the Environmental Education Officer of the City of Stonnington and provided our team with valuable information about the inner workings of local government with regards to biodiversity education and resources the city uses. The major challenge the city faces is a lack of funding and staffing to achieve their goals for biodiversity. The city requires manpower to make significant change in biodiversity through revegetation. Much of the city's revegetation work focuses on native plants but does not cater to a specific species. Additionally, Chloe says the city is not planting for flood mitigation but rather simply planting along the banks of Scotchmans and Gardiners Creeks with species that will withstand the floods. Chloe continues to explain how the city faces some social challenges in increased bushland in the city. There is a safety concern around high-density bushes because are frightened criminals can hide undetected in and around that area.

The City of Stonnington does work alongside the local volunteer group, Friends of Gardiners Creek however Chloe says this is a small group and with limited volunteers. The City of Stonnington has not investigated citizen science as a resource that may assist the city in their biodiversity initiatives. However, Chloe expresses her interest and recognizes the benefits of using citizen science because it would not be the government commanding the citizens on what to do. Furthermore, Chloe explained that the Stonnington Council hardly interacts with neighboring LGA councils despite being part of the Eastern Alliance of Greenhouse Action, something that all eastern councils are in together. A major tool that Chloe hopes is implemented to conduct yearly reports is the Biodiversity Monitoring in Melbourne's East tool which, unfortunately, has not been put into practice yet.

Chloe shared that a workshop, containing a well-developed PowerPoint, was conducted for the City of Stonnington staff members about environmental protection and biodiversity and received a significant amount of positive feedback. She further explains how it will be beneficial to have these presentations for the gardeners themselves so there isn't a situation of the government telling people "plant this" but instead they gain interest and act on their own. Finally, Chloe stated that online resources, videos, and workshops with impactful PowerPoints would be most beneficial. She explained how the online resources are a good way to inform a large group of people in a short period of time with easy access. The videos can visually capture the problem and can be creatively manipulated to strongly convey an important message. Chloe

explained, using the previous example of the workshop, that having in-person conversations and interactive workshops is a great way to engage people in a topic, spread awareness, and spark interest in helping with the protection.

### G.1.4 Phillip Wierzbowski – Coastcare Victoria

Coastcare is primarily a volunteer organization that is a part of the larger Landcare Australia. The group mainly works as a conduit between the government and volunteers. Phillip Wierzbowski has been working as a facilitator for Coastcare for around 30 years in the Port Phillip and Westernport areas. Phillip sees most of these interactions go well and, if there is any friction, he suggests that while the government might own the land, they could delegate its care to management committees. Phillip also sees communication issues between land managers and trust conflicts between the land managers and volunteers. He says that without this crucial piece of social infrastructure, it is hard for any initiative to be successful. Phil says the EcoCentre is "brilliant [with] engagement between community and volunteers" and he will be running a forum for groups to share problems, resolutions, advice, and general knowledge.

There are also gaps between the government and the community groups that Coastcare does its best to bridge. While the government generally acknowledges the value of those working on the land, the volunteers would be better motivated with rewards larger than a pat on the back. Incentives such as tax reductions or more legislative influence could be considered. Phil continues to mention the lack of communication as a problem in the industry. While Coastcare does a lot of work in connectivity (Phil manages over 150 organizations) they are swamped with project maintenance and it does not allow them to give the necessary attention to each group. Projects can move much smoother with more facilitators of these connections. These facilitators would need to accurately record the valuable contributions of volunteers to show their benefit.

Phillip sees the vandalism or trampling of vegetation to be a large problem at project sites. This is seen at Westgate Park with the trampling of vegetation around the pink lake due to the influx of tourists. Methods such as paths, signage, fencing around sensitive areas, and access restrictions to these areas can be used to limit such vandalism and damage.

When looking for project funding, it must be emphasized that every dollar given to an organization is generally multiplied tenfold by the work of volunteer groups. These volunteers don't need management skills or the like as they can easily take care of basic land management

jobs. But, job safety and facilitating an enjoyable experience is very important to volunteer retention. It is easy for volunteers to gain knowledge through workshops and planning events. Phil has also run sessions help community groups gain access to grant funding and allow them to be prepared for a grant application beforehand. However, the support of volunteer groups can be critical for grant applications as it can attract bigger government players for publicity and lend credibility to the initiative. This is especially important as politicians come and go in three years and it is difficult to lobby for anything in particular. Adding to this difficulty is the fact that environmental lobbying is low on both party's agenda. Focusing on ecosystem services can also aid in gathering support because people can see where services align with government strategies and can sometimes be expressed in a monetary sense.

Phil has also seen several successful projects. A common feature of these initiatives is a stable robust platform that can include several different types of groups such as aboriginal groups and Friends groups. Also, these groups tend to be prepared for a grant application before it is announced, with the necessary documents set and having attended grant writing information sessions to ensure they have the best application possible. However, these groups also modify their applications depending on who is giving the money and what it is being given for. They work to see where their goals align with the government's and try to emphasize those aspects in their applications. On site, these initiatives tend to take several actions that mitigate the aforementioned problems with paths through vegetation, bins, and working to eradicate weeds. Some of the biolinks initiatives are funded by the catchment management authorities are in Yallingbow, the Merri Creek project, and the Lower (Barry) Creek, which transformed urban wasteland into parkland. The Yallingbow project was completed to protect the Hamilton Honeyeater and the Merri Creek project was done in order to transform urban wasteland. The Lower (Barry) Creek was once an industrial wasteland located next to a Toyota factory. This project got a sponsorship from Toyota, totaling 1.6 million AUD that helped fund revegetation to transform the parkland as well as building bike paths and shared trails to increase park accessibility.

Coastcare has a five-year plan that focuses on stakeholder engagement and has an inclusive approach to groups like the EcoCentre, Parks Victoria and the Aboriginal community who are all helping draft this plan in the hopes it will be stable and robust. It is hard to focus on one species when writing grants because it is dependent on the grant and the group's goal. On the

small scale, they sometimes watch for critically endangered species. The removal of pest species can work well on a large scale. Coastcare desires a platform where they can measure the potential benefits of their work, a way to get their successes and benefits to the general public, methods to show what the volunteer group does, and ways to reward volunteers.

### G.1.5 Anonymous Representative – City of Melbourne

After speaking with a representative from the City of Melbourne, we discovered the different programs the government has implemented, challenges that the inner city faces in biodiversity conservation, and the interactions between government bodies and citizen science groups. As noted previously, the City of Melbourne has been working on the Nature in the City Strategy since 2017, which includes adding street trees integration with the Urban Forest Approach Strategy and Open Space Strategy.

One of the main challenges is planning around the pre-existing architecture and landscapes. As the City of Melbourne mainly consists of the Central Business District, there is an abundance of human-induced structures, buildings and a lack of green space. This limits the ability of government bodies to create new open green spaces. There are other factors in existing parks and gardens such as heritage values that further restrict city efforts to increase the biodiversity in greenspaces. The majority of the community supports wildlife in the city, and conflict, if any, generally arises from issues with species such as possums and flying foxes that eat people's fruits and stay on roofs. Another example is when the City needs to remove dead or decaying trees or tree limbs that may be hazardous to citizens and city infrastructure, some activists express their opposition as this can remove habitats for some animals. For the City, however, the safety of its residents is priority.

There are also some challenges within the Nature in the City Strategy initiative. For example, while planting trees that reduce the heat island effect is a significant focus of the strategy, indigenous trees and understorey plants that do not provide as much shade create habitats for native wildlife. These differences could be improved by generating ideas that could work towards both goals. The City has conducted several citizen science initiatives promoting biodiversity conservation and awareness, working alongside citizen science groups as well. The City of Melbourne's Bioblitz conducted in 2014 and 2016 was a successful way of reaching a broad audience range however the process itself was scattered. This inconsistency caused the

reproduction of the process from a scientific perspective to be difficult as it is difficult to replicate scientific observations that are made at random locations in the city. Instead, the HollowBlitz was conducted in 2017, which incorporated a more controlled process, using determined study areas and increased directed guidance. The regulated conditions in the study allow the process to be easily replicated in the coming years, generating more concrete scientific evidence of biodiversity changes. Westgate Biodiversity and Friends of Royal Park have been working with the City of Melbourne on flora maintenance and pollinator observatory projects as well.

Some biodiversity education for the younger generation comes from park rangers who hold school programs in parks themselves. While citizen science initiatives such as the BioBlitz have raised biodiversity awareness for the general population, participants of programs such as these already tend to be a small portion of the population. Broader education initiatives could be generated to increase participation in wildlife conservation.

## G.2 - Private Sector

### G.2.1 Mark Adams – Local Native Flora

Mark Adams began Local Native Flora in the 1980s when he noticed the populations of native flora were dwindling and began to grow a small number of indigenous plants on his own. This practice developed into a business contracted by various groups such as the government, community groups, and private individuals to develop or restore landscapes with native flora. These pieces of land are generally around one to two hectares and contain anywhere from 25-30 species. They have worked on anywhere from 50-150 acres of land in South Australia. One of their main contractors is Parks Victoria.

The company tends to plant different strata of plants (understory, mid-story, canopy, etc.) in the hopes the different layers of vegetation will produce habitat for various organisms. The group also acquires seeds from between 15-100 individuals to increase the genetic diversity within their population. The company also occasionally plans for specific species such as black cockatoos, yellow-bellied gliders, eastern quolls, and wallabies. While the company tries to bring in native fauna and produce a vast range of flora, the workers are somewhat limited in how much they can plan a tract of land as they are generally given a required list of plants by the

organization that hired them from which they cannot deviate. The group has not received any pushback from organizations when working on a piece of land. However, they do not have too much interaction with the community by default because they are hired to manage the land after the decisions have been made. Mark also mentions they must always work with the budget and the group always plants indigenous species because even some invasive natives have been so difficult to control that the government has given up managing them.

Although being involved in the planting business, Mark doesn't seem to think that planting is the best option. He says the governments in and around Melbourne are "window dressing" in the cities. He defines this as conducting planting and other efforts in the city to appease the public while they might have more questionable practices going on in the background. He also believes that planting new pieces of land is far less preferable to restoring and maintaining existing pieces of intact habitat. Mark gives an example that Parks Victoria has contracted his group to plant around a car park and it is costing them about $40,000 to do so where last year they spent about the same amount of money restoring and maintaining a plot of about 50-100 acres. He says this is because the government officials are elected by people who don't seem to care about the environment or are a "country of rednecks that don't care about the environment." He believes the public is getting less conscious about the environment in the wake of climate change and the government only exacerbates this in selling as much fossil fuels and other commodities as they can.

Despite these issues, Mark acknowledges that society has learned a lot in the past couple decades about the effect of chemicals and managing land with fire. He admits that he has done things in the past that he later learned were detrimental to the environment. His group is also working to improve land practices by creating an application different groups can use for land management. He warns this will go to waste if nothing is done to remedy climate change.

### G.2.2 Richard Francis – ABZECO

Richard Francis is the CEO of Applied Botany Zoology Ecological Consulting (ABZECO). Richard started from a young age growing up in a rural farm area and his family was involved in the natural sciences. His father was in the Society for Growing Australian Plants and his grandmother was a big birder. He has a university degree in zoology and completed multiple projects ranging from seed collection and propagation, to pest and weed control,

treating waste water from a local chocolate factory to irrigate a golf course, natural area restoration, and flora and fauna surveys. He also lectured at RMIT and a couple independently owned businesses. ABZECO has completed projects from mountain ranges near Russia all the way to the middle of the Melbourne CBD.

One very successful project he has worked on is in the Banyule shire that looks to increase habitat connectivity in an urban landscape. In the Banyule municipality, there is a vegetation protection overlay that sits atop the state's planning scheme, protecting native vegetation and critical wildlife habitat. The overlay was written well to protect land from development when it was determined it was critical habitat for select species. However, this area lacked sufficient native fauna data and therefore, it was not accessible by council and developers were not keen on delivering the most accurate information. A council of townspeople, now the Montmorency Biodiversity Group, contacted Richard asking for advice on how to protect the land and its creatures. He thought the best way would be to pick an indicator species that everybody could rally around. He chose the sugar glider.

Sugar gliders don't eat people's roses and are cute therefore it wasn't difficult to draw people into the project. The community raised funds and created nesting boxes out of plantation sourced plywood (not helpful if you're cutting down trees in the jungle for the boxes) and installed them through town. The community also held heavily staged events where they knew that sugar gliders were going to be present. They organized people and had them arrive at an appropriate time to do an introduction, get participants situated and quiet and put them in a position where it was easy to see the gliders. From there, all they needed were pictures of sugar gliders and kids, preferably in the same picture, and the community support followed with politicians close behind.

Sugar gliders aren't just cute and cuddly though, they serve as an important indicator species for healthy habitat. Since gliders don't come down to the ground and must have large trees to jump to and from, they are great indicator species when looking to conserve habitat connectivity. The large trees they use as primary habitat rely on healthy soils with a presence of bacteria and fungus. In turn, these healthy soils also encourage native shrubs that provide habitat for a large community of birds, insects, and other organisms. While a group can garner a large support for just one cute glider, they are actually conserving an entire ecosystem.

Richard has mapped habitat connectivity for the gliders as well by getting map overlays of the area and using his local knowledge to suggest corridors of where habitat could be improved. His findings were found correct after nest boxes were placed, as those that were inhabited tended to be located in the corridors that Richard suggested. There are a few drawbacks to the project that Richard mentions as well. For example, the nest boxes require constant maintenance and to work on them, volunteers need to get certified to work in heights. Therefore, there is a bit of work and red tape that one needs overcome before the project can be successful. But with strong community support, these issues should not be a problem.

Richard has also been involved in a number of other projects on biolinks and stormwater retention. He doesn't think that biolinks along tram lines are the best option, as railways will always get expanded into that habitat. For the stormwater retention project, he saw a small amount of pushback from a group that wanted a footy oval on the same land, but he was able to convince them otherwise. When creating a natural greenspace, Richard stresses the importance of providing opportunities for the community to use the space for recreation and interaction, but only to a point. For example, the bike trails that wind up and down the streams and creeks are great, but they constantly disrupt any wildlife that is in the riparian habitat. Therefore, it's important to create trails that wind down towards the river and then back up away from it to allow humans the chance to interact with the park but also the wildlife the chance to have refuge. Richard has done some educational talks and there are occasionally people from ABZECO who get put on placement in a primary or secondary school for a year to run a science program every week or something of the like. Richard, like others, also talked about the importance of a group being ready for a grant before it gets announced in order to have the best success rate.

In terms of resources that would be most helpful, Richard suggests case studies as well as short, visual or video presentations. These are most helpful because anybody, even with limited knowledge can take a case study and apply it to their situation (ex: retired schoolteacher who wants to start a Friends group).

### G.2.3 Rob Scott – Naturelinks

Rob Scott is the co-owner of Naturelinks, a private company contracted by a several different investors in order to produce natural landscapes in the state of Victoria. He has recently been appointed as the new president or head of the local chapter of AABR. We discussed the

issue of the lack of connectivity, something we have seen across other groups. He says meetings can bring in several people who have been working in bush regeneration into the same room to discuss successes and places of improvement in the field. Another group that works in the field of bringing people together is the Victorian Friends Network, which works to bring Friends groups together to share information between professionals. Rob sees this lack of communication in different places in the field from Friends groups to government authorities and suggests that conferences facilitate this communication.

Naturelinks has three goals: to promote community involvement, facilitate the environmental interests of employees and involved organizations. Their main clients tend to be governmental organizations such as Melbourne Water, Parks Victoria, and Local Government Authorities whose relations are amiable. Rob sees where tension could arise between smaller groups like Westgate Park and Parks Victoria as the latter has limited funding to provide. In terms of the jobs Naturelinks receives, they develop their own monitoring strategies and they work on consulting and implementation. It is common for governments to split up work between groups for different stages of the job such as one group with the purpose of consulting, one for implementation, and another for monitoring, if it's done at all. Rob believes this part of the industry could be improved. If the entire job is given to one company, they can complete the whole job from initialization to completion and there are no major obstacles if something needs to be changed along the way. The disjointed process results in funds not being spent in the most efficient means, a problem most pressing when it comes to the dollars of the general public. Rob held a forum a couple months ago focusing on monitoring software in the industry and will be holding another on a related topic soon. Attending these forums not only aids to the body of knowledge but also helps the business keep their profile in the sphere of influence. To cover the cost of these forums, groups could be charged a small entrance fee.

Another facet of the industry that needs improvement is the degree to which habitats are planned and monitored for biodiversity. Too often a job is quickly initialized and completed before there is much thought given to the outcomes. Rob believes biodiversity plans must be carefully crafted with consultation from a professional group, hiring said organization, and for the group to monitor after the fact to decide whether the implemented practices were successful. While this process is not common in the local industry, sets of groups that do this well are Non-Governmental Organizations (NGO). Rob describes NGOs as a "one-stop shop" that have the

best management plan and monitoring strategies. One strategy utilized by the Bush Heritage Trust, the Conservation Action Plan has 5 steps: 1) analyze stakeholders and their objectives, 2) develop project objectives, 3) formulate measurable goals, 4) choose and execute actions to achieve these goals, and 5) monitor the project space after completion. Naturelinks would love to follow this business model but they are not given the opportunity due to the partitioning of jobs previously mentioned.

There are several social pressures, one of them being that parks want to plan for biodiversity rather than aesthetic. This is a problem we have predicted however there has been a shift in attitudes in the past couple decades as more people show care in biodiversity and native plants. For example, environmental terminology is seen more often in the public sphere. Politicians and those who give grants have been relatively reactive to this development of public support because a common feature of successful grant applications is to have both council members and volunteer groups on the proposal. The council is attracted for publicity by the volunteer groups. Getting community support and stakeholder management is another key factor in successful projects. Community engagement could be started early, even in primary school, but these standards are hard to change.

Some common features of successful projects that Rob has seen are site conditions, preparation, maintenance and species selection. The site conditions are important because they determine the level of required preparation. Site preparations typically consider the nutrient level in the soil and the maintenance should work to preserve these levels. Species selection is extremely important because a group must carefully consider the project goals and decide which plant species would forward those objectives and the objectives' feasibility. For example, groups will not attract a large mammal in a small, unconnected park. Genetic diversity has not been considered by Naturelinks due to the difficulty of genetic analysis and they tend to only buy seeds from the local nursery. A group (name unknown) has done a great project on measuring genetic diversity and its implications on revegetation. A successful project in terms of biolinks and managed habitat has been along the St. Kilda tram line in the Light Rail Reserve and there are places for expansion in locations such as the Sandringham Railway Corridor. A good resource for the industry is an analysis of the key players in biodiversity management such as NGO's, government authorities, and farmers. This analysis would enable efficient information flow.

Rob sees climate change incorporated a lot in his work and hasn't seen opposition, as Naturelinks does not serve in the role that would give them this interaction. He also stressed the importance of direct seeding. Rob believes golf courses are not incredibly important, as managers mainly want nice green lawns.

# G.3 - Community Groups

### G.3.1 Liz Barraclough – BERG & Tamara Keyte – Naturelinks

Liz Barraclough is a member of Balcombe Estuary and Reserves Group (BERG) and Tamara Keyte is a member of Naturelinks, organizations dedicated to revegetation and management of natural areas. We went on site with Liz and Tamara at the Balcombe Estuary Recreation Reserve and the Briars Park to see some of the revegetation being completed by the organization. Although the area of Mount Martha is more suburban than the inner city, much of the management practices are applicable and similar to urban areas. Liz explained how a lot of their work includes revegetation of different areas. Since they have many projects in different parts of the park, they do not only cater to a single species but rather help maintain many different aspects of the park. For example, they have constructed a boardwalk through the park that reduces the damage humans cause to vegetation and they are very selective in using herbicides, if any.

The group is organized and considers more than just planting but also the community, the business aspect, future works and the connections with Aboriginal people. The group has seen the effects external sources have on the environment. For example, several years ago the construction of a gas station upstream caused sediment to build up in the river but has dispersed since then. Additionally, Liz explained they tried to use controlled burns to manage vegetation however this is dangerous because the Balcombe Estuary Recreation Reserve is very close to residential homes and there are required conditions for the burns to be effective. Because of this and the community's growing concern of fire, they have only been able to burn the area twice, the first time being unsuccessful. Liz explained some of their work is rediscovering how the Aboriginals previously managed the land because there is no record of this knowledge in their area.

Liz explained they complete a fauna study of the area every ten years with the next one occurring in June 2019. Liz was happy to inform us they have a very successful collaborating with other community groups, which are listed on their website, and with Melbourne Water to help manage the Balcombe Creek. They also buy indigenous and native plants at the Mornington Peninsula Shire Nursery in Briars Park. Liz and Tamara explained that a significant amount of their funding comes from grants, which they have received over 10 last years.

The organization receives a fair number of volunteers to help them with their efforts, often through revegetation. Most of these volunteers come from the older generation with retirees looking for an activity to pursue and a social atmosphere they can engage in. Since physical activity can be difficult for the elderly, Liz and Tamara help make the volunteers comfortable as they garden by providing them with knee pads and tools that allow for them to garden without too much physical stress. Still, Liz is looking to attract more of the younger generation or the newly retired to help with the conservation efforts. One of the ways they have achieved this is through corporate volunteering, which Liz says has increased over the past few years. This captures the interest of people who are middle-aged or younger and provides them with a fun, social, outdoor experience in the bushland and similar areas. Tamara said the participants tend to enjoy the work very much and want to return to see the progress. One key part is having volunteers complete work they enjoy with the added social element. Liz emphasized this saying that “if you tell a volunteer to do something they don't want to, you will lose them right off the bat.” Tamara said there has not been a lot of progress of work in school programs until recently. Tamara mentioned they will hopefully have some new opportunities to play a role in school education now that a new curriculum has been introduced that has environmental education as a more prominent topic. They hope they can include workshops that have the children help with mulching and revegetation.

Liz showed us some of the educational resources they have available to the public who visit the reserve and for the more passionate environmentalists including a mural featuring different flora and fauna species that was designed by primary school kids and a local artist. This is in addition to the large posters near the entrance facilities that describe different details of frogs and other local animals.

Tamara, who oversees the social media and some outreach logistics, explained there is a pamphlet and monthly email newsletter sent to an alias of affiliated Friends groups, that

describes their progress, upcoming events, and what other groups are conducting are doing. Over the past few years, social media has been essential involving the community in their conservation efforts. By having technology automatically remind people of events, Tamara found people were more likely to attend than if it was simply a single email or poster informing the public of the event. Finally, Liz mentioned that the group learned a lot through the government sponsored educational program, which has a local chapter called IFFA in Melbourne.

### G.3.2 Paul Caine – Glen Eira Environmental Group

Paul Caine is one of the founding members of the Glen Eira Environment Group Inc., which formed in 1988. Much of the group's actions include revegetation of public greenspaces and on nature strips dispersed throughout the city. The group has conducted work on the organization and vegetation of Mallanbool Reserve, a small park that provides information about Aboriginal culture, as well as Parker Park. Paul commented that since most of the parks in Glen Eira are sports fields, there is limited greenspace for the group to work within. The group buys a lot of its seeds from three indigenous nurseries, those in Bayside, Port Phillip, and Oakleigh since Glen Eira does not have one. Paul says that using three indigenous nurseries from separate LGAs allows vegetation to be from different gene pools therefore there are "more chances of adapting to a certain situation." Paul explained that golf courses have a lot of indigenous vegetation and it is a low traffic area, allowing flora and fauna life to thrive without disturbances. He also explained how most owners recognize this feature of the courses and manage the space to encourage diversity. He explained that the Bayside nursery takes its seeds from local golf courses.

Paul also showed us the Garagne Reserve, which is a good example of the bushland within the urban area. It was a large enough area for trees to fall without there being a danger to the people and there is minimal management required. The Glen Eira Environmental Group does not actively monitor species in the urban greenspaces. The small group may know the occasional individual who personally records species on slips of papers, but the group does not make a concerted effort to monitor parks or other greenspaces.

There are several areas in Glen Eira that, with revegetation, can act as a corridor for wildlife to traverse across the city between greenspaces. The Sky Rail, a rail line with several raised sections all leading to the CBD of the city, was created during 2018 by the Victorian State

Government and provides a significant amount of open space underneath it. Indigenous river red gum trees were planted underneath the sections crossing through Glen Eira to provide a corridor for animals along the avenues created by public transportation. Although some of this vegetation was planted, Paul believes more planting could occur to better suit the local wildlife. On site, we observed a lack of understorey vegetation, something Paul said was necessary for most urban species. Although open spaces were created, there was some pushback from residents near the rail line since the raised railway obstructed their view and was more visible above the street trees. The government had to buy some residential homes because of this disapproval. A new method for linking habitats in the urban environment is the "Skyway", a series of ropes and nets enabling possums and other animals to travel between trees over pathways and roads. This is a relatively new idea and has not been implemented in many other locations but may be promising for highly urbanized areas.

A key greenspace in Glen Eira that could be transformed into a biolink is Boyd Park, also known as Kitmont Street Reserve and the Outer Circle Railway Reserve. This is a long strip of land along a bike and walking path, which the Glen Eira Environmental Group mainly did revegetation for. They also tried to push for a gravel path rather than concrete to have a more natural environment to encourage soil and insects however, they were unsuccessful.

Paul says the city is lagging behind other LGAs since Glen Eira has had a biodiversity policy for only eight months at of the time of our interview. Often the Council selects the wrong species of plants that do not cater to the appropriate bird or animal species. Paul gave an example that the distinction between native (from Australia) and indigenous species (from a specific location or endemic) are often lost on government officials. The Council is very conservative and does not approach the group for support or advice on these decisions. The group will instead occasionally hold consultation practices on site at a park or garden to show officials the occurring problems and discuss the potential solutions.

Paul says although the City Council website tells people how to build their gardens for biodiversity, the Council is not setting the example in other parts of the city. Some projects within the city could be better optimized for biodiversity. For example, underground pipes are being installed for flood mitigation rather than natural wetland. This also does not allow the creek to rise from underground and provide water for the life in the city. Paul continues to explain that it is difficult to change the culture in the city. An example he provided is the

government will send someone to mow the park lawns once a month. Regardless of any recent droughts or if the grass is long enough to be cut, they will mow anyways rather than conducting other work encouraging wildlife. The city must consider public safety since the increased density of bushes and vegetation along paths area a safety concern for the city's residents.

Overall, Paul Caine explained some difficult challenges faced in improving the biodiversity in Glen Eira. One major factor is the government's attitude towards the environment and there is always the conflict of "enterprise against ecology." There is the challenge of presenting to people that the environmental protection is important, beneficial to the community, and worth the investment. Paul says in a way, "trees now have to provide services" because if the government is going to spend a lot of money on planting a specific tree, they need a good reason. The society's perspective on the environment and "fashions" or "trends" are major factors in people's decisions. Paul explained people like the balance of greenspaces including playground, open space for sports, water features, and vegetation for passive recreation such as the layout of Talbot Park. Additionally, larger areas are more centralized and easier to manage at a low cost and with reduced danger to other people. Paul also emphasized the use of human transportation lanes as good locations for biolinks.

### G.3.3 Matt Chester – Rippon Lee Estate

Rippon Lea Estate is not a government managed greenspace and only receives a small amount of funding. Therefore, the managers must acquire all their funding through either donations or membership fees. This allows them to make their own decisions on what species to plant and the locations where they can be planted. They are primarily a historical organization, tracing back to their roots even when deciding what to species plant. They have an extensive set of archival pictures dating back to the original owner Frederick Sargood. If any plant bed needs to be replaced or new species planted, the managers will identify the species in old photos and plant them. They also have a tree replacement program where, if a tree is nearing the end of its life cycle, they will replant a tree of the same species or have one ready to plant once the older one dies. Using this process has resulted in the landscape remaining largely unchanged in 150 years and still features most, if not all, the species that were present when Sargood originally planted.

The park is home to almost all exotic species with a couple indigenous. This park is significant to the urban biodiversity because while it maintains exotic plant life, several rare native bird species reside in the park rather than the more natural parks surrounding it. Matt cited the absence of noisy miners to be the main cause behind the presence of these birds. Noisy miners tend to be hyper aggressive to any competing species in the area and are drawn in by a few habitat characteristics, such as wide-open greenspaces, that are all absent at Rippon Lea. Another reason might be the restricted park access after dark, leaving the birds undisturbed by human activity. Additionally, there are few possums in the area due to the park's resident foxes, which encourages increased bird populations.

### G.3.4 George Fotheringham – Friends of Westgate Park

George is the president of the Friends of Westgate Park. Before the Friends Group arrived at the Westgate Park, the biodiversity was very low, there were relatively few bird species. The Friends Group planted some indigenous understory plant species to improve the habitat conditions for birds. There were also exotic plants and weeds, such as the South African grass, in the park. Though weeds were a great problem, native plants could also take over all the lands as well. The Friends Group recruited local naturalist experts to determine the type of plant species that would suit the local climate and have a higher chance of survival, thus providing local fauna species a habitat.

As for revegetation, the Friends Group looked at remnant sites and identified what had been growing, the ratios of plant species, how well the plants were growing. Then, they carefully bought seeds from various nurseries whenever possible to increase the genetic biodiversity for a more robust gene pool. When possible, they also tried to find the plants that attract local birds. George mentioned they have a learned a lot through trial and error. They now have a general strategy of spraying herbicides to get rid of the weeds first, and then they will mulch the ground before planting any vegetation. George estimated the overall survival rate of the vegetation they planted to be about 75%.

There are hardly any reptiles or mammals that visit the park on a regular basis because they do not have easy access because Westgate Park is mostly surrounded by highways and railroads. The bird population in the park has been increasing due to the leafy shrubs and plentiful of understorey species. We were lucky to witness many superb fairywrens that recently

went through molting season. There are not many migratory birds, however. The Friends Group usually invited people (students and researchers) to conduct monthly bird surveys. The noisy miners are not a major problem within the park since they mainly live on the outside edge of the park. However, they are threatening other bird species in the city. The Friends Group was not very concerned with the noisy miner because they believed choosing the appropriate plant species could easily control the population. Because noisy miners prefer tall trees and open spaces, Westgate Park is not the ideal environment with the abundance of understorey vegetation. Friends of Westgate estimated nearly 160 species in the park. Bird species such as cockatoos and parrots also helped them identify the growth of the trees because they only like large trees. The absence of these birds indicates the trees planted in the park have not yet matured.

The Friends group has not been monitoring the waterway closely, on the other hand. They know it should be a healthy habitat, given the WaterWatch has been conducting its analysis on site monthly for 10 years. It was also believed the freshwater lake has the largest number of fish but not necessarily the most diverse. The Friends Group was active in interactions with scientists including student researchers and experts in the field. There was the pollinator study the University of Melbourne participated in and gathered monthly data on pollinators like honeybees. There was also the Bioblitz event in cooperation with Museum Victoria. They expressed huge interest in making the park into a biodiversity hotspot that can serve as a passive, low-energy, recreation park, rather than a playground for sporting events such as horse racing, which are usually aggressive for the environment. They encourage activities such as picnics, strolling, and bird watching.

They recognized the benefit of mulching in this area, since the soil usually has very poor quality with little to no nutrients. There was very little topsoil but mostly sand since the park lies on the sandbelt. The Friends group also noted excessive mowing is bad for the environment. George was unfamiliar with the term “indicator species” and said nobody had mentioned this before. However, they reckoned the group had been monitoring the habitat using similar concepts. As mentioned before, parrots and cockatoos could be considered as indicator species since they provide clues about the habitat. On the other hand, they did not pay much attention to other fauna species like insects except for pollinators.

There were no significant efforts of cooperation with other organizations or the local government. Particularly, government officials did not consider them very much despite the time, human resource, energy and money they have spent on their projects. Parks Victoria does not support them even though Friends of Westgate is now a massive cooperation since its establishment, compared to other Friends groups around Melbourne. The group's idea of making the park into a community run "private" park shocked Park Victoria. Although they do not work with the Melbourne City Council, they have had several conversations because the Council encourages biodiversity.

The area surrounding the park is mostly industrial and soon is going to be turned into residential areas. The Melbourne City Council wants to make the area into a greenspace with solar panels. The City Council also realized the problem with stormwater runoff, but a solution is expensive. The Friends group is aiming to create a committee of management to be responsible for the park and attempting to improve works with Parks Victoria. They believe the Melbourne City Council is better at progressively managing the parks and if the council oversees Westgate, they will value the place more.

The three main sources of funding that helped develop Westgate Park are Parks Victoria, corporate sponsorship, and government grants. Parks Victoria did not contribute much, but they have been a consistent funding source for the past twenty years. George appreciated corporate sponsorship where corporations give one day to their employees to do charitable work. Corporations provide free labor and money for the Friends group. The group also applies for government grants, which will get them hundreds of thousands of dollars.

For monitoring practices, they don't officially keep count of the plant species and they primarily keep the data informally. They aim to have the whole park controlled and continue expanding the bushland, while maintaining and welcoming any new species that may come along. They also wish to become an establishment that can showcase their success to other volunteer groups. George said that biolink implementation would be a hard task because currently the park is not linked with any other greenspace and roads surround the park. They hope the impervious pavements around the park can be replaced with gravel to reduce stormwater runoff. The Friends group also expressed interest in gaining more publicity from the community through online tools such as forums and websites.

### G.3.5 Chris Long – Australian Plant Society

Chris Long is the President of the Australian Plant Society (APS), an organization that formed 61 years ago by local nature enthusiasts that have worked to preserve existing natural areas. The society has subsections within each state, scattered across Melbourne and Victoria, and there are study groups that focus their efforts on certain plant families. The organization meets monthly where they discuss specific items on a set agenda, including certain plants and growing methods. Additionally, there are arranged excursions to different habitats such as gardens and bushlands. Chris explained that having the meetings be social activities is important when trying to maintain interest and keep volunteers involved. Chris explained that not many community groups as a whole are members of the APS, but rather the members consist of individuals from nurseries or other passionate individuals.

The group's top actions include encouraging planting native flora species in private gardens and public spaces, lobbying the council to preserve existing natural areas, and donating money to organizations that work in nature. In the past, the APS has organized plant sales to encourage home plantings, however, they now sponsor these sales and help the local nurseries advertise to the public. The organization tries their best to encourage the biodiversity of garden plants so that the same plant species are not in all residential gardens. They do this by encouraging the planting of species not often found in a nursery. Chris mentioned that while they are interested in conservation, their main focus is "preservation by cultivation." Chris says they provide free seed from certain plants to their customers and that the American Broadcast Association (ABS) typically purchases seeds from commercial buyers, retrieving seeds from locations such as Western Australia for planting in the Melbourne area.

APS produces a quarterly magazine called *Growing Australian,* which provides concise details about growing certain plant species, and their website provides a significant amount of information, including plants available for purchase. There is also the goal of informing the public that Australian plants are better than non-native plants. Chris explained that the European settlers wanted to plant species that remind them of home because in the past, and even still, people are more appreciative of the larger, "showy," green plants than they are of native Australian flora. Promoting native species requires reaching out to all generations and Chris explained how they are facing the challenge that the younger generation is not as interested in biodiversity and planting as much as the older generations. He mentioned how most gardening

centers are family businesses and that there are fewer people who are wanting to take over the business. We asked Chris about habitat gardens and he stated that most of that information would come from face-to-face interactions with experts or through a couple of books that APS sells.

We discussed the relationship between the APS and the varying levels of government, where Chris mentioned that they mainly work together on large scale revegetation. APS is often called for additional manpower for the physical planting and are not consulted on which plants to select or the ideal locations for them. For example, Parks Victoria Rangers will simply indicate which weeds to remove or where revegetation must occur, and the APS members complete the task without the opportunity to provide input. The group does lobby the government during certain circumstances, such as the widening of a highway that would cut through farmland and a large track of biodiverse land. Some government projects have logged trees that were marked for preservation, showing the government does not follow their own protection plan. When the APS sent a letter to the minister explaining these violations, it was simply dismissed. Chris explained that the Victorian Roads department strongly pushes its agenda past conservation efforts, however, the one factor that it considers seriously is the possibility of works damaging Aboriginal heritage. Chris mentioned that groups lobbying for conservation need to steer their efforts away from projects they know they cannot achieve.

The APS has valuable knowledge regarding vegetation and plant maintenance. The group knows to choose areas with the greatest value and a controllable number of weeds. For example, Chris mentioned that if there were an area that is completely dominated by weeds, the best course of action would be to bulldoze the area and start planting fresh. He also looks out for pest plants such as the “bone seed” weed that chokes out other plants. Overall, Chris explained that the group starts off with the reasonably well-established areas then saves the worst areas for last. Additionally, Chris explained that most of the members are volunteers, often being retirees. He explained that a lot of people like to have control over their garden and what is planted within it, in addition to being different from other gardeners. He also commented that diversity, even if it is not native, is important in an ecosystem. He said that the main role of a garden is to give the gardener as much happiness as possible, and that is the way it is designed.

### G.3.6 Michael Norris – Friends of Native Wildlife and Former Bayside Councilor

Michael Norris is a co-founder of the Friends of Native Wildlife and was a former City Councilor in the City of Bayside. His primary goal is to minimize the loss, restore and enhance the biodiversity within the City of Bayside. Although now he is not very optimistic about the progress in society, Michael has done a considerable amount of work in environmental protection. He is a bird specialist, a lead author of a book on local birds, and an environmental politician, having lead campaigns supporting the environment, one of which he has been running for 20 years. He also organizes a group that monitors the local bushland, the Bay Road Heathland Sanctuary and was influential in getting the Ricketts Point Marine Sanctuary in Beaumaris approved.

As part of the Friends of Native Wildlife, Michael helped with revegetation of various areas and identified key species that people can see when conducting the revegetation. For example, he would look for where birds visited most and then start a vegetation project that would provide seed for those birds. He would also focus on frogs and improving their habitat through reducing weed invasion. Michael explained he did not pursue larger projects because it often involved buying lots of land for habitat and for corridors, which costs a lot of money, sometimes upwards of $1 million. There are several biodiversity hotspots that he identified including the Royal Melbourne Golf Course, which has a lot of vegetation and fauna species, as well as the Long Hollow Reserve in Beaumaris that had high biodiversity in flora species. Other diverse areas he identified include bushland reserves and the coastal strips.

Michael commented that his work often did not involve monitoring the species in the different greenspaces. While there was a monthly general survey at some sites, he said that there had not been people who set a standard for monitoring practices. Michael commented that having biolinks through people's backyards is beneficial and that, unfortunately, the budget for those initiatives "drifted away." He explains how the urban species most people are aware of are birds, which don't need as many obvious, physical links. However, he mentions that animals like frogs, skinks and blue-tongued lizards have a difficult time moving between habitats as they require water flows or other connections and focusing on these species will have a greater effect on movements advocating for biolinks.

Michael did a lot of work involving microbats and educating children about other animals in the area. The Friends of Native Wildlife are part of the Bayside Environmental Friends

Network and they have put on some events including play groups for kids and events for the general public. Some of these include looking for invertebrates, birds, and insects with the goal of getting participants excited about the environment by having them search in the undergrowth. Michael explained that he thinks the best way to educate the public is through first hand experiences such as these, also commenting that adding competition to the workshop captures children's interests in particular. He continued saying past state education programs in biodiversity for primary school kids have since disappeared and so children are lacking this edification.

We talked with Michael about the opinion of the general population and he thinks people have less interest now, mostly due to a general lack of knowledge. He explained that some, particularly "city folk", might only encounter a couple of birds for their interactions with nature or won't get engaged at all. Michael believes this is partially due to the reduced environmental education over the years but also because of lifestyle choices. In his experience, the best way to get people interested and "up in arms" about a topic is to have something to campaign about. Having a specific goal, location or event that sparks people's interest gives them a cause to fight for. This additional support is what helps bring about change. Michael continued to explain that most politicians "go where the wind is blowing" and since he left the Council in 2012, there hasn't been an "environmentally oriented" councilor. The main challenge here is budgeting where money should be allocated for various projects. Michael said that the Council spends a significant amount of money on improving the conditions of roads. He generalized the "tragedy of the Australian Government" as "federal government has the money, state government has the power, and local government has the problems." Although the Council tries hard to promote the gardening of indigenous plants through the Gardens for Wildlife program and green structures, nurseries cannot produce enough vegetation for the entire city.

He worked with three sets of Friends groups of Elster Creek to help with the Elsternwick Park campaign, which had some pushback from the community. Michael explained that the sport community has a large influence over these areas as well as the "dog people" who want to have the freedom to walk their dogs off-leash. Michael said a good way to convey information promoting biodiversity is having influence over the Council decisions, either by getting elected or demonstrating to the council of the benefits of ecosystems. Michael explained that if there is not a lot of money required for a project, it is not a problem. However, on a larger scale, he said

one should convey what people would lose if an area is not protected because if people know how actions or lack of action will affect their lives, they are more invested in the problem. Michael also said a great way of educating the public is through first hand experiences such as arranged walks, where an expert can show what the problems are exactly and how to fix them.

### G.3.7 Marilyn Olliff – Hobsons Bay Wetlands Centre

Marilyn Olliff is the Chair of Hobsons Bay Wetlands Centre, a working Friends group that was proposed in 2016 and became an incorporated group in August 2018 with the support of the Hobson Council with the primary goal of educating the public about the natural environment. Some of their key activities are conducting education workshops for the public. Currently, the workshops and events occur three times a year and are supplemented by other forms of outreach such as social media and other talks with community groups. One of their workshops, conducted by a professional Australian scientist, teaches the participants how to observe nature, encouraging people to "look, don't touch." The group is lead around a wetland and other areas rich in biodiversity and is provided information about the habitat. Additionally, participants are asked to sketch and describe different parts of the environment around them, discussing how they observed different flora or fauna species and what they found. With the workshop geared towards the general public, reaching 20-25 people with each session, Marilyn believes that this hands-on experience will catch the interest of many people. Other workshops the group is looking to implement include focusing bird species and water bug. For programs such as these, Melbourne Water sets the standards and provides a database for the information to be stored, creating the programs while the Hobsons Bay Wetlands Centre acts as the link to the public. Since these programs all have different topics, they attract different types of people who of varying interests including families, tourists, and others. Marilyn mentioned that the group has spoken to year seven teachers and education providers about excursions to the foreshore as part of the local school curriculum however these efforts are still in progress. She believes that the first step towards gaining support from the community is providing the public with an enjoyable experience in nature.

However, this work requires a significant amount of financial support, which potentially includes government funding. The group is working on developing a report that will convince government entities and the public that they are a worthwhile investment. Marilyn explained that

the group is currently marketing their workshops using social media as well as promoting through the Hobson local council who posts events on their website. Still, the Hobsons Bay Wetlands Centre has a considerable amount of support and interest from the community where the Council has been generating a protection plan for the Graham Reserve. The Hobsons Bay Wetlands Centre surveyed 28 organizations in the area and 22 groups wrote letters in reply, expressing their support and interest of protecting the reserve and enhancing it for environmental education. These organizations include grocery lines, environmental groups, and other community associations. The group's key partner is Melbourne Water, which has helped the Hobsons Bay Wetlands Centre run Water bug and Water Watch programs.

Although Marilyn says there is plenty of outdoor space for them to conduct the programs, the major challenge the group is facing acquiring facilities that are large enough to act as a base of their operations. The largest group that opposes these movements is the sporting community who wishes to expand and or protect their facilities. Marilyn provided the example that a local sports organization wants to add a female changing room on current greenspace but there is a competition for space. Another difficulty the Hobsons Bay Wetlands Centre is having is the lack of external funding, as finances for reserves are very small in comparison to those of sporting facilities who often have larger budgets. The group is trying to persuade sporting groups that the protection of the environment will not eliminate the sport organization but will only complement their work. By doing so, Marilyn hopes to reduce this rivalry, demonstrating how areas for passive recreation in the environment is important for many people just as much as sporting venues. Marilyn believes the best way to gain this support is building amicable links and relations with members of the sports groups in order to have in person conversations about environmental projects in a friendly atmosphere. As of yet, the wetland center has not reached the stage where they have other challenges so their primary focus is demonstrating to the community how much they have to offer and the benefits that will come of their work. Marilyn says the group would be interested in connecting with other Friends organizations and maintain strong ties where they can share both environmental knowledge as well as advertisement methods and outreach techniques.

### G.3.8 Trevor Phillips – Friends of Gardiners Creek

Trevor Phillips has been a member of the Friends of Gardiners Creek for years and is the current president of the group. He helps with revegetation, organizing volunteers, and communicating with the local government. Glenburn Bend Park is the group's current area of focus, which resides in Glen Iris, Melbourne.

The Friends of Gardiners Creek consists of a small group of dedicated volunteers that relies on the general public to assist them in their efforts. There are different groups of people who dedicate effort at different times, primarily one group on Wednesday, one on Saturday, and a few extremely involved individuals, such as Trevor, who work multiple days each week. There are approximately 51 members in the group, with a core of five on Saturdays and two or three on Wednesdays. One volunteer has a PhD in science and thinks of new planting methods and plant species to experiment with. When they garner support from the general public to help with the planting, they will often host a barbecue. This turns it into a social event that can bring more volunteers and create a fun, personal experience for all involved. They also partner up with other organizations or businesses in the area and do the same (plant and barbecue). The Friends of Gardiners Creek takes care of the maintenance of the park, but also utilizes school groups to assist with the maintenance.

When deciding on which species to plant, the group uses a list provided by Boroondara, which lists the indigenous plants of the area, including trees, shrubs, and groundstory. They purchase around one-third of their plants from a nursery in Fairfield, one-third from GreenLinks, and the rest are either grown by volunteers or are seeds collected from existing plants in the park.

The group has seen around 60-70 native bird species around the park, and only manage for certain birds that they personally like to see. For example, they have put in plants that cockatoos will use and eat the seeds from. They have also noticed that not a lot of maintenance is needed once a solid foundation is set, as a variety of natural processes take care of that such as skinks spreading seeds around the park. An issue that is present in the park nearly every year is flooding as the park expands right along Gardiner's Creek. The floods in the summer can get very high and destroy plants along the banks of the creek. Another issue that almost every group faces is getting money for their projects. The Friends of Gardiners Creek is largely self-funded, getting corporate and individual donations, and they are a registered charity. They avoid

applying for grants because they prefer to work at their own pace under their own guidelines so they do not have to rush to meet deadlines.

When they work with kids, it is almost entirely for them to help with planting and maintenance. Hence, there is no educational aspect to it or specific learning outcomes. The group does not conduct bird surveys or monitor which birds. They have noticed noisy miners kicking other birds out, but not to the extent of raising concern.

There are a few different ways in which they advertise for volunteers. They put information in the Stonnington e-newsletter, use online sources to spread the word, and post on the National Tree Day website. There is a major focus on utilizing online resources, as they provide the easiest way to reach a large number of people.

Throughout their efforts, the group works with three other organizations: the Stonnington City Council, Boroondara, and Melbourne Water. They use these other groups as resources to share ideas and information, such as planting methods. The group learned about a new weed prevention technique that has been the most effective method they have ever tried. This method involves four steps: start off by weeding the area; put cardboard on top of the area to prevent weeds from growing by providing a physical barrier and inhibiting them from getting the sunlight they need; put mulch on top of the cardboard for new plants to grow in; and put in new plants around eighteen months afterwards, when the cardboard has biodegraded.

The group is constantly pushing for more land on the outskirts of the park. They often just take land from Melbourne Water because they oversee much of the land along Gardiner's Creek. They will also outline areas of the park where they plan to put in new plant beds to show to Council. Stonnington Council is very progressive and really willing to cooperate when consulted. Thus far, they have not faced issues in their attempts to expand and add new beds to the park.

Stonnington itself has made impressive leaps for considering biodiversity and has even started planting themselves in other parks around the city. They have dedicated $3 million to biodiversity after already spending around $8 million on the Yarra River Biodiversity Project that started in 2010. The city is doing great work and has a shocking commitment to the topic, and they are very cooperative and helpful to the Friends group. Since Friends of Gardiners Creek is the only Friends group in Stonnington, they receive a lot of attention and help from the city. There was, however, a main concrete bike trail put in on the other side of the creek, which the

group pushed against as a dirt or gravel path would be much better for the animals in the park. According to Trevor, the department in charge of the path does not communicate with the environmental side, leading to the concrete path being put in regardless.

### G.3.9 Elizabeth Walsh – Friends of Native Wildlife (Bayside)

Elizabeth Walsh is one of the founding members of the Friends of Native Wildlife in the City of Bayside, acting as President and Vice President over the past 23 years. She strongly believes that corridors are the most important feature that can further enhance biodiversity in the city and comments that this is difficult in a well-established urban setting. This makes it difficult for councils and the community to be willing to change the area as it would either cost a significant amount of money or it would change the set "norm." Elizabeth also states that biodiversity protection is a low priority of the City Council, limiting potential projects that could be implemented. One reason is that the population density increased and new areas of development allow for only a small portion of natural, indigenous vegetation.

Elizabeth has aided in the Friends of Native Wildlife frog and bat surveys, monitoring the progress of fauna populations across many greenspaces in the Bayside. These occur "every month on the second Wednesday of each month" and have been conducted for a decade however a lot of the data is not organized in a concise format.

The group has also conducted outreach programs to engage the community since lack of volunteer work, community participation and support is a major factor Elizabeth hopes to improve. Some programs include a couple of indoor talks a year, nature walks held at night to observe bats, as well as daytime walks held to showcase the heathland. The variety of projects allows the organization to reach out to multiple different people with different interests. However, one area where Elizabeth feels they have "failed" is getting the younger generation to regularly support the organization and volunteer with the conservation efforts. Elizabeth said that they try to run school programs to educate the younger generation however schools often have a strict curriculum, limiting the ability of teachers to incorporate hands-on biodiversity programs into their tight curriculum. Although Elizabeth had a contact at a school that used their workshops into the curriculum, these teachers or contacts become lost as people move and leave school districts. Therefore, this method of outreach is inconsistent in educating the public.

Another example of outreach is the fact the Bayside Community Plant Nursery sells the Friends group's nest boxes and the Friends' website provides information on to help them install the boxes and improve their garden maintenance. However, this information can often be difficult for some to understand and Elizabeth explained that most do not ask for guidance since people don't want to be told "you must put it this way" in their own garden. The low number of volunteers at the Friends groups result in the website being updated infrequently and irregularities in advertisement such as social media publicity posts or email newsletters to occur. Although the Council does have a significant amount of information on their website, most visitors of the site are looking to solve a problem unrelated to biodiversity. The City Council itself often does not have the proper knowledge to plant indigenous plants rather than native ones or other key aspects of biodiversity conservation. As a result, Elizabeth said that the "majority of the population have no idea we are around, they don't understand there are Friends groups."

The Friends of Native Wildlife does have some connections with other Friends groups and is part of the Bayside Environmental Friends Network where members increase publicity through shared ads on social media sites and the group's personalized sites. One of their better contacts is with the Port Phillip EcoCentre however this connection relies on only certain individuals, such as Baykeeper Neil Blake, to make these channels. It is possible to have an online forum or other communication network for these groups to use however there currently are limited staff members who can be responsible for that work.

Elizabeth praises the work completed at Westgate Park and comments that part of the success is that the work is centralized at one location while their group works in a municipality where most green spaces are dispersed about a greater urban area, proving difficult to focus work on one area. Overall, Elizabeth finds that raising awareness is the biggest challenge they face and that would be the first step in increased biodiversity in the city.

## G.4 - Local Experts and Enthusiasts

### G.4.1 Amy Hahs – Urban Ecology Professor at RMIT

Amy Hahs has had several different roles in the field of urban planning and ecology for a long time. She spent most of her time doing research on urbanization and its effect on ecosystems. She currently serves as a professor and advisor of graduate students, and started her own consulting company 2 years ago.

Amy started her career in research, particularly on urbanization gradients and looking at the different pressure urbanization places on ecosystems. She has done this work in several different cities but the majority in and around Melbourne. When analyzing different pressures, she has looked at those involved in different landscapes, design styles, the surrounding landscapes, and the placement of the city on a global scale. She aims to further understand and reduce the impact of urbanization on the environment and hopes to see integrated land practices that take both urbanization and biodiversity into account.

In her consulting company, Amy is still exploring different areas that she would like to focus on and thus has been working with a few groups such as local community run initiatives, like the Port Phillip EcoCentre, as well as both state and local governments. For the state government, she has investigated at how tree canopies affect some factors, such as the movement of fire through a landscape, and multi-story habitat planning. When working with local governments, she has looked at habitat connectivity and conservation and influenced several strategic city plans. Overall, she sees that the Victorian government is open to the idea of integrated city planning and it has a biodiversity strategy since the 80's that was recently updated. As the government is particularly interested in connecting people with nature, the strategy focuses around this along with some on-site work. The most crucial components to plans like these are having an overall commitment by those affected and getting the resources and support to fully implement the plan. Amy says occasionally a city adopts a plan and then not commit to it, letting its policy fall to the wayside. Having conversations on the volunteer and community level as well as the government level is crucial to achieve full participation by the entire district. One example of where an initiative has received full support is the Urban Forest Strategy in the City of Melbourne.

In order to fight for the protection of natural resources, advocates tend to have to assign quantitative value to a resource. This can work well in some cases; if the government must pay an expensive amount to cut down a tree, they might work around it instead. Another method of doing this is including the consideration of ecosystem services. For example, when establishing a wetland, mentioning stormwater and about the risks of floods is a great way to get the community and government on board. Amy has also seen a couple initiatives that have had the goals modified in accordance with public attitudes. The public perception of safety is a multifaceted problem that must always be taken into consideration. A couple issues regarding

safety are the fear of tree limbs falling, criminals hiding behind bushes, snakes, and fire. Differing desires of land use is another area where the public can voice opposition to a natural greenspace. Being in the business of consulting, Amy thinks that all these conflicts can be remedied with land planning and where different vegetation is planted. One issue she thinks will eventually arise, surrounds standing water in an urban environment. As the global temperatures rise, diseases in the southern hemisphere are moving south and this could cause some mosquito borne illnesses to work their way into city. There are methods of managing this standing water, but currently Amy isn't sure which one is the best solution.

When talking about monitoring systems, Amy tends to think that community science is a great way to get people involved on the land they have helped to conserve. A few phone applications can be used including iNaturalist and eBird. However, whatever method is used, it is always good to tie it into a larger system such as the global biodiversity database or the like. This idea applies to educational resources as well, because when creating an educational resource, it is important to support any form of media you create with others as well.

Amy has some experience with the media and advocating to the public about her initiatives from her consulting company. She currently is looking into a course that helps small businesses gain exposure to the media without paying them. What she describes is a system similar to that used in the sugar glider method used by ABZECO (see G.2.2 for context). That is, choosing the right times and conditions that will attract the public and the media. A couple methods that Amy uses in order to garner public attention is to communicate with the local community, having platforms that people can share with each other, and follow up in several different ways. On one project, Amy engaged with the local community by talking to local shops that were across from a riverbank that she was revegetating. By doing this she was able to put up flyers in their store and learn that they were quite supportive of her beautifying the riverbank. Then when people came to support her initiative, she found that it was helpful to have something like a Facebook page that she could share with people and more importantly, that they could share with each other. This online information is useful as it allows people to more easily follow up on the project. Finally, if people are willing, other methods of following up can be used such as postcards and email addresses. While she believes these worked well for her, she also cautions to consider your target audience before deciding on methods of outreach. Amy has done limited research with biolinks in Melbourne but has done some research at a larger spatial scale. One tip

she has is that it is better to propose biolinks where stronger connections exist than a place where there isn't much connection.

If there is crucial habitat somewhere, there can be ways to have it present in the surrounding area such as in public parks or along tram line. She thinks that a focal point should be identified, and other parks can mirror and coordinate their planting efforts with each other. Amy says that sometimes people will get nervous if they plan for a certain species and it doesn't show up immediately. She says that although the animals may not be there immediately, it doesn't mean they won't show up eventually. And even if it doesn't, the work could still be worthwhile. In terms of wildlife connectivity, it is important to include multilayered forest as well as different kinds of habitat to incorporate many species, which can be challenging.

### G.4.2 Tamasin Ramsay – Residential Gardener

Tamasin Ramsay is a resident of Port Phillip and has a significant background in environmental policies having worked for an NGO in the UN. She was involved in climate change negotiations, and currently works in the Parliament House as a research and policy advisor. She has volunteered at the EcoCentre several times and provided the team with insight into the management of a residential garden. Her primary source of information in creating the garden was the *Indigenous Plants of the Sandbelt*, co-authored by Neil Blake, Rob Scott, and other local environmentalists. Tamasin stated that the book provided all the information that she needed about what plants thrive in her area, what is required to maintain them, and how to easily structure the garden to enhance the biodiversity of the area. She said, "I am not a botanist… I am just a person who cares about the environment", making this book perfect for her work. Tamasin says she uses indigenous garden centers and nurseries such as the Westgate Biodiversity: Bili Nursery. She has attempted to make her garden exhibit more types habitats, which takes some "experimentation to create different areas to establish a bit of an ecosystem", by means such as including a more natural wetland. Bird boxes are not found in Tamasin's garden, as she believes that if the area is built in a natural way, then wildlife will be attracted to the area. Tamasin does not take much action to prevent "pest species" such flying foxes or possums from interacting with her garden but rather leaves the higher fruits for the animals or simply physically moves smaller animals like caterpillars because "everyone needs to eat."

Tamasin has not worked closely with other gardeners or community groups besides the EcoCentre though she has tried to implement some environmental change in the community in the past, the most prominent being a push for a compost bin in her community. She passed out information about the benefits of the compost bin to the surrounding area and showed people her personal compost bin and how easy it is to manage. While most of the community supported the idea, a small, strong voiced portion opposed it claiming that it would make the area dirty, smelly, and would attract unwanted animals such as rats. Being passionate about the environment, Tamasin continues to push for a communal compost bin, having contacted and showed the Port Phillip Sustainability officer the evidence she had provided to the community. Although the officer expressed interest, Tamasin has not received any word back from the government representative.

Tamasin believes that the government needs to conduct more work on all levels, both in and out of the city. "We talk about nature like it's something *out there* but, we are nature." She provides us with examples that the government creates many parks in the city but still log forest in other places. She also expressed her opinion that in this day, citizens should not have to fight to protect trees from being cut down and replaced with parking lots, but that it should be already accepted by society.

Tamasin strongly believes in family education where the values of the environment should be passed by each generation because this is where one gains values that stay with them for life. Additionally, outdoor recreation and other "nature play" is important for all ages as it exposes them to nature and shows them the importance of the environment first hand. This can include outdoor classes or workshops for schools or corporations in order to reach a broad age range.

When asked about resources that could help residential gardeners, Tamasin was very adamant about printed materials such as the *Indigenous Plants of the Sandbelt* book. A key element that she wished she had was having access to any of those materials and knowing where to start. She was also very interested in being connected with and learning from other gardeners who share similar interests. Being able to speak to someone in person with demonstrations is very engaging and one can gain a lot of information from other gardening enthusiasts.

### G.4.3 Gill Upton – Residential Gardener

Gill Upton is a resident of Port Phillip, a teacher of local history, and volunteers frequently at the EcoCentre, having worked with Neil Blake in revegetating the foreshore and other properties. Although Gill used to have a garden with more resemblance to those in the UK, she began using native plants instead, partially because the non-native plants required a lot of water. Now her garden is entirely made of indigenous plants. She noticed that a lot of the nearby gardens have native plants but not indigenous ones. She also has a large community garden just outside of her property that is flourishing with vegetation and is hoping to make business cards that advertise these infrequent communal gardens so they can be implemented in other areas. Gill shared that she does not overly maintain the garden because she wants it to develop naturally. Apart from a mainstream landscape design course, she does not have much experience in land management but rather gathered the information from the *Indigenous Plants of the Sandbelt* by Neil Blake, Rob Scott, and others.

Gill's main planting strategy for location considers light exposure, the soil, orientation, and aesthetic. Her plants don't require too much special attention, but she looks at different places to put water for different bird species. There are some tricks she uses occasionally such as giving them diluted seaweed, mulching in the summer and ensuring she plants at the right time of year. When the topic of biolinks came up, Gill emphasized the importance of increasing planting along railways and wetlands, as these are key locations for linking habitats.

Gill is not a member of any Friends groups and does not speak to others about the management of her gardens besides in-person interactions such as the interview we conducted or with members at the EcoCentre. She was able to talk with some affiliated people who attended the Annual General Meeting (AGM) at the EcoCentre, however, the event was not advertised but simply implied that the attendees would find out through the EcoCentre website. Gill commented that there was not a lot of communication between community groups and Friends groups such as these.

We discussed the government's role in biodiversity protection and Gill explained that with the upcoming election, hopefully there will come more changes in environmental and ecological policies. She explained that there are problems in environmentally friendly movements because they are expensive and could damage the community economically however, she stands behind these movements saying it must be done to make change. Still, she

says that it is very difficult to change the minds of government officials and is hoping that industries such as water and recycling become centrally managed, so the corporations don't have the power over the environment. However, Gill believes it's the younger generations who over the past few years have risen to strongly speak about various issues in the world that will make big change in government policies and society.

When it comes to environmental education, Gill thinks that the younger generation needs to be taught about the impacts of climate change, so they understand how it directly affects their lives. This could include having students create and distribute pamphlets. One of the main resources Gill would recommend for someone starting their own residential garden is and experienced person to talk to who shares their interest. She also thinks that visuals would be helpful to show the person what their garden could look like and how the layout could be organized. On-site demonstrations would also beneficial for people to see locations in real life and how they can mimic or protect those places.

### G.4.4 Rob Youl – Retired Forester and Previous Consultant of LandCare Australia & Peter Parrington – Dedicated Bird Specialist

Rob Youl, a retired forester who works with community and on land use policies and reclamation, has teamed up with Peter Parrington, a dedicated bird specialist and enthusiast, to determine and establish wildlife corridors across the City of Port Phillip. They have identified a dozen different patches of green space, including Westgate Park and Elsternwick Park that are linked by tree-lined streets, providing potential routes for biolinks. Having mapped out the green spaces in Port Phillip and their potential biolinks, they have been communicating with other local experts whom conduct studies in different regions of Port Phillip, including Mary Allen Tamidge, who has conducted a weekly bird survey at Albert Park since 1979, Andrew McCutchen, who has led a bird group at Westgate Park once a month since 2007, and Gio Fitzpatrick, who studies the birds and insects in many different green spaces in the area, specifically around the eastern end of Port Phillip. Around 220 bird species have been identified in the area, but some have been disappearing over the years. Rob and Peter are trying to analyze how to revegetate areas to provide habitat for the native regional birds and hopefully bring some of them back, keeping in mind to think globally, but act locally.

A common issue around Melbourne greenspaces involves the Noisy Miner, a native bird that drives other native birds out of habitats. These birds typically like mowed lawns and open spaces but can be overcome by the judicious planting of trees and shrubs that includes several strata of canopy which provides other birds places to retreat to.

The Council has supported Peter and Rob's proposal thus far, as it tends to be progressive and looking towards the future. Regarding funding, election season is a beneficial time campaign for money for projects, as politicians tend to distribute more money to gain campaign support. Part of Peter and Rob's plan involves a series of scattered bushes about a meter high for smaller birds to jump from bush to bush. The identified streets are very wide which tends to negate police and public concern with denser planting and allows for enough space to establish strong corridors linking green spaces. For this project, they have created an email group and hold meetings every other month at the EcoCentre. There are around 80 people on the email group that they keep up to date, with numbers growing.

Along with Council support, they understand that community support is just as, if not more, important, stating that what the community wants is what they will get. There has been a rise in public support of environmental protection in recent years, which is very beneficial to their initiative. The environment is a priority for them, and "ideally the dreams come from the community itself." The goal is to respond to the good ideas from the community, as "often their ideas will be ahead of your own." They want to inform the community with social media, pamphlets, and other resources and give the community as much input as possible. Another successful technique has been pitching their work as an experiment to the community, which people tend to support.

With a community focus, it can sometimes be difficult to plant because "anything in the urban environment has to be aesthetic." The issue with this is city planning consists of straight lines and symmetry, while the natural bush is random, asymmetrical, and not always aesthetically pleasing. Finding a balance between these two opposing sides is key in creating a successful habitat that will bring in native species and gain public appeal. A few years ago, however, an urban forest was developed along a subway line and has been a big hit with the public. It is full of native plants and many walkers and bikers often use the trails.

When identifying biolinks, there are several main factors they consider. They use local knowledge and enthusiasm for the information they need. Along with this, they know that

connections don't stop at their municipality borders. They plan to contact neighboring LGAs to expand the biolinks outward from Port Phillip, providing more corridors for fauna to travel between. They had a meeting at the EcoCentre and put up all the maps connecting the area displaying any existing greenspaces. With this, people could see the green patches, identify parks and gardens more than two or three hectares, and determine possible corridors, including streets with medium strips and coastline along the beaches that could have some plantings put in. At the beach, "people want a bloody view," but there are ways to compromise with patches of low bush habitat and find a solution that works for all parties. The project thus far, however, is a bit of theory and practice. It is all theoretical, with the hopes of implementation coming soon.

They tend to focus on planting for birds since once these species come to the habitat, other animals will follow. They have also tried to restore hydrology with chains of ponds in Westgate Park. Melbourne used to be filled with wetlands before European establishment of the area, and they hope to bring back wetlands to hold water, help with flooding, provide basins as habitat for wildlife, and bring a wealth of biodiversity.