# Banyule Planning Scheme

# Planning Panels Victoria

# Amendment C107

# Treetops Adventure Park at Yarra Flats

# in Yarra Valley Park, Ivanhoe East

# Expert Witness Statement

## Lincoln Kern, Ecological and Bushfire Risk Consultant

25 June 2021

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## Qualifications and Experience of Lincoln Kern

I am a trained ecologist with a Bachelor's Degree in Biology and Environmental Studies (completed in 1986 with field studies in Pacific Northwest USA, Southwest USA, India and Central America) from Antioch College in Yellow Springs, Ohio, USA, and a Graduate Diploma in Environmental Management (1998) from Deakin University, Victoria. In addition, I have been involved in environmental planning, ecological restoration and bushfire risk management for 30 years in Victoria through positions with the National Trust of Australia (Victoria) (1991-93), Greening Australia Victoria (1992 including organising a series of field days on reconciling fire risk and native vegetation management), as a supervisor for labour market programs (part-time1993-94) and through Practical Ecology P/L, formed in 1993. I also worked in 1998 as Environmental Planner for Wellington Shire Council in Gippsland where I assessed many native vegetation clearing applications, developed the Shire's roadside vegetation management plan and participated in developing the municipal fire plan.

As owner and manager of Practical Ecology P/L I manage and implement extensive contract works, ecological consulting and bushfire risk management projects. The work has included designing work programs and managing crews doing ecological restoration works such as weed control in remnant vegetation and revegetation projects. I have also written many management plans for bushland reserves across metropolitan Melbourne and dozens of flora and fauna assessments and land management plans for bush blocks in municipalities across Victoria. In addition, I have produced or coordinated many ecological and bushfire reports on a wide range of projects, from urban and rural subdivisions to houses on rural bush blocks.

My expertise in fire ecology and fire risk management is based on training in fire ecology through my academic training, a course in applying the Wildfire Management Overlay, completion of the Development and Planning in Bushfire Prone Areas course and training in planning prescribed fire. I have also coordinated many bushfire management plans and wildfire management statements.

I also have specific experience with another self-guided high ropes course, i.e. the operating course at Arthurs Seat on the Mornington Peninsula. I conducted the initial ecological impact assessment in 2010 and Net Gain Offset Management Plan in 2013 then had the opportunity to observe the construction process. Subsequently, I have been able to experience the course and observe the regeneration of the native vegetation around the course on several occasions since its establishment.

As manager of Practical Ecology, I have designed and implemented hundreds of restoration projects, flora and fauna surveys and planning assessments across Melbourne and Victoria. I have also developed particular experience in developing property management plans for bushland properties that reconcile development, bushfire risk and native vegetation protection through negotiating with many land owners over several years.

In summary, my expertise is in planning law and objectives and the management of native vegetation and bushfire risks. Over time I have taken extensive knowledge of vegetation, ecology and bushfire and combined it with knowledge and experience of the planning system gained through training and experience. My detailed CV is attached at the end of the statement.

## Instructions to Lincoln Kern

I was instructed as follows :

1. Prepare a statement of evidence and appear as an expert witness at the hearing.

2. Your statement should:

2.1 consider and respond to submissions relevant to your area of expertise;

2.2 express opinions about the ecological issues associated with Amendment C107; and

2.3 be prepared in accordance with Planning Panels Victoria's Guide to Expert Evidence.

### Previous reports

Practical Ecology staff produced the following reports to support the planning permit application:

*Flora and Fauna Assessment, Native Vegetation Impact Assessment and Land Management Plan, Yarra Flats TreeTop Adventure Park, Ivanhoe East*. Prepared by Senior Ecologist Liza James with my involvement and input in June 2021.

*Addendum to the Flora and Fauna Assessment, Native Vegetation Impact Assessment and Land Management Plan, Yarra Flats TreeTop Adventure Park, Ivanhoe East Report*. Prepared by Senior Ecologist Liza James in March 2021.

I established the process of project implementation and quality assurance for Practical Ecology and helped supervise the ecological and bushfire risk consultants who prepared the reports.

I also helped conduct field work for the project and contributed sections of the report in 2016.

This statement will review and discuss relevant ecological and bushfire issues and relies substantially on these earlier reports for data and information.

### External documents and other materials considered

This statement will summarise my expert opinion on relevant issues as investigated, discussed and documented in the statement below. I have reviewed all of the relevant following planning and associated documentation.

*Planning documents and associated material*

BANYULE PLANNING SCHEME Incorporated Document Treetop Adventure Park 340-680 The Boulevard, Ivanhoe East September 2020

Information brochure – Ecoline Pty Ltd

Heritage Insight (19 September 2019). *Aboriginal Heritage Due Diligence Report – Proposed TreeTop Ropes Course Development, Eaglemont*. Prepared by Shannah Anderson for Ecoline Pty Ltd.

*Planning Report – Planning Scheme Amendment 340-680 The Boulevarde, Ivanhoe*. Prepared by Perry Town Planning and dated September 2020.

Melbourne Water (26 April 2017) *Pre-development advice letter*.

*TreeTop Adventure Park Ivanhoe Transport Impact Assessment*. Prepared by One Mile Grid and dated 31 May 2016.

*Arboricultural Tree Health and Hazard Assessment*. Prepared by Russell Kingdom and dated 31/8/2018.

**Other documents reviewed**:

Amendment_C107_-_Submissions_Combined_-_Redacted__numbered.pdf

Banyule City Council (2000). *Wildlife Corridor Program*.

Banyule City Council – Amendment C107 Submission Themes Summary – Attachment to Council Report, 1 March 2021

Commissioner for Environmental Sustainability (2018). *State of the Yarra and Its Parklands – 2018 Report.*

Heard, S., Treadwell, S., Gaskill, S (2018). *Environmental Response of Reconnecting Billabongs along the Yarra River, in Editors Names, Proceedings of the 9th Australian Stream Management Conference*. Hobart, Tasmania.

Melbourne Water (2018). *Healthy Waterways Strategy*.

Parks Victoria (November 2008). *Yarra Valley Parklands Management Plan*.

Parks Victoria (2013). *Yarra Flats Park – Revised Concept Plan*.

*Peer Review of Ecological Reports for the proposed Banyule Planning Scheme Amendment C107 for a Treetops Ropes Course Development, Ivanhoe East, Victoria*. Prepared by Shannon LeBel at Ecology and Heritage Partners and dated 8 June 2021.

*Peer Review Arboricultural Tree Health and Hazard Assessment of the Proposed Tree Top Climbing and Adventure Facility by Ecoline* (2 June 2021). Prepared by Arborist Reports Australia.

# Statement of Expert Evidence

## 1. Appointment by project proponent

1.1 Practical Ecology was originally engaged in 2016 by the proponent of the proposed self-guided high ropes course at Yarra Flats in Yarra Valley Park to assess ecological values and bushfire risks, provide advice on designing the development on the site to help meet the requirements of the relevant planning provisions, document the impacts on native vegetation for the planning permit application according to required methodology and develop a response to address the bushfire risks under the Bushfire Prone Mapping regulations. A further revision was undertaken in 2018 when refinements were made to the design and the planning amendment was further developed.

1.2 Further refinements of the potential development plans were undertaken in April 2021. In this most recent development plan, the proposed reception building for the self-guided high ropes course has been moved closer to the carpark minimising impacts on the indigenous trees present. The detailed ecological report included as part of this statement, referred to above, has been revised to consider the ecological impacts of the proposed self-guided high ropes course as documented in the most recent site plans dated April 2021.

1.3 I was then engaged in May 2021 by Treetop Adventure Holdings Pty Ltd to consider the native vegetation and bushfire risk issues on the site in the context of the proposed development to provide evidence at the Planning Panel to help inform the decision for that process.

1.4 The native vegetation and habitat that is present and would be impacted by the proposed development is significantly degraded over time and was described in the flora and fauna assessment prepared as a separate report to support this statement.

1.5 The bushfire risks on the site were also investigated and considered in the design and determination of the native vegetation losses. The bushfire risk issues are not a significant issue given the context of the site with parkland on the often damp Yarra River floodplain and significant urban areas beyond the site but response to bushfire risks in the development design is a small impact on native vegetation losses so is discussed in this statement.

1.6 This statement will begin with a brief description of the proposed development to help provide a perspective on the limited impact of the self-guided high ropes course and go on to discuss the potential impacts on indigenous biodiversity of the installation. Other associated ecological issues will be discussed as prompted by concerns from different authorities and submissions on the amendment will then be discussed to provide explanations beyond the background ecological report.

1.7 Please note that I won't address the management of the trees used for the course in this statement. Evaluation of the potential impacts on the trees of developing and using

them for the proposed course will be managed by an arborist during construction and use so I won't comment on issues associated with managing the structure and health of the trees potentially affected.

## 2. Discussion of the Proposed Development and its Management

2.1 It is important to consider the actual detailed design, construction and management of self-guided high ropes course. These courses are very popular in Europe and the proponent has developed a network of these courses in Australia. I had the opportunity to help assess the impacts of the Arthurs Seat self-guided high ropes course as well as observe the construction process then visit and use the course on several occasions since it was built. This has provided an opportunity to observe and understand the process of building and managing a self-guided high ropes course on another species of indigenous eucalypt, i.e. Messmate *Eucalyptus obliqua*, which had apparently not been used previously in any courses. Messmates likely have similar structure trunk and branch structure to Red Gums but different bark so some aspects of course establishment and use will be different but most considerations for course design, establishment and use will be similar for the Yarra Flats site.

2.2 I was able to observe the course construction or more properly rigging of the self-guided high ropes course at Arthurs Seat in 2011. A course is substantially built in the air because that is where it will be used enjoyed. In addition, the entry points are usually limited to one or two stairways that can be locked when the facility is closed and the exit points are ziplines to the ground. This means that there is very little groundstorey disturbance associated with the construction or use of the self-guided high ropes course. The more significant but still minimal direct impact is up in the canopies of the trees rather than the understorey, to be discussed below.

2.3 The noise made by people using the course, along with other people observing, was a significant concern in many public submissions. Having experienced a similar course on several occasions I would suggest the level of noise created by the users will be relatively minimal. It must be remembered that the users of the course will be working on continuous through a course of interconnected cables, ropes and wood anywhere from 5 to 25 m in the air; the concentration and nerves needed to do so requires great concentration and effort and is usually quietly. There may potentially be dozens of people on the course, with significant space between them, at any one time but the noise levels will still be minimal in my experience of the Arthurs Seat course. The noise levels caused by course users will be relatively quiet but will potentially impact native flora and fauna and these impacts will be discussed below.

*2.4* It is also very important to protect the trees on the site during the establishment and use of the proposed course. However, I am concerned that the requirements for the Tree Management and Protection Plan (TMPP) in the Incorporated Document is not quite fit for purpose in this context. It is clearly written for the typical construction site where ground disturbance would be extensive and looking after trees takes good planning and sustained efforts to protect trees. However, in this context much of the provisions won't

typically apply as there will be very little ground level disturbance and underground services into the course area. The proposed planning regime rightly requires, for example, the following requirement: *A management regime for all trees during the preparation, construction and post-construction phases of the development.*

2.5 However, there are also detailed requirements for the TMPP that may be an appropriate response for an urban construction site but will prove problematic for an ecological restoration site under the self-guided high ropes course. One of the clauses indicates that: *Any weeds located within the TPZ are to be removed and the area mulched with 100mm of composted coarse grade woodchips*. There are at least two problems for this approach on an ecological restoration site. Removing all weeds within each TPZ is likely inappropriate within an integrated approach to weed control over time across a site. Mulching thickly, i.e. 100 mm, will inhibit regeneration of native vegetation and is only appropriate to protect a tree's root zone or in formal garden beds. For example, native Tree Violets *Melicytus dentatus* and Red Gums *Eucalyptus camaldulensis* will readily regenerate on the Yarra River floodplains with weed control carried out creating bare soil for germination but not if it mulched heavily. I highlight these issues to recommend keeping the requirement for an TMPP but to consider modifying it for this unique type of development while ensuring that it still requires a high standard of tree protection.

## 3. Impacts on Indigenous Biodiversity: Flora

3.1 I will begin by providing an overview of the general quality of the vegetation on the site, based on the ecological assessment report prepared by Practical Ecology. The procedures used in the attached ecological report are consistent with the requirements under Clause 52.17 with a project specific approach for this unique development. This section will then go on to discuss the specific impacts of the proposed course on native vegetation in the site and discuss how the impacts were generally assessed and offsets were calculated.

3.2 As the aerial image from 1945 presented below, as well as the aerial photo sequence in the cultural heritage assessment by Heritage Insight (2018), indicates the Yarra River flood plains were substantially cleared in the 19th century for grazing and farming then managed as farmland until the development of the local area after World War 2. Beginning in the 1970's the land along the Yarra River started to be acquired for parks and managed as such with substantial regeneration of abundant weeds and some indigenous flora alongside extensive indigenous revegetation and the construction of visitor infrastructure. This historic use is very evident in the current condition of the site for the proposed course, i.e. the groundstorey is dominated by a wide variety of invasive weeds, a shrub layer with a mixture of native and invasive shrubs and an indigenous eucalyptus canopy. It is essentially a site naturally regenerated after substantial farming and grazing ceased aided with the help of some scattered tree planting.

3.3 The quality and condition of different components of the sites' habitat values can be considered through the required habitat score of the proposed course site that was determined in the habitat hectare assessment presented in the attached ecological

report. The overall score is 39 out of 100, with a landscape context score of 10, meaning the site attributes only equal 29 points or less than 1/3 of a pristine ecosystem. The large trees, canopy cover and recruitment scores collectively equal 19 or more than half of the score and are indicators of the robust Red Gum canopy and some woody shrubs doing well. The low score of 5 out of 25 in Understorey and a 0 out of 15 in Lack of Weeds is an indication of the poor quality groundstorey present with only a few indigenous groundstorey species present and a very high cover of weeds. The habitat score clearly indicates the condition of the vegetation scored when the reader knows how to interpret the scores.

3.4 The actual physical impacts of the proposed self-guided high ropes course would be quite limited. As explained above the groundstorey is overwhelmingly invasive weeds and the shrub layer is partially indigenous and partially exotic and only a limited area of this layer would be disturbed by the access to the course and the landing pads at the base of ziplines. There may also be the need to remove lower branches of trees to ensure that there is no access to the course after hours. With the main ropes course infrastructure sensitively attached to the trees there will be a need to clear safe pathways around the tree trunks and through the canopy where required; with a fairly open woodland the removal of tree branches, tall understorey trees and shrubs to create safe access through the canopy should be minimal.

3.5 The next point to discuss is the methodology used to calculate the actual habitat loss as required under the procedures under Clause 52.17. This provides an opportunity to specifically address a clarification required by the Panel Chair in the Directions letter of 11 May 2021: *Confirmation of vegetation to be removed including clarification as to what the polygon used for native removal relates to and it does not encompass the whole of the area identified as the "rope course activity area" identified in Figure 1 of the Planning report*.

3.6 The large *"rope course activity area" identified in Figure 1 of the Planning report* was not used as the basis for the loss of native vegetation because it is not necessary to clear that much native vegetation for the construction of the course. I am not sure why the "*rope course activity area*" was made arbitrarily rather large, possibly for future flexibility, but I can be certain that the current design and ongoing approach to managing the course will result in minimal physical impact on native vegetation.

3.7 It would seem that there is also confusion in another authority about how much impact there will be on native vegetation if the proposed course is built. In the minutes of the Council meeting from 1 March 2021 Banyule City Council wants to *Explores further key issues…the opportunity to limit the footprint of the ropes course and minimise the extent of any vegetation removal through the final approval so that the proponent does not have the ability to remove 50% of vegetation.*

3.8 Again, there has never been a determination in the ecological assessment process that there would be *the ability to remove 50% of vegetation* in the *rope course activity area as mapped in Figure 1 of the Planning report* because the impact of a self-guided high ropes course will be quite minimal in regards to native vegetation loss. The 50% figure

comes from the process used to calculate the required biodiversity offsets in the footprint of actual vegetation impacts associated with the course but the native vegetation losses will not ever need to equal 50% of the native vegetation present, either immediately around the course infrastructure or across the larger activity area.

3.9 A small area of the site, the reception building with its surrounding deck and the second deck are, has also been calculated as a 100% loss of habitat score but even this is in an area of exotic groundstorey and indigenous Red Gums above. Again, this is likely an overestimate of the actual loss of habitat values because only the groundstorey and shrub layer would be disturbed. The facilities would result in the loss of some habitat zone but the canopy trees would be mostly left undisturbed except for removing branches over the building and to create 5 m gaps in the defendable space immediately around the built infrastructure.

3.10 The native vegetation losses are based on the footprint of the actual ropes course plus a small buffer along the lines between the trees to account for the limited removal of understorey, lower tree branches and deadwooding in the canopy so that the immediate area around course components are safe. This is likely an overestimation of the actual loss of habitat values because there will be minimal physical loss of habitat components as a consequence of the construction of the course along lines through the forest canopy and 50% loss of habitat score is the lowest level of loss possible within the ENSYM model used by DELWP to calculate offset requirements.

3.11 However, there should be a mechanism to ensure that the proposed self-guided high ropes course has a limited impact on trees and habitat over time despite and/or regardless of the calculation methods used. Limiting removal of understorey trees and branches in the standing trees used for the course can be done through several processes, most importantly the TMPP detailed in the Incorporated Document for the amendment, but could include a range of other mechanisms.

3.12 It may also be necessary to change the course slightly over time as trees change and a mechanism to allow this process should be considered. The requirement for a detailed annual safety and tree health inspection by an independent arborist could be the opportunity to consider minor changes to the course with the consultation with approval of a Council arborist. Minor changes would include moving part of the course to one or two trees in close proximity to the current course. With minor changes the current calculated native vegetation losses and offsets would account for such changes. If the need for major changes arises, such as adding new parts of the course to trees beyond immediate area of the current course footprint and its buffers or removing any trees then further assessment and even more offsetting might be required.

3.13 The Land Management Plan (LMP) is another mechanism to limit the losses of native vegetation and maximise the environmental gains to be made as part of the development through a restoration program over ten years using weed control, natural regeneration and revegetation with nursery stock. The proposed LMP clearly allows tree management in close proximity of the ropes course but limits the allowed activities to conservation management and restoration across the rest of the "*rope course activity*

*area*". This approach will mean that the significantly degraded native vegetation on the site can be substantially restored over time. I won't presume to propose a legal mechanism to ensure that the LMP, and other appropriate measures, becomes an ongoing requirement for the management of the course if it approved but simply highlight that it should be implemented.

3.14 The peer review of the PE ecology report by Shannon LeBel of EHP also suggested that *the number of plants to be planted for revegetation within the Modified Conservation Reserves appears to be excessive…* The proposed revegetation is very consciously designed with only three tubestock planted per square meter. In addition, the proposed numbers planted in the planting list has minimal trees and shrubs because some can be expected to regenerate on the site to some degree. The plant list and proposed density of different life forms is dominated by hardy groundstorey species but the groundstorey of the site is so degraded that a moderate level of nursery stock is required to transform the ecosystem. Dozens of individual plants would occur in a square meter of good quality native vegetation; adding 3 plants per square meter only gets the site part way to an indigenous understorey. In addition, it is expected that weed control and limited mulching over time will help promote regeneration of native vegetation along side planted nursery stock.

3.15 The native vegetation on the site has been substantially cleared and disturbed over time although enough indigenous species, habitat and some ecological processes such as ongoing regeneration of limited indigenous flora species remain on the site to provide an excellent framework for ecological restoration, which would be required as part of the proposed land management plan that would likely be implemented as part of the planning amendment if approved. The site can be improved immensely over time with an integrated restoration program as outlined in the LMP and this would be a positive legacy of the course if it is approved.

## 4. Impacts on Indigenous Biodiversity: Fauna

4.1 Fauna habitat values and the possible occurrence of rare or threatened fauna was also considered in the ecological assessment. The degraded nature of the site limits the potential for indigenous fauna species to use the habitat on the site although the large trees on the site represent an important habitat value that is threatened across Yarra Valley Park, metropolitan Melbourne and beyond. The attached ecological report includes the required assessment procedure but further discussion is offered below. This statement and section will only generally discuss the issues around the potential occurrence of significant fauna in the current site and possibly the enhanced ecological values of the site if rewatering of the Banksia Street Billabong occurs.

4.2 Powerful Owls likely use the habitat on the site for hunting but there is no evidence that the site provides any large nesting hollows suitable for the species or daytime roosting sites. The lack of large, greater than 0.5 meter deep, hollows for nesting is the most limiting factor for Powerful Owls to survive and breed but because they are territorial there could be surplus large hollows in their territory. Day time roosting sites can be

relatively abundant along the Yarra River because of the abundant stands of indigenous and weedy trees along the river. Foraging territory across urban Melbourne provides high populations of possums and flying foxes for their consumption and Powerful Owls take significant advantage of the urban landscape. Recent studies have found that a pair of Powerful Owls might occupy a territory of 600-800 hectares in urban habitats although they will favour treed territory most of the time. There is substantial evidence that Powerful Owls are well adapted to disturbances typical in urban landscapes, relying on other native fauna species adapted to disturbance, if they can find a tree with a large hollow away from human disturbance for breeding and a quiet place to roost in the day. For these reasons, the success of the Powerful Owl pair that has been recorded nearby should not be impacted by the proposed course. The following two links provide a good overview of recent research on the Powerful Owl in Melbourne.

https://theconversation.com/look-up-a-powerful-owl-could-be-sleeping-in-your-backyard-after-a-night-surveying-kilometres-of-territory-155479

https://www.theage.com.au/technology/tracking-the-nighttime-travels-of-the-cryptic-powerful-owl-20160407-go0nrz.html

4.3 As the ecological report summarises there are a wide variety of migratory birds protected under various international treaties and the EBPC Act that have been recorded in the local area and through the Yarra River corridor. Most of these species would use various wetlands and billabongs throughout the Yarra River corridor on a regular basis. The wetlands along the Yarra River corridor would be particularly important for migratory waterbirds in drought years when inland wetlands are limited or absent.

4.4 The difficult issue around this proposed development is the likelihood that the pre-existing but modified Banksia Street Billabong would be rewatered and additional constructed wetlands will be built as explained below. These wetlands would likely provide habitat for migratory waterbirds like the rest of the wetlands along the Yarra River. However, at the point of habitat assessment the billabong on the site, i.e. the remnant Banksia Street Billabong, was dry although I have been provided some documentary evidence that it does occasionally get some floodwater from the Yarra River every few years when a significant flood occurs. With a more reliable watering regime, as planned by Melbourne Water, the habitat of the wetlands will be improved and more migratory birds will likely use the habitat.

4.5 So, if the Banksia Street Billabong becomes more reliably watered and new wetlands are constructed there will likely be more migratory birds using the habitat. However, as explained below, the course will only be over a small part of the wetland and most of the likely more reliable and new wetlands will not be in close proximity of the proposed course. There is no direct conflict between the course and rewatering the wetlands but there is the issue of increased noise and activity from people using the carpark and course.

4.6 It is likely that the noise and activity of the course will discourage birds from using the habitat in that part of the rewatered Banksia Street Billabong directly affected by the

course. However, the majority of the new rewatered and constructed wetlands will be distant from the course and would likely be affected by the significant noise of traffic on Banksia Street and the general noises of people, and often their dogs, using the parkland around them. The habitat values of the rewatered and new wetlands are already significantly compromised by the current urban context and the noise from the proposed course will likely blend into the significant background noise levels that are already present. Having said that it will be possible to design the rewatered Banksia Street Billabong and new constructed wetlands to have protective clumps of shrubs and shallow water with wetland plant cover installed around them to provide habitat for roosting and areas for foraging for food. The potentially new habitats of rewatered and new constructed wetlands would likely be compromised to a small degree by the proposed course but the majority of any new wetland habitats would be relatively distant from the proposed course with the minimal noise from users not adding significantly to current urban noise levels.

4.7 It is also possible that there could be an impact on native fauna species using any hollows in the trees used for the course. Arboreal mammals would generally be nocturnal and only relatively common and secure species, such as possums and Sugar Gliders, have been recorded in the Yarra Valley Park. A variety of native bird species may use the any hollows present as well with little evidence that threatened species use habitat on the site. Unfortunately, no formal research or detailed observations give us much insight into the specific impacts a self-guided high ropes course on mammals and birds using hollows in close proximity. It is possible arboreal mammals and birds will find tree hollows around course less desirable or even unusable habitat. However, the actual course has a strictly limited footprint among extensive habitats across Yarra Valley Park and mitigation, in the form of the nest box program and Fauna Management Plan that has been proposed as part of the use, should adequately compensate for the minimal impacts on native fauna.

## 5. Potential Future Wetland Development

5.1 The image presented below is the northern section of the Yarra Flats section of Yarra Valley Park in 1945. The original extent of the Banksia Street Billabong can be seen in the centre of the photo excerpt with the distinction oxbow or meander shape that would have been a past and cut off course of the Yarra River. Apparently, the northern half of the billabong was then filled during development processes after the Second World War.

Source: Melbourne 1945 website – www.1945.melbourne

5.2 Melbourne Water and Parks Victoria have been working on plans for rejuvenating the Banksia Street Billabong for many years. There are apparently problems in reconnecting the Banksia Street Billabong with flood waters from the Yarra River and it has been determined that the more reliable or alternative source of water for the Banksia Street Billabong would be treated stormwater from the urban area to the west and north. The plan below is from the Yarra Flats Concept Plan published in 2013. It indicates two constructed wetlands, A and B, in the northwest corner of Yarra Flats that would spill over into the Banksia Street Billabong to the east and into the Yarra River. Please note that this plan also indicates that a self-guided high ropes course would be built at the letter C on the plan in close proximity to the remnant of the Banksia Street Billabong. However, it would appear that the relationship between the proposed course and the enhanced wetland was unclear in 2013 but has been possible to clarified this issue with Map 7 from the ecological report indicating the position of the course in relation to the remnant billabong as presented over wetland and river depth or "elevation" data provided by Melbourne Water.


Source: Yarra Flats Concept Plan (Parks Victoria 2013)

5.3 The proposal has been refined and designed in more detail in more recent years. The following plan shows detailed plans of the likely constructed wetlands proposed along with the infrastructure required to distribute the water to both the Banksia Street and Annulus Billabongs. These constructed wetlands would filter nutrients out of the stormwater before it flows into the remnant of the natural billabongs, either the Banksia Street or Annulus Billabongs and eventually the Yarra River. It is also important to highlight that the constructed wetlands and any rewatered wetlands will have intermittent or ephemeral water depending on rainfall and flood cycles over time. Wetlands on the Yarra floodplain and beyond are naturally ephemeral with different flora and fauna using the habitat in different conditions.

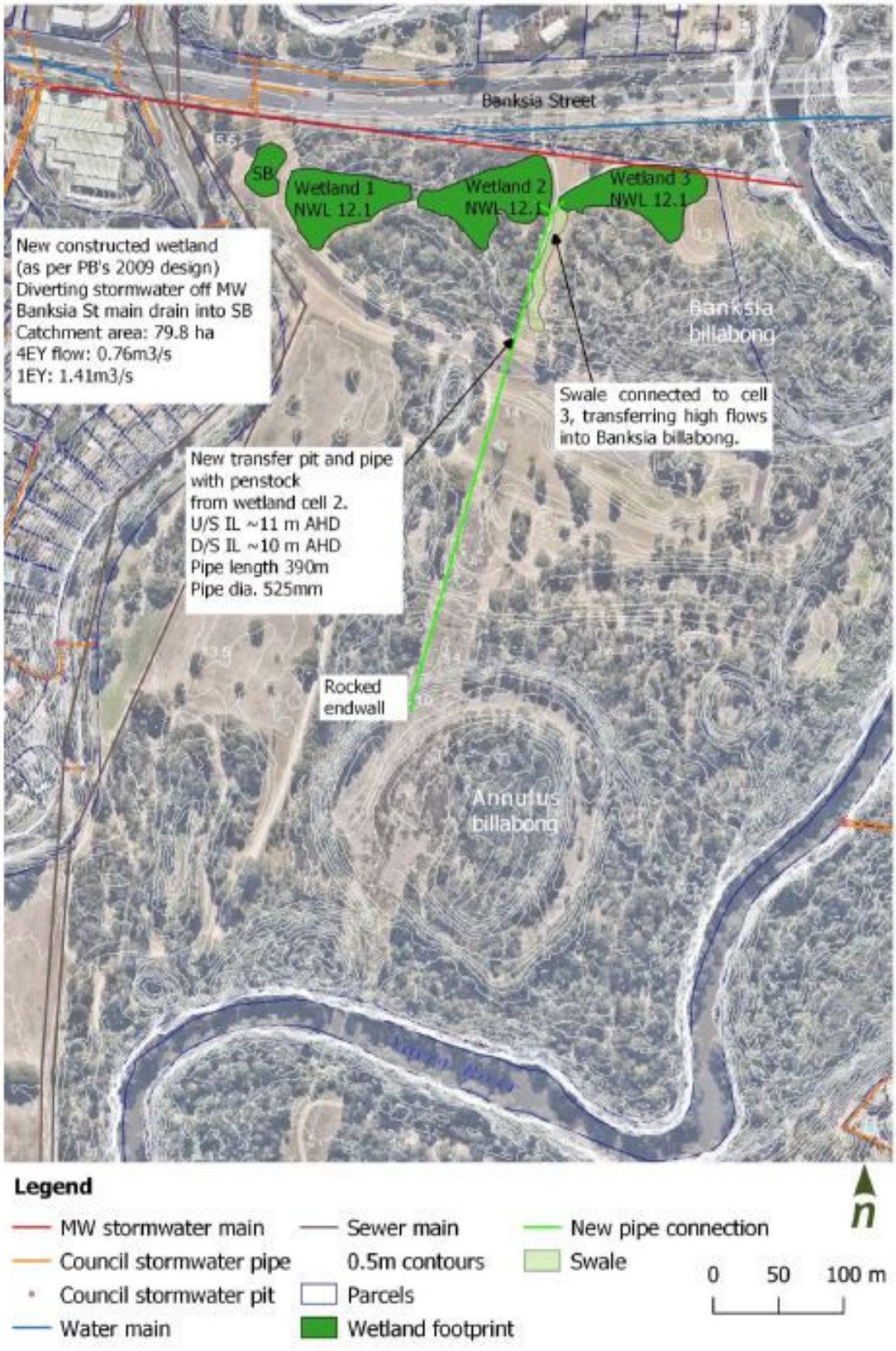



**Figure 36.** *Option 3: Constructed wetland and treated stormwater flows into Annulus and Banksia billabongs*

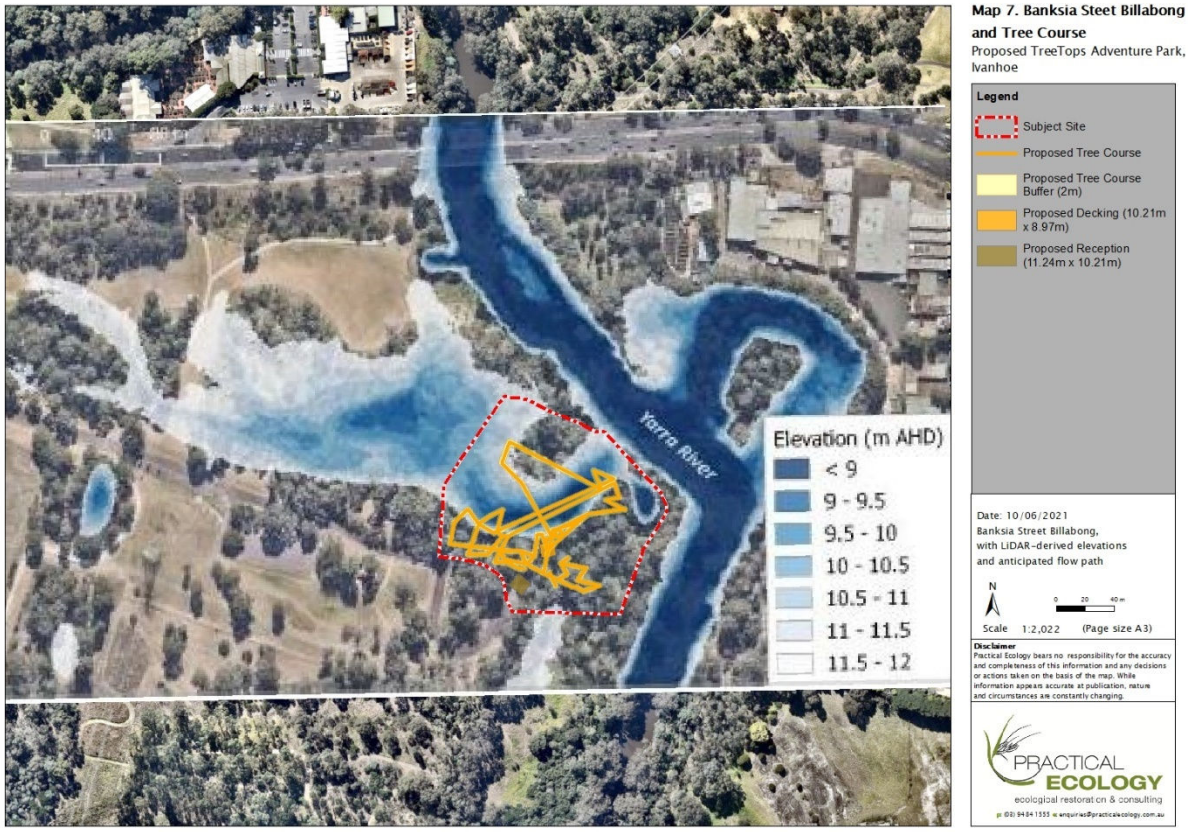
Source: Melbourne Water in 2021.

5.4 Rewatering billabongs on the Yarra River floodplain will have several important benefits. In their paper on rewatering billabongs on the Yarra floodplain, including specific rewatering trials at Spadoni Billabong in Yering, Heard *et al* (2018) highlighted that "prior to watering (December 2016), vegetation across the bed of the billabong was dominated by weeds… Native species…became dominant with overall weed coverage reduced to <1 cover. …other ecological responses observed…as a result of the trial watering included an increase in frogs and birdlife at the billabong." These same benefits are likely to occur at the Banksia Street Billabong if the rewatering occurs and the proposed course would affect a small area of the recreated habitat.

5.5 Some submissions on Amendment C107 shared significant concerns that a self-guided high ropes course would not be compatible with a rewatered Banksia Street Billabong, a project proposed to be completed within the next few years. This is not a concern shared by the proponent nor the land manager, Parks Victoria, nor the floodplain management authority, Melbourne Water as indicated in their letters of support. The proponent believes that a billabong with more water varying according to natural cycles will enhance the experience of the course in general and provide more opportunities to educate the users about floodplains and billabongs on the Yarra River floodplain. Melbourne Water supports the use of the area above a rewatered billabong is acceptable given certain safeguards as demonstrated in their correspondence. Many Australian wetlands including Yarra River floodplain billabongs naturally vary greatly in water depths and habitat conditions over time according to natural cycles so the experience of the course users in respect to water levels would also vary a great deal over time.

5.6 The image below indicates the approximate extent of the proposed self-guided high ropes course over a small portion of the likely rewatered Banksia Street Billabong as indicated by a LIDAR analysis provided by Melbourne Water. It indicates that the course would be over the deeper eastern end of the old billabong depression where less new bird habitat would be created because of the deeper water that would be present where structural plant habitats would not grow.

5.7 The larger shallower sections of this natural wetland plus the proposed constructed wetlands to the north along Banksia Street would provide new habitat for migratory water birds and other aquatic animals such as turtles and frogs. There would only be a small proportion of the potential new wetland habitat would be directly affected by the proposed course. Noise made by the users of the course are likely to be a minimal impact on birds and other animals given the ongoing traffic noise as the strong dominant noise in the local landscape.




## 6. Other Mitigation Actions for Biodiversity Impacts

6.1 The Banyule City Council Environmental Officer, as per the Council meeting minutes suggested that a nest box program be established as mitigation for any impacts on hollow using fauna that may occur during the use of the site for the self-guided high ropes course. This suggestion is supported but with some qualification. I have long been aware of the importance of tree hollows for Australian fauna species but believe that the significant community support for installing new nest boxes in recent years is problematic. Too often it appears that people are installing nest boxes without assessing if they actually needed on a site. Lack of maintenance, i.e. controlling feral animals who might use them, will also possibly be a problem as ongoing maintenance is essential to the success of any artificial nest box program.

6.2 An artificial nest box is recommended to mitigate the possible impact of the proposed course on native fauna that use and need tree hollows. The location of such a program could be across the Yarra Flats unit of the Yarra Valley Parklands or in other adjacent areas of the park. However, such a program should begin with an assessment of existing hollows, the fauna species that are currently present and the species whose populations could be enhanced or return to the site. The extent, distribution and types of nest boxes should then be designed in response to the background assessment undertaken. Nest boxes that provide good thermal insulation should also be considered because evidence is emerging that thinner nest boxes may be causing heat stress or even death for some

animals. And lastly a monitoring and management program must be funded to management the nest boxes. Without a well-considered and targeted approach to an artificial nest box program any work undertaken could be useless or even damaging to native fauna populations.

6.3 The latest Incorporated Document for the proposed amendment includes a new requirement for a Fauna Management Plan (FMP). It would be appropriate to include the proposed nest box program within such a plan. The FMP would need to be broader than just a nest box program of course, beginning with establishing objectives and process within an adaptive management framework, a monitoring plan, collecting baseline data, establishing thresholds for actions and developing then implementing appropriate actions. As discussed above there will potentially be impacts on fauna using habitat around the proposed course, although it is unlikely that threatened species will be significantly affected because of the historic land use and current conditions.

## 6.4 Bushfire risk management and native vegetation

6.5 Clause 13.02-1S also applies and requires an assessment of bushfire risks to human life and property. Any development requiring a planning permit needs to assess and respond to bushfire risk while avoiding impacts on indigenous biodiversity of high conservation significance. It also requires assessment of site, local neighbourhood and landscape risk. This risk assessment was done through on ground assessment and review of aerial photography at different scales.

# 7. Biodiversity Offset Issues

7.1 The offsets required for this project are quite minimal because of low habitat score of the native vegetation on the site, the low impact nature of the proposed course and the significant efforts made to reduce losses of native vegetation through the design and layout of the proposed development. The only offset requirement, as detailed in the attached ecological report, is 0.168 species units of habitat for Grey-headed Flying-fox *Pteropus poliocephalus*. This is quite a minimal offset requirement but unfortunately there are no credits for these species-specific units available for sale according to a search of the Native Vegetation Credit Register.

7.2 However, it would still not be difficult to source or create the required offset credits. Firstly, it is possible that such credits will become available in the future if new offsets are established anywhere within the habitat map for the Grey-headed Flying-fox presented in the map below sourced from the NatureKit website maintained by DELWP. Secondly, this could be an excellent opportunity to create habitat offsets on public land for the species within the public land along the Yarra River corridor or anywhere else where the habitat for the species is mapped. Policy and procedure for public land offsets and guidelines for creating offsets through revegetation have been developed by DELWP in the last few years.


Map of the Habitat Importance Map for Grey-headed Flying-fox Source: NatureKit Website

7.3 Both DELWP, in their Request for Further Information letter dated 18 January 2021, and Shannon LeBel of Ecology and Heritage Partners expressed concern about obtaining the potential offset obligation of Pink Mountain Correa *Correa lawrenceana var. cordifolia*. During the process of revising the ecological report in 2018 the Native Vegetation Removal Report for the self-guided high ropes course obtained from DELWP indicated that an offset for the species was required.

7.4 However, it was determined that the small pixel of habitat mapped for the species on the Yarra River floodplain was not consistent with the known natural range of the species in mountain forests in the Yarra Ranges to the east of Melbourne and that it may have been based on a record from a planting. Consultation with botanical experts confirmed that the species would not occur in the Yarra Flats. The addendum to the main report attached to this statement explains the issues and provides documentation of the correspondence that indicated that the Pink Mountain Correa would not have ever occurred on the site at Yarra Flats.

7.5 However, it turns out that DELWP staff cannot permanently change the Habitat Importance Maps (HIM) for the Pink Mountain Correa but can only remove the offset obligation from the Native Vegetation Removal Report provided by the Native Vegetation Support unit of DELWP. The most recent Native Vegetation Removal Report obtained from DELWP dated 14 June 2021 for the estimated native vegetation losses has excluded the offset requirement for this species because it has been accepted by DELWP that the site is not habitat for the species.

## 8. Response to submissions commenting on ecological issues

8.1 I have already addressed many of the concerns about the proposed course detailed in public submissions within the ecological report provided and discussion points included above. I will comment on relevant ecological issues in this section that are not covered elsewhere.

8.2 There were concerns about the impact of the proposed course on kangaroos, wallaby, echidna and ground nesting birds. The first three animals will already be well adapted to high levels of noise from traffic and disturbance by people with their dogs within the Yarra Flats. The noise and activity of the course will be a very small addition to the

significant urbans noise levels that will already be occurring on the site. In addition, kangaroos and wallaby will not use treed areas to a substantial because generally spend time in open grassy areas and only retreat to treed areas for rest during the day. Considering the small size of the course footprint and the likely limited populations of macropods in the local area versus the much larger area of habitat in the Yarra Flats and beyond there will be substantial areas of habitat left undisturbed by the addition of the ropes course. No significant impacts on kangaroo, wallaby or echidnas are likely to occur because any individuals using the local habitat are already coping very well with significant levels of disturbance. And unfortunately, because of foxes and cats there will be few if any ground nesting birds within the Yarra Flats areas besides possibly the Masked Lapwing which easily creates nests in disturbed places like car parks and roundabouts.

8.3 Another concern was *that birds and bats could potentially get trapped in nets* associated with the course. First, there are very few if any nets included in a self-guided high ropes course because the safety of users is assured through a continuous belay system and no nets are required. Secondly, the proposed Fauna Management Plan can address the unlikely event of native fauna being trapped or injured in the proposed course though the monitoring framework with requirements for adapting the course over time to prevent incidents if any occur.

8.4 Another submission suggested that *the impact on flora and fauna is unknown, e.g. rare or endangered species such as gliders*. First, a general assessment of impacts on vegetation, threatened species that may occur locally and habitat values was undertaken and it was determined that there would be minimal impacts on flora and fauna as discussed above and detailed in the attached ecological report. Second, no threatened glider species have even been recently recorded in Yarra Valley Park much less Yarra Flats; this is likely because the habitat is too degraded to support many threatened species.

8.5 It was also suggested in a submission that *the proposal will negatively impact the local ecology of the area and the ability for the Yarra to be a connecting habitat corridor*. As discussed above and in the attached ecological report there may be some minor impacts on the local ecology which is already significantly degraded from the original pre-settlement conditions but there will also be significant mitigation for the minimal impacts including the establishment of required offsets, which could easily be done close to the proposed course, a nest box program, a Fauna Management Plan and ecological restoration around the course.

8.6 It is not clear how the submitter referred to above believes the habitat corridor along the Yarra River will be impacted by the proposed course but I will consider the current conditions and possible impacts of the course. First, it is important to consider that the current corridor is already severely compromised by the significant infrastructure that already exists in the local area. Banksia Street is a significant barrier to fauna movement already with the only safe way for ground dwelling fauna such as Kangaroos and Wallaby to move through the corridor is under the Banksia Street bridge. Birds will flow within

and around the corridor as they already do. Aquatic animals will continue to use the river and connected wetlands as they have in the past. The proposed course will add a small amount of noise activity to one small area along the Yarra River with the vast majority of the remaining habitat left relatively undisturbed with significant space where habitat could be improved. The proposed course will not significantly prevent native fauna from moving along the Yarra River corridor to any greater degree than the significant existing impediments to fauna movement that already exist.

8.7 Several submissions expressed concerns about the alleged propensity of River Red Gums to drop large branches at any time without warning. Firstly, this simply isn't true despite the common thinking among the general community. I have learned from arborists over many years that River Red Gums are no more dangerous than any other indigenous or exotic tree for dropping branches despite the reputation they have acquired.

## 9. Overall Conclusions

9.1 The Yarra Flats unit of Yarra Valley Parklands was farmed between the middle of the 19th century until World War 2 with much of the native vegetation removed and replaced by introduced weeds. The site become part of the Yarra Valley Park in the 1970's and substantial regeneration and revegetation has occurred since that time. However, the land use history is still quite clear because of the degraded nature of the current native vegetation, with its exotic groundstorey, mixed native and exotic shrub layer and overstorey of indigenous Red Gums and wattle species.

9.2 The development of the proposed self-guided high ropes course would have very little direct impact on native vegetation because of the nature of the development; it is by design a recreational use with a light footprint with little if any permanent impacts.

9.3 The proposed Tree Management Protection Plan should be modified or at least generally interpreted by Council during secondary consent if the development is approved to suit the unique nature of the proposed development.

9.4 The proposed development of the self-guided high ropes course would have minimal impacts on indigenous biodiversity with the proposed land management plan and other management processes providing substantial gain for the conservation management of the remnant vegetation on the site for the long-term future.

9.5 Plans for rewatering the Banksia Street Billabong and constructing new stormwater treatment wetlands have been developed over many years. The proponent of the course and the relevant public authorities don't see any conflict between the course and any enhanced wetlands and believe that the educational opportunities for participants would be enhanced. There may be some limited impacts from the development and use of the proposed course on native fauna species that may use the wetlands but the majority of the enhanced wetlands would be distant from the course and exposed to much urban noise in any event.

9.6 At the current time the required offset credits, i.e. 0.168 species-specific units for Grey-headed Flying-foxes, are not available for sale on the native vegetation credit register. However, it is possible to establish offsets for this species in close proximity to the site in Yarra Valley Park because their habitat is mapped and there is a DELWP policy and procedure detailing how to achieve offsets on public land.

9.7 The bushfire risks affecting the site are minimal and adequately addressed and the proposed development would meet the requirements for the safety of the users over time.

Finally, I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance that I regard as relevant have to my knowledge been withheld from the Planning Panel.

Lincoln Kern, Ecological and Bushfire Risk Consultant

Date: 25 May 2021

# Curriculum Vitae: Lincoln Kern

**Date of Birth** 1 February 1963

Lincoln was trained in botany and environmental science in the United States and has been working in the environmental field in Victoria on a full-time basis since 1991 including time with the Merri Creek Management Committee, the National Trust Save the Bush Program and Greening Australia Victoria. Lincoln has run Practical Ecology Pty. Ltd. since November 1993, offering an integrated service for managers of native vegetation and developers as required.

Lincoln has provided relevant and realistic management advice because he has extensive experience with costing, planning and doing the required physical works and implementing the processes of reconciling development and nature conservation objectives with staff and the public. He also specialises in devising vegetation management systems that are clear and useful to every person involved and interested in managing vegetation, whether amateur or professional.

## Education

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| **April 2014** | **Suppressing Wildfire and Planning Prescribed Burns**<br>Training required to work on a fire crew and implement prescribed burns accredited by Timber Training Creswick Pty Ltd – since this time I have participated in several prescribed burns |
| **November 2013** | **Design and Building Bushfire Prone Areas Course**<br>Week-long course run by University of Technology Sydney on preparing Bushfire Attack Level Assessments and Bushfire Management Statements and designing development and building in response to AS3959 and the relevant Victorian Planning Scheme provisions. |
| **November 2005** | **Wildfire Management Overlay Implementation Course**<br>Week-long course sponsored by the Country Fire Authority to train people in designing developments to meet the requirements of the Wildfire Management Overlay in Victoria |
| **1998** | **Graduate Diploma of Applied Science (Environmental Management).**<br>Deakin University, Rusden Campus. Part-time: Begun February 1995 and completed in April 1998. |
| **1992** | **Bush Regeneration Supervisors Course**<br>Organised by National Trust, Victoria A course exploring management skills, the role of management plans and monitoring programs in bush regeneration. |
| **1990** | **Bush Regeneration Techniques Course**<br>Organised by National Trust, Victoria. A course emphasising plant identification and ecology and technical skills needed to manage bushland. |
| **Winter 1988** | **Rainforest Field Studies**<br>Semester-long field course in Guatemala and Belize organised by University of California at Santa Cruz |

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| **February 1987** | **Permaculture Design Course**<br>Organised by Aprovecho Institute, Cottage Grove, Oregon USA and presented at Solala Agriculture College, Guatemala |
| **1986** | **B.A. Antioch College, Yellow Springs, Ohio, USA**<br>Major in Biology with course work in Botany, Environmental Studies, Anthropology and Education |

## Employment History

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| **2007 to 2011** | **Governor-in Council Appointee on the Alpine Resorts Coordinating Council**<br>Responsible for contributing to general business, chairing the Sustainability Committee of the Council and attending Environmental Officer Forums |
| **1993 to present** – part-time from June 1998 to May 1999 | **Practical Ecology Pty. Ltd.** – Ecological Consultant and Managing Director<br>Consulting and contracting business specialising in native vegetation management. Services include:<br>• vegetation management ecological restoration project designs<br>• flora and fauna surveys & management plans<br>• preparing bushfire management plans and wildfire management statements<br>• coordinating planning processes requiring reconciliation of conservation and development objectives<br>• expert witness representation at VCAT and Planning Panels<br>• education services including plant ID, land management planning, net gain and planning policy etc<br>• community group coordination and/or support<br>• coordination of contract works including revegetation, wetland planting and remnant vegetation management |
| **June 1998 to May 1999** | **Wellington Shire Council –** Environmental Planner<br>Provided environmental advice to Council and officers with roles in commenting on planning permits and developing a wide variety of environmental programs. |
| **1993/94** | **Victoria University of Technology, Melton LEAP PROGRAM** – Part time supervisor based at Taylor's Creek, Keilor.<br>Supervision and formal training of program participants students in regeneration work in a suburban creek valley. |
| **June 1991 – Nov 1993** | **National Trust 'Save the Bush'** – Part time Technical Supervisor<br>• Development of works programs for and supervision of bush regeneration crews<br>• vegetation surveys<br>• developing and presenting bushland management courses<br>• working with community groups. |
| **June 1992 – June 1993** | **Greening Australia Victoria** – Part time Project Officer, Urban Program<br>• Assessments for Parks and Waterways community grants<br>• Conservation project advice to community groups |

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| | • Coordination of education programs and community information days |
| **May 1991 – June 2003** | **Council of Adult Education** – Casual Tutor<br>Self developed and run short courses in:<br>• Natural history<br>• Field botany<br>• Organic gardening and permaculture |
| **1991-92** | **Merri Creek Management Committee** – Revegetation Crew Member<br>• Site preparation and maintenance,<br>• Direct seeding and tubestock planting<br>• Remnant vegetation management. |
| **1986 – 1989** | **Biologist/Inspector** – Foreign Fisheries Observer Program, National Marine Fisheries Service, Seattle, Washington USA. Monitoring the species, catch size and adherence to fishing regulations of foreign fishing vessels in American waters off of Oregon, Washington and Alaska |
| **1984** | **Coordinator – Environmental Field Program** Antioch College Science Institute, Yellow Springs, Ohio USA. As one of three coordinators, developed and implemented the curriculum and itinerary of a 3 month field program for adults in Arizona and New Mexico. |