

newsletter

Autumn 2014

Bushfire Planning & Design accreditation

By Andrew Stephens – Bushfire Consultant / Senior Ecological Consultant

Fire Protection Association of Australia Accreditation

Fire Protection Association Australia is a not-for-profit association that plays a pivotal role in providing advice and information on all aspects of fire safety and related emergencies through a range of services to the industry and the wider community. Practical Ecology is a corporate member of the Association. FPA Australia administers the Bushfire Planning and Design (BPAD) Accreditation Scheme. The Scheme originated in New South Wales in 2006 in response to demands from the community, government and industry to establish a recognition program for bushfire planning and design (BPAD) consultants to assist the community undertaking development on land subject to bushfire impact.

The Scheme provides an enhanced level of confidence for government and the community that practitioners, providing bushfire planning and design services, are accredited by a suitably robust scheme that is administered by the peak national body for fire safety. The first group of Victorian practitioners were accredited in late 2013, with Andrew Stephens from Practical Ecology being part of this group. Andrew is currently accredited at Level 2 and working towards Level 3, the highest level of accreditation. Practical Ecology has three other staff that have undertaken the pre-requisite training for Level 1 accreditation, and many of our staff have a diverse range of alternate bushfire related training and experience. *More information about the scheme can be found at <http://www.fpaa.com.au/bpad.aspx>.*

Changes to the Bushfire Management Overlay

Since shortly after the introduction of the Bushfire Management Overlay (BMO) in late 2011, there have been rumblings from a range of voices, including with the State Government, for its revision. The BMO has resulted in situations where many property owners being unable to build on land previously

acquired for that intent. Telling a property owner that their dream of retirement on a bush-block in the hills is no longer going to happen, has been a difficult task to stomach. In conjunction with the government being unwilling to consider a buyback scheme, this has resulted in significant distress and hardship for affected property owners.

Consequently, the Coalition have been indicating a softening of the BMO for some time and this has been most recently affirmed by a press release from the Minister Guy, in late May this year that indicated reforms are afoot. Among other things, they are to most significantly include:

- Alternative safety measures and sensible safety regulations to be considered, which may enable people to build on land with a higher Bushfire Attack Level (BAL) rating (we presume Flame Zone)
- Allowing private bushfire bunkers as an alternative safety measure, where there may be increased bushfire safety risks that need additional consideration
- Ensuring the assessment of bushfire risk is consistent with the Australian Standard (it appears that this will mean a softening of BAL assessment methodology)
- Allowing homes to be built on 'infill' lots surrounded by other dwellings. Where a dwelling is allowed, it will be able to be built with a fair and equitable bushfire response
- Allowing more sensible bushfire safety measures in new master-planned estates.

We wait with keen interest as to how these reforms will be effected. By-and-large we support amendments to the BMO that will allow a more considered and specific approach to planning approval, where it is warranted. The current version of the BMO can be too coarse to fully appreciate the intricacies of a site's risk and a proponent's application. This is particularly relevant to established urban areas and infill lots. However, we also urge caution that the events of Black Saturday and the subsequent findings of the Royal Commission are not forgotten. Victoria is arguably subject to the highest bushfire risk in the world and we need planning controls that are up to that challenge.

Environmental Photopoint Monitoring

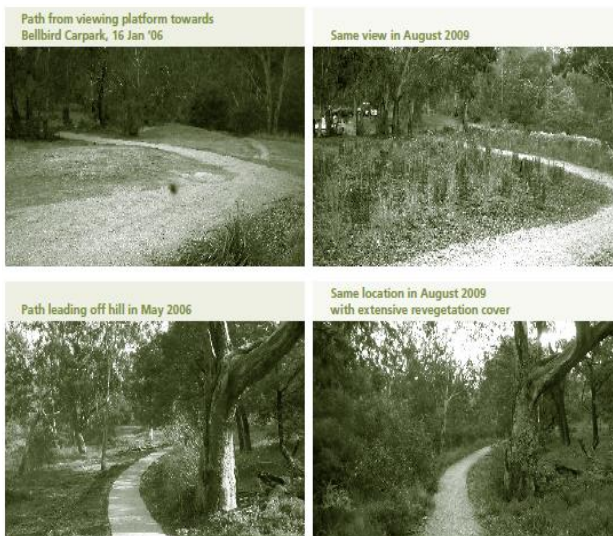
By Alice Ewing – Zoological / Ecological Consultant

What is environmental photopoint monitoring?

Environmental photopoint monitoring is the use of cameras to observe changes from established photopoint locations with a photographs taken from a specific perspective upon an area to be monitored across time. Monitoring in a scientific method requires careful thought and planning to ensure that photographs that are taken clearly capture the conditions of a target survey area on each monitoring occasion, that allow for retrospective comparison over a given time period.

Examples of photopoint monitoring projects undertaken by Practical Ecology:

- Restoration / revegetation projects – Yarra Bend Park Flying-fox campsite (see figure below, from the publication, *Yarra Bend Park Flying-fox campsite: Review of the Revegetation plan* (prepared for DSE, by Practical Ecology, in 2009)



- Weed-control – Whitehorse City Council: pulse goat-grazing trial within Abbey Walk, Vermont. The photographs below show the outcome of large woody weed removal in preparation for goat grazing trial



Abbey Walk, Vermont – 27/08/2013



Abbey Walk, Vermont – 20/05/2014

Other examples of projects in which photopoint monitoring is currently being, or has been undertaken by Practical Ecology:

- Ecological / weed-control burning – Williams Landing, Laverton
- Monitoring high quality areas (i.e. covenanted or other defined offset areas)

Why is it useful or important as a monitoring tool?

Photos can provide a clear overview of how the vegetation structure appears on the ground, and can give a more detailed insight as to the density and cover of various forms/species of vegetation, which may be difficult to accurately interpret from written descriptions or cover estimates.

It also allows for a broader audience to easily comprehend the changes that have occurred within a site over a set period of time, or at intervals within an extended period. As a result, photopoint monitoring results can be used to share results and, more importantly, any objectives achieved, with the wider community and project volunteers, as well as act as a convenient reporting tool to funding bodies and Landcare groups, for example.

How can it be done in conjunction with other monitoring methods?

Photopoint monitoring can easily be undertaken in conjunction with, or in addition to, established quadrat monitoring or other vegetation quality assessment methods. Photos obtained through a well-thought out photopoint monitoring position and schedule provide accurate snapshots in time for a study area. Such photos can also show how changes occur with varying environmental conditions of which the effects may otherwise be difficult to measure through vegetation assessments, such as flooding events or extended periods of drought.

Why would you employ Practical Ecology to undertake photopoint monitoring?

Photo-point monitoring is not as simple as just taking a photo each time you visit a site.

For successful and effective photopoint monitoring results, a considered, scientific approach must be taken. Practical Ecology staff have undertaken training in environmental photopoint monitoring and as a result, are aware of what variables and issues need to be considered, and how to establish monitoring points and schedules. We have a good understanding of how to best approach photopoint monitoring, in a range of sites and in different situations or conditions.

It is vital that photopoint monitoring planning is undertaken in conjunction with a solid understanding of the plant biology (particularly growth habits) of the vegetation that is present at the site, or that of plants to be established within an area through revegetation or restoration works. As Practical Ecology staff are highly skilled in vegetation assessment, weed monitoring, and also, burning for ecological and/or weed control purposes, we are well placed to assist you with establishing photopoint monitoring within your projects, and we would also be able to undertake such monitoring over time, as required.

DEPI's recent Native Vegetation reforms

By Michelle Savona – Senior Ecological Consultant, and Yasmin Kelsall – Ecological Consultant

On December 20th 2013 the requirements for applying and processing applications for vegetation removal in Victoria changed dramatically.

The changes resulted from a State Government review of the former system under Native Vegetation Management: a Framework for Action (the Framework) that had been operating for ten years.

The new system which will be guided by the Permitted Clearing of Victoria's Native Vegetation: Biodiversity Assessment Guidelines (the Guidelines), aims to achieve a streamlining of the assessment process.

The nuts and bolts of the changes in Victorian planning schemes have involved updates to:

- Clause 12 – Environmental and Landscape Values (part of the State Planning Policy Framework);
- Clause 52.16 – Native Vegetation Precinct Plan;
- Clause 52.17 – Native Vegetation; and
- Clause 66 – Referral and Notice Provisions.

Key differences between the new policy and the old include:

- ***A change in the objective of the policy.***

The Framework aimed to achieve a net gain in the extent and quality of native vegetation.

The new Guidelines now aim to ensure that the permitted clearing of native vegetation results in no net loss in the contribution made by native vegetation to Victoria's biodiversity.

The new policy has narrowed its focus to the realm of permitted clearing, whereas the Framework aimed to balance all types of loss of native vegetation (permitted and unpermitted) with gains that outweighed the losses. The Framework also considered the wider range of processes native vegetation provides, such as mitigating land management issues such as salinity and soil loss, rather than just for supporting biodiversity.

- ***A reliance on the use of modelled data.***

Whilst some modelled data was used for guidance under the old system, the majority of the decisions to be made under the new system are guided by State-wide, computer-generated modelled datasets.

- ***Use of risk-based pathways.***

This involves assigning each application to a High, Medium or Low-risk based pathway with corresponding requirements.

In order to determine which pathway each application will follow, two factors are to be considered. These are:

1. ***Location Risk.*** This information is provided by a map that can be accessed via an online tool the Native Vegetation Information Management tool or NVIM. This map provides an approximation of the level of impact the clearing is likely to have upon biodiversity, i.e. What risk to indigenous

biodiversity values does clearing in that particular place pose?

2. *Amount of clearing.* There are threshold levels for the amount of clearing that can move an application from low to medium risk or medium to high risk. The thresholds are based on area to be cleared and number of scattered trees.

Applicants who fall into a low risk pathway are not required to have a site assessment undertaken by a professional botanist or ecologist as they can self-assessed by the applicant. There are also relatively simple reporting requirements associated with this pathway. The NVIM tool is offered as a method by which landowners may be able to gain much of the information that they need to complete an application in line with State Government requirements. Local government and national government requirements are not covered.

Applicants under the moderate and high risk pathways need to have a site assessment undertaken to assess any native vegetation to be affected. There are also reporting requirements associated with these pathways that involve supplying more information than for low risk. The NVIM tool cannot currently be used to source information to inform moderate or high risk applications.

- ***The offset system will work quite differently.***

Previous requirements including the requirement to replace vegetation of a certain type with the same (or very similar) type, often called the 'like for like' rule have gone.

Another significant change is that there are now two types of offsets:

- *General* – which are to be used to account for clearing vegetation where no threatened species will be significantly affected.
- *Specific* – relevant for where there are threatened species that are predicted to be significantly affected.

Additionally, a Bill has just been introduced to Parliament that aims to formalise the offset system and includes monitoring, enforcement and compliance objectives included.

Our experience with the new system so far:

Whilst one of the stated aims of the policy review was to reduce the costs associated with development associated with consultants assessment reports, we are finding that the system as it stands has not necessarily reduced our clients need for our services.

As we are a relatively multidisciplinary company and have extensive experience in assisting our clients to navigate the planning system, often involving non-standard or complex issues we often deal with more than one facet of the planning system.

The change in policy really only addresses one element, i.e. The State Government's requirements for native vegetation (biodiversity) of a landowner's obligations for receiving all of the relevant approvals that they require to successfully reach the outcome they are looking for.

Other requirements that a landowner will often need to address include:

- the Bushfire Management Overlay or Bushfire Prone Area requirements. Both of these bushfire safety mechanisms require further investigations to be undertaken and in the case of the BMO, a Bushfire Management Statement will be required.
- Overlays such as Environmental Significance Overlay, Vegetation Protection Overlay or Significant Landscape Overlay. These will often contain their own requirements for vegetation assessment and considerations.
- Considerations under the National Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act).

Therefore we find that our clients invariably require the assistance of an ecological and bushfire planning professional at some stage in their application process. Furthermore, even if none of the abovementioned local government or national government requirements are relevant, many landowners may not have the expertise to recognise native vegetation. If they were to submit an application and accidentally clear, this could leave them liable to prosecution.

The following are a number of other points of interest we have observed with the roll-out of the new system, and being a market-driven system, many of our points are considered from that context:

- Offset costs are up: in our experience the price of native vegetation offsets appears to have increased. This may be due to the young market sorting itself out but other factors (see below) seem to be also playing a role.
- Areas of clearing often have high strategic biodiversity scores (SBS) while many of the areas of land that are currently set aside to provide offsets have a lower SBS. This makes intuitive sense in that areas where there is pressure for development often have less native vegetation and consequently what is there is highly threatened, pushing up the SBS.

- If you have a low SBS at an existing offset site, and have not sold your credits, it may have become unviable under the new system, as the amount of credits (Biodiversity Equivalence Units) it produces is proportional to the SBS DEPI have assigned it, a low SBS means not many credits to sell and not worth the cost of managing.
- DEPI has made a policy that there be no native vegetation offsets permitted within 150m of houses in BMO areas, meaning that many bush blocks on the urban fringe can no longer provide their own offsets. The CFA generally discourage offsets within 150m of dwellings but they can be acceptable as long as they do not increase current fuel loads nor prevent creating and maintaining required fuel reduction zones around dwellings.
- Removing vegetation for fuel reduction under the BMO's Inner zone was previously only considered to be 50% loss of vegetation, under the current version of new system it is often 100% because of the combined loss of habitat score and selected trees to reduce the canopy classed as scattered trees. This has removed the incentive to retain fuel-reduced native vegetation in this area and more-or-less doubled the offset targets for such development. This and the above point have potentially added around a 50-100K cost to building on a bush block.
- The NVIM provides for inaccurate mapping that is not repeatable; we wonder how liable applicants may be for providing incorrect spatial information through the NVIM, if a proponent clears more than the inaccurate NVIM report they have permits them to, are they liable for prosecution?
- There is no longer consideration for native weeds, non-indigenous native vegetation or modified areas with a few native species that have a cover greater than 25%, such as dam walls, or previously disturbed areas. These areas are now treated as remnant patches of native vegetation, which require offsetting.
- Specific offsets can be hard to find; maybe this will be resolved as the market evolves, however given that there is now potentially a different offset type for every threatened species (the previous system allowed this requirement to be replaced by using a Very High conservation significance offset site) it appears that this complexity will push up prices for hard to find species.
- The modelled data is not accurate, including predicted habitat scores (surprise, surprise). We often suggest it is worth an on-ground assessment of habitat score rather than relying on the modelled data as it may significantly reduce offset costs.
- All trees are treated as being the same size, and offset costs for removing trees are determined by the

number of trees. So if a developer is seeking a certain area of clearing the financial incentive is to remove a few large trees rather than removing more small trees to achieve it; the opposite of what is desired from an ecological perspective.

- The modelled location risk and SBS are highly variable, carefully considering how these changes across a site can have more monetary consequence than avoiding the most ecologically important vegetation as occurs on the ground.

Staff Profile – Karen McGregor, GIS Officer

Introducing Karen, one of our newest Practical Ecology staff members ...

Karen joined Practical Ecology in January 2014 and has a degree in Geomatics and a Master of Science (Botany), making mapping of plants one of her favourite endeavours. Karen has spent time volunteering at Bush Heritage Australia, both performing vegetation surveys and GIS mapping for their properties database. Further volunteering and working at indigenous nurseries around Melbourne and as a Botany demonstrator at the University of Melbourne has expanded her knowledge and interest in Australia's flora. Karen enjoys spatial analysis (particularly when it is combined with plants), and her Masters thesis explored the uncertainties with different Global Climate Models in predicting the distribution of a grasstree in south-eastern Australia. Karen also enjoys sewing and patchwork quilting (often with a botanical element) and baking (native Australian sugar flowers included).

Williams Landing – Prescribed Grassland Burn

By Steve Johnson – Prescribed Burns Project Manager

In early May 2014, Practical Ecology conducted its first prescribed burn.

Many of Practical Ecology's contracting and consultant staff have recently undergone training and accreditation in General Fire-fighting, as part of a new and exciting service that is now offered by Practical Ecology. These staff had their new skills put into practice at Williams Landing.

The Williams Landing burn was conducted within two of the three large, established grassland reserves, with burn unit sizes at: Reserve B – 5.9 ha and Reserve C – 8 ha.

The burn day was an exciting day for all staff with weather conditions being ideal; 20°C and a light north-easterly wind. The day started with a pre-burn briefing, detailing the objectives; with the main aim being to burn 60–90% of the above-ground grassy biomass.



Pre burn briefing – Practical Ecology staff looking all fresh and ready for action in their new PPE

To safely burn the two grassland reserves, the Practical Ecology burn teams were strategically positioned to actively monitor and patrol the burn unit boundaries. This was achieved by having ‘Mobile Teams’ using vehicles with mounted fire-fighting units, patrolling the outer fence line of the reserve, in conjunction with ‘Ground Teams’, who used both rake hoes and back packs on the internal control lines – where vehicle access was restricted – to patrol a slashed control line.

Lighting of the grassland was achieved by igniting the grassy biomass with a drip torch, using a variety of spot and strip lighting patterns. All effort was made to manage and minimise the amount of smoke generated, which is always a hard task, in light of the reserves being located nearby a built up and busy urban area.



Lighting starter fires along the slashed control line.

The prescribed burn took all day, and was completed by 6pm. The last hour of the burn allowed for some great photos as the sun set and the landscape glowed as the fire moved through the grassland. There was also exciting observation of several ‘firehawks’, as Black Kites *Milvus migrans* are sometime called, attracted from afar, by smoke columns. Black Kites are well

renowned for their association with fires – as they search for reptiles, small mammals and even large insects fleeing from the fire-front (<http://www.birdsinbackyards.net/species/Milvus-migrans>).



The prescribed burn continued until just after sunset, and were completed by 6pm

The following day as the smoke had cleared and no burning or smouldering embers could be found throughout the blackened grassland. Thus, revealing the successful outcome of the Practical Ecology Burn Team’s efforts in achieving the objective to reduce the built-up thatch and grassy biomass. The burn has opened up and exposed gaps in the grassland, in which a flush of new plants can grow, which will assist Practical Ecology’s contracting staff to continue to manage and aid in the restoration of the grassland.



A panoramic view of the successful prescribed burn at Williams Landing, as seen the following day.

Launching our new prescribed burning services

Practical Ecology is very excited and proud to announce the new prescribed burn services, having a fully trained and accredited team and backed by full insurance in prescribed burn operations. This new service will assist a range of ecological restoration projects, by providing a valuable extra service and tool in management of indigenous vegetation across Melbourne and throughout regional Victoria.

Services to be offered are:

Ecological Burns

- Broad-scale application of fire to promote ecosystem reinstatement and function from a specific response of plant species or vegetation type

Biomass Reduction

- Broad-scale application of fire to reduce weed cover and biomass for ongoing management and restoration of indigenous vegetation

Fuel Reduction

- Broad-scale application of fire to reduce overall fuel hazard within a set management zone

Candling/Bark burning

- Application of fire to selected tree species to reduce overall bark fuel hazard risks

Pile Burns and Fuel Modification

- Burning of heaped piles of cut plant material, i.e. wind-row burning
- Selected removal and management of fuel types within set management zones i.e. removal of elevated fuels as to aid in reducing radiant heat impacts onto neighbouring properties.

The success of prescribed burns can also be monitored through the use of environmental photopoint monitoring methods - which is introduced elsewhere in this newsletter (link?), and this service can also be provided by Practical Ecology.

Automating GIS tasks

By Karen McGregor and Colin Broughton – GIS Officers

Practical Ecology's GIS team is constantly thinking about new ways to use technology to boost our efficiency, improve the quality of our mapping outputs, and ultimately save the time and money of our clients. We've already achieved significant productivity gains by developing digital data collection forms, and now we are in the process of overhauling our desktop GIS workflows by creating custom tools that automate all of our repetitive GIS processing tasks.

As an ecological consulting business, we constantly need to adapt to changing environmental legislation. Keeping up with it all can be time consuming, but we also see it as an opportunity to rethink and revise our own processes. For example, recent changes to Victoria's native vegetation clearing regulations have resulted in the requirement to provide GIS data to the Department of Environment and Primary Industries (DEPI) in order to obtain the necessary Biodiversity Information and Offset Requirement (BIOR) reports for our clients who wish to obtain a planning permit for a proposed development. DEPI understandably requires strict data formatting and quality control standards for every submission, and meeting these using manual methods can be time consuming and prone to

human error. Naturally, we saw this as the perfect opportunity to create a custom GIS tool that automates the whole process!

Built on top of ArcGIS desktop GIS software, our tool takes several input parameters and GIS layers and then runs through a series of GIS processing tasks strung together in a logical workflow or 'model'. The purpose of the tool is to accurately calculate the areas of native vegetation loss associated with a proposed development. This sounds simple enough, however, it is complicated by the fact that different 'Habitat Zones' within a given site typically have different quality scores, and different 'Management Zones' associated with the development result in different percentage losses of the underlying vegetation. Furthermore, different management zones often overlap one another and in this instance the percentage loss must be taken from the maximum of the two management zones.

Our tool follows strict logical rules ensuring that the calculated areas of vegetation loss are always accurate and formatted correctly. The model also has in-built data validation procedures that check for and correct any topological errors such as spuriously overlapping polygon boundaries or duplicate polygons which are otherwise very difficult to detect. The tool not only saves us time but also reduces the amount of time that DEPI needs to spend on checking the data, or requesting that it be corrected and resubmitted.

This is just one example of how we are automating our GIS tasks. We have several other purpose built tools that are now in regular use and others that are in the process of being developed. We're really excited by the idea of pushing the current technology to its limits and in the process improving the way we work.



2B Stott Street
(PO Box 228)
Preston VIC 3072
T: +61 3 9484 1555
F: +61 3 9484 9133
E: enquiries@practicalecology.com.au