



Intellectual property – a brief introduction

Intellectual property of a person or institution is the unique thoughts and ideas they express. For consultants, such as myself, intellectual property is one of the primary commodities that are traded, apart from the collection and analysis of data.

Any report consists of data and ideas published by others and those presented by the author(s). It is important that the source of all data and ideas, not belonging to the author(s), are acknowledged in a report. This is done through citations within a text linking back to a bibliography. Traditionally, the [Harvard Referencing System](#)^{PDF} is used to cite sources of data or ideas.

Reports that don't cite the sources of data used or ideas expressed in a report that are not the author's have plagiarised that information. Although not illegal, unless they infringe copyright, this practice is a symptom of poor scientific training and clients should be concerned about the quality of the work produced by such authors.

It is important to have the source of comments within a report because it allows you to interpret the validity and veracity of the source. If you read the comment that "The primary habitat of *Litoria ranifor-*

mis (Warty Bell Frog) is ephemeral swamps" you would want to know who said this, especially since most data in the literature shows this to be untrue. The only time a statement like this would be legitimate is when the report is on the habitat of this frog and it is the author's interpretation of his or her own data.

Aside from ensuring reports obtained from contractors are adequately referenced, care should be taken by clients to adequately cite these reports when mentioning them or the data, or ideas they contain, in annual reports, talks, local newsletters and other publications.

Another issue worth mentioning here is the practice of clients to have consultants sign contracts that transfer ownership of intellectual property to them.

Considering the basic tenant that intellectual property belongs to a consultant, and it is the primary commodity in which he or she trades, I consider this practice unacceptable and, personally, refuse to sign these contracts unless this clause is struck out.

OTHER USEFUL READING

[Intellectual Property – Don't give away your most valuable asset](#)^{PDF}

Legislation related to flora in Victoria

If you looked at a flora survey report today you could be forgiven for thinking that the only 'legislation' relevant to flora in Victoria was the native vegetation management framework. This is actually not the case.

Since the incorporation of the framework into the Victorian Planning Provisions there has been a gradual shift from reports addressing all the relevant legislation to reports that only address net gain.

In my experience, this drive has come from clients trying to focus on resolving a perceived issue and keeping the cost of surveys down.

Reports should, however, identify and discuss a client's obligations under all relevant legislation: the Environment Protection & Biodiversity Conservation Act 1999, the Flora & Fauna Guarantee Act 1988, the Planning & Environment Act 1987 and the Catchment & Land Protection Act 1994.

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Legislation related to flora in Victoria, cont'd

The relevance of each Act depends on tenure of the land being surveyed and the presence of certain triggers, e.g. rare or threatened plants, critical habitat or noxious weeds.

The [Environment Protection & Biodiversity Conservation Act 1999](#) is commonwealth legislation aimed at protecting (in part) listed plants and ecological communities, and managing threatening processes (e.g. weeds) of national significance. Significant occurrences of listed plants and communities are protected on all land tenures and any action that will have a significant impact on their survival needs to be referred to the Federal Minister for approval. Although there is usually a strong correlation between commonwealth lists and state lists of rare or threatened plants, ecological community lists are quite distinct, as is the methodology used for calculating their quality.

The [Flora & Fauna Guarantee Act 1988](#) is state legislation aimed at protecting (in part) listed plants and ecological communities, and managing threatening processes (e.g. weeds) within Victoria. Although touted as “landmark biodiversity legislation in Australia applying to both private and public land” [DSE \(2007\)](#), this legislation generally only applies to public land unless you are collecting tree ferns or happen to have critical habitat on your property. I have only been made aware of one critical habitat declaration in nearly 20 years since the FFG legislation was enacted and this was later revoked. Surveys of freehold should only need to consider this legislation if land is going to be transferred into public ownership, either as a reserve or as public open space.

The Catchment & Land Protection Act 1994 is state legislation aimed (in part) at controlling the introduction and spread of [noxious weeds](#). The act applies to all land tenures and outlines specific obligations for a landowner to control infestations of noxious weed on their property and, in some circumstances, adjacent land.

The [Planning & Environment Act 1987](#) ^{PDF} is state legislation aimed at regulating the “use, development and protection of land in Victoria.” The [Victorian Planning Provisions](#) is the main implement used to provide a coordinated framework of planning schemes. [Clause 52.17](#) ^{PDF} of the VPPs states that a permit is required to clear native vegetation on any land tenure unless the action resulting in the vegetation loss is an exempt activity. Applications for a permit under this clause requires the applicant to address the incorporated document “Victoria’s Native Vegetation Management – A framework for Action”

[NRE \(2002\)](#). Further protection can be provided under the VPPs through the declaration of a Vegetation Protection Overlay, a Significant Landscape Overlay or an Environmental Significance Overlay.

Reports that do not address all the relevant flora legislation only tell the clients part of the story. Clients requiring a flora survey should insist that all legislation be addressed so that they have all the relevant information to make an informed decision.

Reports should contain at minimum the following data:

1. List of all sources checked. This should include at least the [Flora Information System](#), [EPBC Interactive Map Lists](#), [DSE EVC Mapping](#) and relevant literature.
2. Outline currency of nomenclature and status listings. Ensure consistency across listings.
3. Outline methodology employed to sort through lists and decide whether a taxon or ecological community is present or not, and is significant or not.
4. List plants and ecological communities listed on EPBC, FFG and CALP Acts (where relevant) that are believed to occur within the study area.
5. Provide the *population numbers-extent* and *quality-extent* of all significant plants and communities found within the study area, respectively. Care needs to be taken to accurately identify and quantify ecological communities as definitions and methodology for documenting quality vary between the EPBC, FFG and PE Acts. Whether a historical record or sighting of a plant or community is significant also varies between legislation so details need to be provided regarding why they have been included or excluded.
6. Map extent and quality of all native vegetation within the study area as required under the PE Act. Flag any relevant overlays and associated conditions.
7. Provide ecological data (cite sources) and management options for all plants or communities that’s occurrence is deemed significant in the context of the EPBC, FFG, CALP or PE Acts.
8. Discuss deficiencies and gaps in the data and the need for further work.

EXTRA READING

[Flora & Fauna Guarantee Act 1988 – Review](#) ^{PDF}
[EPBC Significant Impact Guidelines](#)
[Ecological Communities: A way forward](#) ^{PDF}

The Framework: A Review – Part 1

The Net Gain Calculator – the final piece to the puzzle

Since the inception of the native vegetation framework one of the fundamental problems has been establishing how to calculate gains within your offset site. The ability to calculate habitat scores and offsets for clearance has been around for several years but all planning applications have stalled when it came to reconciling vegetation losses. Without an official stance, councils varied widely in their approach.

In 2006, DSE published 'Vegetation Gain Approach - Technical basis for calculating gains through improved native vegetation management and revegetation' ([DSE 2006 PDF](#)) – a horrible document full of pivot tables. Although comprehensive, even the most avid consultant avoided referring to this document. The reason for this was the heralded release of a net gain calculator – a program that would take base data and calculate the potential gain for an offset site. [Version 1.1](#) of the calculator was released in January 2007.

The calculator comes in the form of a Microsoft®Excel spreadsheet where the user completes a series of 14 questions regarding the offset site and the proposed management. The questions included on the sheet are:

1. Enter Site Details
2. Enter Habitat Zone Identifier
3. Choose Bioregion
4. Choose EVC
5. Enter size of habitat zone
6. Choose Current Land tenure
7. Choose Current Planning Controls
8. Choose Type of Offset
9. Enter Total Offset Patch Size
10. Confirm Habitat Score
11. Choose Appropriate Management Options
12. Gain Score for Remnant Patch
13. Choose Security Arrangement
14. User Details

The inclusion of site identifiers and user details gives the impression that the sheet can be printed as a record of your choice but the sheet is not formatted adequately to fit onto a single page and certainly not presented well enough to include in any report. Data and selections for 10 habitat zones can be stored in a single spreadsheet so there is an opportunity to save your data but for the average project this will still require several spreadsheets.

The site identifier, bioregion, ecological vegetation class, size of habitat zone and the component values for the habitat score are base data collected in all vegetation surveys. The current land tenure and planning controls can be extracted from the [Land Victoria](#) and the [Victorian Planning Provisions](#) Websites. This data is static and does not vary once collated for each habitat zone.

This leaves four steps that influence the calculated offset gain. The three standard variables are the type of offset, the selected management options and the type of security arrangement.

Two options are provided for offset type: remnant patch and revegetation. The default selection is remnant patch, which represents calculating gain from management of native vegetation rather than the revegetation of alienated land.

The security arrangement for the offset site varies from basic permit conditions through to permanent reservation. Changing this option can have a dramatic effect on the calculated gain as significant improvements in legal protection is rewarded with increases of up to 40% of the improvement gain.

Step 11 is the main area for manipulating improvement gain.

STEP 11 Choose the appropriate management options as required
(or land use commitments)

(a) Exclude stock and ensure that weed cover does not increase beyond current levels *

(b) Retain all standing trees – dead or alive

(c) Retain all fallen timber/branches/leaf litter

(d) Eliminate high threat woody weeds & control pest animals

(e) Eliminate all identified high threat weeds & control pest animals

(f) Supplementary planting

(g) Introduce logs

(h) Any additional site-specific management actions
If (h) is selected, select from below:

Management Action:

Ecological thinning

Ecological burning

Ecological flooding

Other

Calculating the total offset gain
Total Gain (H1a) 11.8

© DSE 2007

For Grassland type EVC's only
* Replace management option (a) above with:

Selection of various management combinations results in the immediate change in the calculated gain (insert). Very useful if you are trying to establish the minimum management necessary to achieve a required target offset.

These choices provide the opportunity to select standard options to create a conservative or more aggressive management strategy.

The Framework: A Review – Part 1

The calculator also provides the opportunity to flag additional site specific management actions. This includes, but is not limited to, ecological thinning, ecological burning and ecological flooding. Selection of any of these options requires STEP 12 to be completed.

STEP 12					
Gain Scores for Remnant Management					
Attribute	Maintenance Gain/ha		Improvement Gain/ha		Comments
	Calculated	Assessed	Calculated	Assessed	
Large Trees	0		na	Enter here	
Tree canopy cover	0		0	Enter here	
Understorey	1		0	Enter here	
Lack of weeds	0		0	Enter here	
Recruitment	0.6		0	Enter here	
Organic litter	0		0	Enter here	
Logs	0		0	Enter here	
Total		1.6		0	
Gain Scores for Revegetation					
Attribute	Improvement Gain/ha		Assessed		Comments
	Calculated	Assessed	Calculated	Assessed	
Site condition	0				
Landscape context	0				

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Step 12 allows adjusted values for each of the habitat score components to be entered. Any values entered here should be supported by appropriate data. Links to this data can be inserted in the comments section.

Although providing for the opportunity to enter adjusted values for habitat score components no information is available on acceptable methodology for calculating revised values. It is likely that certain revised values may not be accepted.

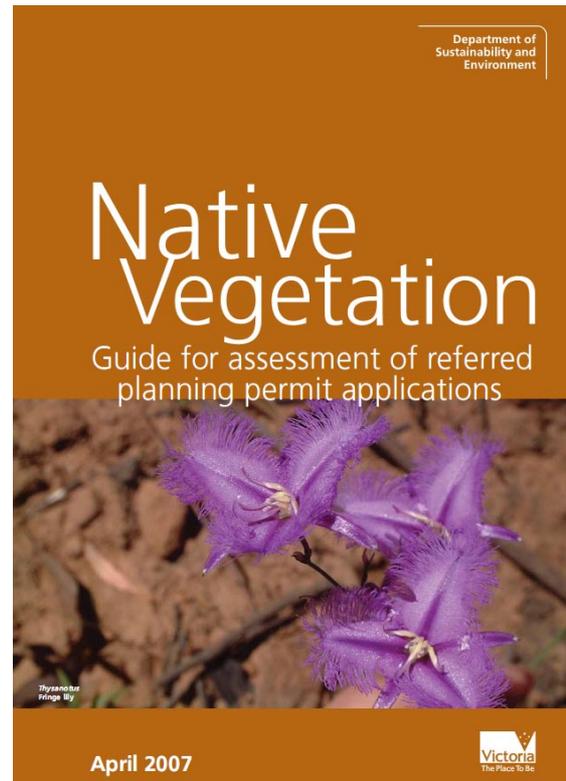
On completion of all selections, the calculator provides the *estimated gain points / hectare* then multiplies this by the *size of the habitat zone* to provide the *potential gain*.

In order to incorporate these values within a report it is necessary to provide the values for each selection and calculated gain in a table. If multiple samples of each habitat zone are collected, *gain points / hectare* need to be averaged then multiplied by the size of the habitat zone.

I hope that future versions of the Net Gain Calculator will aim at providing a clear report of user selections and background calculations, so it can be included in technical reports.

Despite the few issues outlined, the calculator provides a vital and previously missing link in the planning chain – the ability to estimate potential gain available from a particular patch of vegetation. With this type of data now being readily calculated, any planning application involving onsite offsets should be able to reconcile their obligations prior to submission. In addition, land managers involved in the BushBroker Scheme can also use this calculator to establish gains available for trading.

New version of the 'Guide for Assessment of Referred Planning Permit Applications'



An updated version of this guide, dated April 2007, is now available from the [DSE Website](#). If you are like me you searched frantically and fruitlessly for a list of amendments so you did not have to read both documents side-by-side to identify significant changes. Thankfully, software is available to automatically compare these documents and I was able to compile the following list of the major differences between the 2006 and 2007 versions.

1. Numerous spelling and grammatical errors were corrected.
2. The introduction was expanded (Page 4).
3. Increased cross-referencing between this document and the recently updated sections of the Planning & Environment Act (Victorian Planning Provisions).
4. An expanded section on the use of BushBroker to meet offset requirements (Section 3.5, Page 15).
5. Inclusion of a definition for 'Offset Plan' (Page 28).
6. The first official release of the revised definition for remnant patch (Page 10).

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Questions & Answers

Introductory Note

Many thanks to those people that sent questions in response to my recent email. As most questions were quite verbose and project specific, I paraphrased some of them to make them suitable for publication.

How is the habitat hectare method for assessment of vegetation been accepted or utilised in the industry?

The answer to this question will vary depending on whom you ask. In the absence of a survey my response is based solely on my experience and the reader needs to keep in mind that they may not be representative.

Habitat hectares were quick to be picked up by consultants as it provided a simple method of communicating vegetation quality to clients in a statewide context. Clients were equally enthused for the same reason.

Historically, though, each consultant had their own methods of classifying quality and took considerable effort to justify their conclusions. It was not unusual to see lists of quadrat data documenting species occurring within an area and various other site attributes. With the advent of the framework no supportive documentation is provided to justify component scores used in working out the habitat score. This lack of depth to data collected / presented makes it impossible to verify the quality of the work submitted with Planning Applications leading to frustration for all those people needing to review these documents.

Vegetation assessments also need to consider more than the Planning & Environment Act 1997, so the habitat score has its limitations. Currently it is unclear how the habitat score relates to the Flora & Fauna Guarantee Act 1988.

To complicate matters further, the federal government has published a separate vegetation hierarchy and quality rating system ([DEWR 2007](#)).

An LGA Officer asked, "How do we know an offset site is being managed?"

DSE has been developing a [Native Vegetation Permit Tracking System](#) for monitoring vegetation change and the implementation of conditions on permits. The project started in 2003 but does not appear to have progressed further

than development of a prototype webpage.

BushBroker, I suspect, will have a tracking component but this would only be for third-party offsets. I presume that the permit tracking project will restart now that the Net Gain Calculator has been released and agreements are being made between developers and landowners.

An LGA Officer asked "What happens after 10 years to land being managed as an offset?"

From what I have been told, the improvement gain can be recalculated based on the current vegetation condition, and any potential gains traded. Prior management gain and maintenance gain cannot be included. I presume security gain can only be included if there is a change in security arrangements.

To date, no official documents have been released regarding this issue and the current version of the Net Gain Calculator does not include the option of excluding certain types of gain.

A land manager asked "To rehabilitate a degraded site to its floristic potential, is it better to manually reinstate the site with a mixture of native grass seeds, or should we just allow nature to take its course?"

The industry is split on this question, so asking someone else will definitely get a different response.

Personally I think nature should be allowed to take its course. We should only intervene if after reinstating all natural ecological processes and controlling all major threats no recovery is observed. Resorting to vegetation augmentation implies a detailed knowledge of the original species composition, and even in well-studied areas we don't really have this information.

An LGA Officer asked "Is it really possible to revegetate an area back to healthy and functional pristine bushland? What kind of time-frame is needed? We talk so much about offsetting the loss of bushland with replanting. Are we really just wasting time and creating areas which will never be self sustaining and turn into weed scapes or monocultures?"

Personally, I don't believe we can fully recover pristine bushland. As alluded to by your questioning, recovery can take decades, even centuries. The difficulty is (i) reinstatement of the principal ecosystem functions like fire, soil

Questions & Answers

disturbance and hydrology, and (ii) the control of principal threats. Threats don't just include rabbits and thistles, but eutrophication, salinity and groundwater contamination to name just a few. All these factors need to be addressed and the best approximation of normal variability both spatially and temporally established.

If given the option of saving 'good bush' versus revegetation of an average quality remnant I will always argue protection of the 'good bush.' We delude ourselves if we think we can recreate a functional ecosystem, we have a hard time re-establishing self-perpetuating populations of once common taxa!

Consider, for example, *Diuris fragrantissima* (Sunshine Diuris). This small orchid was well known throughout the western suburbs of Melbourne. Now it is only known from a single locality. Significant effort has gone into the propagation of this species and large numbers of this plant is found in cultivation. Despite this all attempts have failed to establish a self perpetuat-

ing population (Cropper 1993). This story is not unique with similar widespread species, now restricted in distribution, proving difficult to re-establish.

Taking all this into consideration, the answer to your question is that I don't believe in revegetation. In my experience, as you pointed out, you end up with a shrubby layer of common natives over a rank weedscape. Hardly attractive or definitely not providing ecosystem function for wildlife or other plants.

My preference is for active management of bushland remnants primarily through reinstatement of key ecological processes and control of principal threats. Once the species composition of the vegetation has equilibrated, if component species are extinct or lifeform groups depleted, species augmentation can be considered.

REFERENCE

Cropper, S.C. (1993) 'Management of endangered plants' (CSIRO Publications: East Melbourne).

Who is Simon Cropper?



Considering you have taken the time to listen to my ramblings I thought it only fair that I let you know a little bit about myself so you can decide for yourself whether my views are legitimate. I have been a professional ecologist since 1985 and have been involved in survey work, the development and implementation of monitoring programs, detailed ecological research and management of both significant species & ecosystems. I also authored the book 'Management of endangered plants' published by CSIRO. In 1993, I established the natural resource consultancy Botanicus, which has since serviced a broad range of government and private sector clients, and has conducted numerous flora & fauna surveys throughout Victoria.

Housekeeping

Please feel free to distribute this publication to anyone interested in Natural Resource Management. If you would like to have future issues automatically sent to you by email, send me an email with SUBSCRIBE in the subject line to my email address below. If at any stage you wish to discontinue receiving future issues, send me an email with UNSUBSCRIBE in the subject line.

Please note that numerous links to the Internet have been provided in this document to help direct the reader to supportive documentation or further reading. I have assumed that most people will have broadband and Acrobat® Reader on their system. I apologise if this is not the case. I have marked links pointing to Acrobat® Portable Document Format files with the PDF symbol. The reader can be downloaded from the [Adobe Website](#).

Articles in this document can be cited in the same way as traditional journals, viz. Cropper, S.C. (2006) Heat stress in outdoor workers. *EcoRamblings* 1: 1-2.



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