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Details of Filing

Document Lodged:	Expert Report
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Important Information

As required by the Court's Rules, this Notice has been inserted as the first page of the document which has been accepted for electronic filing. It is now taken to be part of that document for the purposes of the proceeding in the Court and contains important information for all parties to that proceeding. It must be included in the document served on each of those parties.

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No. VID 1228 of 2017

Federal Court of Australia

District Registry: Victoria

Division: ACLHR

FRIENDS OF LEADBEATER'S POSSUM INC

Applicant

VICFORESTS

Respondent

SECOND EXPERT REPORT OF DR ANDREW PETER SMITH

Contents:

Filed on behalf of (name & role of party) Friends of Leadbeater's Possum Inc, the Applicant
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EFFECTS OF PAST AND PROPOSED LOGGING ON 58 COUPES LOCATED IN THE CENTRAL HIGHLANDS REGIONAL FOREST AGREEMENT AREA IN VICTORIA ON THE GREATER GLIDER (*Petauroides volans*)

SUPPLEMENTARY REPORT.

A Supplementary Report to the Federal Court of Australia

Proceeding VID 1228/2017

By Dr. Andrew P. Smith.

9 January 2019

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DECLARATION

Expert Witness Code of Conduct

I, Andrew Peter Smith of 35 Albany Lane Currumbin, Queensland have read, complied with and agree to be bound by the Federal Court of Australia Expert evidence Practice Notes (GPN_EXPT) General Practice Note. The opinions expressed in this report are based wholly or substantially on my specialized knowledge arising from my study, research, investigation and experience in Greater Glider ecology and forest conservation and management. I declare that I have made all the inquiries which I believe are desirable and appropriate (save for any matters identified explicitly in the report), and that no matters of significance which I regard as relevant have, to my knowledge, been withheld from the Court.

Brief. This supplementary report was prepared in response to 2 letters of request by Danya Jacobs of Environmental Justice Australia dated 9 January 2019 which are reproduced below. I have also added some additional comments to clarify the use of Greater Glider survey data in my report of 7 January.

Environmental Justice Australia

9 January 2019
Dr Andrew Smith
Austeco Environmental Consultants
PO Box 4130
Elanora QLD 4221
By email only:setscan@gmail.com

Dear Dr Smith

Friends of Leadbeater's Possum Inc v VicForests: Federal Court of Australia proceeding VID1228/2017

We refer to our letter sent earlier today.

If possible, please append to your supplementary report the Greater Glider survey data from the 32 stag watched sites in the Central Highlands in 1984/85 which you re-analysed in preparing the model, as referred to on p43 of your report.

Yours sincerely

Danya Jacobs
Senior Lawyer

9 January 2019
Dr Andrew Smith
Austeco Environmental Consultants
PO Box 4130
Elanora QLD 4221
By email only:setscan@gmail.com

Dear Dr Smith

Friends of Leadbeater's Possum Inc v VicForests: Federal Court of Australia proceeding VID1228/2017

Thank you for your expert report dated 7 January 2019. If possible, we would be very grateful if you could respond to two further questions and clarify one matter in the report, by way of short supplementary report, at your earliest convenience.

Clarification: The table number is excluded from the bracketed text on p86 of your report in the section 'Compliance with Code'. Could you please clarify the table number referred to.

Question 1. Please provide further explanation of the reasons for your opinion that clear-felling does not suit the ecological requirements of mixed species forests in the Central Highlands, as set out in your report including in the final paragraph on p31.

The Code contains separate definitions for "clear-fall" and "seed tree harvesting" on p11 and p17. Your answer to Q28a states "All logged coupes have been harvested by clear-felling which removes all but a few remaining seed trees or habitat trees." In answering the above question, please clarify whether the references in your report to "clear-felling" includes both "clear-fall" and "seed tree harvesting" as those terms are defined in the Code and explain the reasons for this.

Question 2. Could you please clarify whether your opinion in the section 'significance of habitat and logging impacts' on p96 relates to the Greater Glider, and explain your reasons.

The matters concerning the expert witness code set out in our letter dated 22 October 2018 continue to apply to your response to this letter.

Yours sincerely

Danya Jacobs
Senior Lawyer

RESPONSE TO BRIEF

1. **Clarification**. The reference to Table xx on page 86 should read Table 2 (as shown on page 52-53 of the report).

2. **Data for 32 surveys**. Is appended to this report as Appendix 1.

3. **Question 2. Could you please clarify whether your opinion in the section 'significance of habitat and logging impacts' on p96 relates to the Greater Glider, and explain your reasons*.***

Yes, the statement relates to the Greater Glider as well as Leadbeater's Possum because both of these species occur in uneven-aged Ash forests. Living old growth senescent Ash trees are now so rare in the Central Highlands that they require protection under the Code as a) habitat trees, b) Ash trees originating pre-1900, and c) rare examples of uneven-aged Ash forest structure required "to maintain a diversity of forest structures throughout the landscape." They are especially important to Leadbeater's Possum because this species is primarily found in uneven-aged Ash forests with an overstorey of scattered large old trees with hollows. The Greater Glider is also found in uneven-aged Mixed Species forests.

4. **Question 1. Please provide further explanation of the reasons for your opinion that clear-felling does not suit the ecological requirements of mixed species forests in the Central Highlands, as set out in your report including in the final paragraph on p31. The Code contains separate definitions for "clear-fall" and "seed tree harvesting" on p11 and p17. Your answer to Q28a states "All logged coupes have been harvested by clear-felling which removes all but a few remaining seed trees or habitat trees." In answering the above question, please clarify whether the references in your report to "clear-felling" includes both "clear-fall" and "seed tree harvesting" as those terms are defined in the Code and explain the reasons for this.**

I clarify that the use of the terms clearfell and clearfelling in my report are intended to encompass the terms "clear-fall" and "seed tree harvesting" as defined in the Code. My use of the term clearfell and clearfelling describes the use of an even-aged silvicultural system which removes all but a small number trees retained to provide hollows for wildlife or seeds for regeneration and results in the regeneration of a predominantly even-aged regrowth forest.

I note that the Code definition of “clearfall” refers to the removal of “all merchantable trees” apart from those to be retained for wildlife. I noted during my inspection of logged coupes that all trees (apart from those obviously retained for wildlife and seed trees) appear to have been removed even those that would appear to be unmerchantable such as small trees, dead trees and defective trees. I noted on number of occasions that large dead hollow bearing trees had been felled and burnt on site. I assume that small unmerchantable trees were also slashed and burnt on site.

I also note that the definition of “seed tree” in the Code states that “they generally comprise 10-15% of the stand”. I did not observe any logged coupes in which I would consider the number of retained trees (including habitat trees and seed trees) to exceed 10% of the coupe. I would estimate, based on my observations and counts of large tree stems, that logged coupes typically retained between 0 and 4% of the basal area of the original stand as habitat and seed trees. I further conclude that due to their small size, degree of fire damage (from regeneration burns) and isolation (exposure to windthrow, and lack of protection in clumps), that most of those trees retained will not survive to provide habitat trees in 50-80 years time.

The final paragraph of my report on Page 31 states that: Mixed Species Forests in Victoria and the Central Highlands are ecologically suited to harvesting by selective logging (or basal area limited harvesting Smith 2001/10) and regeneration by soil disturbance rather than intense burning. Clearfelling followed by intense burning which is currently practiced in this forest type in Victoria and the Central Highlands has no natural equivalent in this forest type (Lutze et al 1999, 2004) and no place in ecologically sustainable forest management (Smith 2001/10). Clearfellling of Mixed Species forests in the Central Highlands is contrary to the requirements of the Code of Practice 2014 Clauses 2.2.2.11 (***use silvicultural systems that suit the ecological requirements of the forest type***), 2.6.1.5 (***regeneration must aim to achieve the approximate canopy floristics that were common to the coupe prior to harvesting, if known***), and 2.6.1.6 (***silvicultural methods for regeneration must suit the ecological requirements of the forest type, taking into consideration the requirements of sensitive understorey species and local conditions***).

It is well known and accepted that Mixed Species forests are naturally uneven-aged in structure. VEAC (2017) states, for example, in reference to Mixed Species forests that “*trees of these species generally grow in multi-species stands and are much more likely to survive wildfires than ash trees and hence tend to form multi-aged stands*”. And Lutze et al (1999) in their review of silviculture in Victoria state (in reference to Mixed Species) that: “ *there are two common stand structures: virgin stands which are typically uneven-aged, although large mature and overmature trees tend to dominate, and pure regrowth stands resulting from post 1960 logging*”. This is consistent with my observations that uniform

aged stands in Mixed Species are unnatural and result from clearfell timber harvesting. Mixed Species forests include trees of all sizes and ages beneath a tall mature and old growth canopy because they are dominated by tree species that are typically able to survive all but very extreme fires by having thick bark and the capacity to regenerate from coppice shoots on trunks and branches. And also because they are shade tolerant and able to regenerate, survive and grow beneath the canopy of larger older trees providing continuous recruitment with or without fire (Florence 1996). Mixed Species forests are subject to and tolerant of relatively frequent fire (Lutze et al 1999). Clearfelling is well known to be inconsistent with ecologically sustainable harvesting of Mixed Species forests, because it converts and uneven-aged forest to an even-aged structure and in so doing removes habitat components critical to the survival of uneven-aged and old growth dependent fauna such as the Greater Glider.

Only silvicultural practices, such as single tree selection or "selective harvesting", that remove a small percentage of stand basal area at any one time and that maintain a continuous uneven-aged forest structure can be considered to "suit the ecological requirements" of Mixed Species forests. Prior to the 1960's Mixed Species forests in Victoria were harvested by selective harvesting which was consistent with the ecological requirements of the forest. Since the 1960s Mixed Species forests have been harvested using the system developed for Ash species, that is clearfelling followed by slash-burning and aerial sowing, despite the fact that this system is not only ecologically inappropriate, but is also unreliable for regeneration (Lutze et al 1999). Lutze et al 1999) provided the following statement about the inappropriateness of burning regeneration in Mixed Species forest based on the work of Fagg (1981) "*regeneration was inferior on burnt seedbeds because of the greater recolonization of smothering weeds and a greater mortality on ash beds. He suggested that the best results would be obtained by sowing on disturbed soil in the period April to August. Not with standing this the silvicultural system continued to be clearfelling followed by slash-burning and aerial sowing in autumn. The rate of regeneration failure, not surprisingly has continued to be higher than in any other forest type in Victoria*".

Greater Glider Survey Data

During preparation of this supplementary report I became aware of a discrepancy in the numbers of Greater Glider location records reported for some coupes listed in Appendix 1 and numbers listed for the same coupes in appendix 2. This discrepancy was due to a change in the way in which records were counted for Appendix 2 in an effort to reduce noise and repetition in the data. Counts in table 2 were based the sum of all records post 1997 in a coupe that were more than about 50m apart, including those on the coupe boundary, and including double counts for locations where 2 gliders were reported at the same location in the survey data presented by Dr. R. van der Ree in these proceedings. Where a location record occurred on the boundary of two different coupes it was included in counts of both coupes. If a location record from the VBA (Victorian Biodiversity Atlas) appeared within approximately 50m of a location previously counted in the report of van der Ree it was not included. The effect of this difference in counting method was minor and had no impact on the findings or conclusions of the report.

REFERENCES

Fagg P. C. (1981) Regeneration of high elevation mixed species eucalyptus forests in East Gippsland. Research Branch Report No 175. Forests Commission of Victoria (unpubl).

For other references please see initial report.

APPENDIX 1 Greater Glider model data (from Smith et al 1985)

site	lgehol/ha	stems 40-80/ha	Ggstag &spot	multiple regression stems 40-80 and large hols								
1	3.0	67	2	SUMMARY OUTPUT								
2	3.0	0	0									
3	0.7	17	0	*Regression Statistics*								
4	2.3	0	1	Multiple R	0.62368594							
5	2.0	67	0	R Square	0.38898415							
6	2.7	17	0	Adjusted R Square	0.34684513							
7	2.3	0	1	Standard Error	0.86485125							
8	2.0	17	1	Observations	32							
9	0.0	0	0									
10	0.7	67	0	ANOVA								
11	0.3	100	0		*df*	*SS*	*MS*	*F*	*Significance F*			
12	1.0	83	1	Regression	2	13.8089373	6.90446867	9.23097196	0.00079024			
13	0.0	0	0	Residual	29	21.6910627	0.74796768					
14	1.7	217	1	Total	31	35.5						
15	1.0	0	0									
16	2.7	299	4		*Coefficients*	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
17	0.3	67	0	Intercept	-0.5929377	0.32358515	-1.8324008	0.07717917	-1.2547436	0.06886825	-1.2547436	0.06886825
18	3.7	0	2	lgehol/ha	0.5404878	0.1553168	3.4799055	0.00160706	0.22282927	0.85814633	0.22282927	0.85814633
19	3.0	50	1	40-80	0.00473774	0.00203494	2.3281969	0.02708109	0.00057582	0.00889967	0.00057582	0.00889967
20	0.7	117	0									
21	3.0	100	0	Gg/3ha = 0.54xTreeslgehol/ha. + 0.0047xStems40-80cm/ha - 0.59								
22	1.0	66	0									
23	0.7	50	0									
24	2.0	0	0	note								
25	2.0	17	1									
26	1.7	167	0									
27	0.7	17	0									
28	1.3	0	0									
29	1.3	200	1									
30	2.7	100	4									
31	1.7	133	0									
32	1.7	183	0									
correlg	0.52	0.37										