Westside Type F Riparian Management Zone Exploratory Study

Comment topic	Reviewer	Location: Page/Line in original doc	Reviewer comment	Author response	Author response	Reviewer response to author action
General				*Rose color indicates major effort revision*		
	1		Material needs improved reorganization, writing, stating and summarizing main findings.	see revision		
	1		Needs discussion section.	see revision		
	2		Summary section = bullet list that repeats info from results. Not rigorous/thorough interpretation of analysis, does not explain how knowledge gained will guide/focus BACI.	see revision		
	1		Break analyses into different chapters to make sub-studies more digestible.	Good idea, did this		
	1		Distil into fewer figures. Figures sometimes shown but not referenced.	I think it's a matter of links that didn't update to the correct figure numbers. Will check cross-references.		
	1		Present results more clearly (means, CI).	means are not appropriate for this dataset due to severe lack of normality and necessity to weight prescriptions. Calculated weighted medians and ranges instead.		
	1		Present stats models in methods.	Most stats modeling removed in response to view that they did not directly address the study questions. Where modeling is used, the methods are included in the Methods sections of each chapter.		
	1		Stats tests need to be described more fully as tables and in the text.			
	1		Writing poorly organized and repetitive between sections.	Breaking into chapters helped organize this		
	1		Break methods and results discussion into sections or clear chapters for response variables. Could help avoid repetition, or mixing results/discussion.	done		
	1		Lack of clear topic sentences makes paragraphs harder to understand.	see revision		
	2		Intro is brief but well-framed. Coherence fragments a bit when site and treatment details added. These should be placed in methods.	placed into Study Sites chapter		
	2		Methods well explained. Did well at explaining limitations & uncertainty in methods.	thank you		
	2		Corrections in figure order, display, text formatting, grammar needed. Figures need to follow and not precede mention in text (or occurring long after mention).	see revision		
	2		Reporting results are overwhelming. Significant editing needed. Don't include unmentioned figures. Focus figures on message to be conveyed. See figures 14, 18, 19, 20, 23, 26.	see revision		
	2		Figure 39 is a red flag. Split its information or exclude it.	see revision		
	2		Liked bullet point summary, but a discussion section is needed since this report will illuminate/illustrate practices in the field. Always pros and cons about reported findings due to uncontrollable covariates.	added to each chapter		
	2		A list of needed editing corrections is provided. D47	have referred to that		
1. Are rigorous, transparent and sound research and statistical methods followed?						
	1		PCA/NMDS very detailed. Could be distilled to clarify main patterns, but were informative	Focused analysis methods specifically to objectives and questions in each chapter		
	3		Matrix of correlations of variables = fundamental to exploratory analyses, provides much of same info as ordination. Not conducted. Need to defend why PCA/NMDS necessary, how results to be used in a BACI, provide info useful to achieving objectives.	Agree; added		
	AE		Yes to correlation matrix. Wide agreement w/ reviewer 3.	agree		
	3		Need list and justification for metrics included in ordination.	removed analysis as did not answer study questions		
	3		References needed for analytical support/justification for ordinations, avoid stats jargon associated with them.	removed analysis as did not answer study questions		
	1		Other stats tests (LMM) mentioned in passing without describing model structure / variables involved.	removed analysis as did not answer study questions		
	2		Lack modeling explanation. Model details and equations should be stated up front and not as a footnote.	removed analysis as did not answer study questions		
	3		Explanation of exploratory analysis not rigorous, sound, or transparent. Sloppy, leaving impression that analyses not well thought out. For instance, GLMM/LMM mentioned once and never again.	described methods more clearly within each chapter		
	2	p40	LMM results not explained nor results presented. No models nor equations presented. Needs to go in methods. p40: Report on LMM structure in methods, not results. Present modeling output.	removed analysis as did not answer study questions		
	3	p39	Reporting of the "mixed model" on p. 39 is severely incomplete, lacks description in methods. Need to justify why mixed model necessary to generate info for Fig 15. The footnote equation on p.40 should appear in methods along with definition of each parameter. D89	removed analysis as did not answer study questions		
	3		Explain if site class = fixed effect and why site treated as random effect. Seems like inexperienced presentation of this info.	We determined which prescription variants we sampled, so prescriptions are fixed levels of the Prescription factor. Prescriptions are defined by the site class where the harvest is. Therefore, site class is also a fixed effect. Sites were randomly selected within the prescriptions, so site itself was treated as a random effect. However, mixed models were removed as did not particularly address study questions.		
	2		Report lacks organization for reporting findings.	see revision		
	2		Did not include Aspect in analysis considerations. Discussion paragraph on catchment physiography and role in site productivity might be useful to others.	Added both valley aspect and buffer cut face exposure to windthrow analysis.		
	2	p56	PCA: results sometimes nowhere to be found, yet discussed (p.56, hierarchical clustering & PCA).	were in appendix; removed analysis as did not answer study questions		
	3		No description of cluster analysis in methods, nor description of why needed, conducted, or why info useful.	removed analysis as did not answer study questions		
	2		LMM results not explained nor results presented. Provide estimates, CI, other stats.	removed analysis as did not answer study questions		
	AE		In document, "…treats site as a random effect (to account for those unknown reasons [??])". Unusual explanation of random effects.	removed analysis as did not answer study questions		
	2	p40	Quote "…we must avoid the conclusion that post-harvest differences are the result of the harvest treatments, even between sites in the same site class and channel width categories." However, there WAS a difference (i.e. harvest) that could affect site conditions post harvest such as increases in peak/diel streamflow. Report model summary and clarify interpretation.	The harvest might or might not be what affects site conditions. Because this is not a Before-After Impact study, we cannot say that the observed differences between prescriptions aren't due to the conditions present prior to harvest. In fact, we know that in most cases the prescriptions with an IZ harvest treatment PROBABLY DID DIFFER prior to harvest because those RMZs were eligible for an IZ harvest treatment AND the landowner believed the timber value was worthwhile to expend that additional effort to get. Streamflow is not a riparian function we are addressing in this study. The study purpose and objectives are explicitely to constrain the investigation to the riparian functions of shade, wood recruitment potential, and sediment and the additional target of DFC target trajectory.		
	AE	p40	Parse this phrase: "Although we know that Core and Inner Zones for all variants were slightly different prior to harvest, they were similar enough that we can infer from these results that in general, sites with and without Inner Zone harvest were different prior to the harvest. This not surprising but emphasizes that we must avoid the conclusion that post-harvest differences are the result of the harvest treatments, even between sites in the same site class and channel width categories." Holy moly. I think I know what they mean, but it sounds like "sites were comparable and similar, which tell us that we can't compare them."	see revision		
	1		Results unclear, without P-values or R2. Need to mention whenever differences/relationships discussed.	see revision		

	1		Useful to characterize means with 95% CIs when comparing site prescriptions.	Must be careful as few of the data can be considered normally distributed; Added CI and mean representations to metric boxplot figures in Appendix B to assist visual interpretation but these should only be used as indicators. Tables only include medians.		
	1		Need to summarize/distill figures. Too busy. Need to better demonstrate main findings.	see revision		
	1		Place some figures in supplemental sections to highlight main findings.	okay		
	3		Organization of study site selection done well.	thank you		
	3		Not adequate info on DFC stand growth model. Expand a bit on origin, data required, algorithm/parameters required, output generated would be sufficient.	done		
	3		BACI is never mentioned except that such data were collected, nor a description of BACI-related analyses or data required. Since goal = guide, focus a BACI, wanted to see how analyses in report would accomplish that overall goal.	we're still trying to figure that out, given that this study did not point to any prescriptions standing out. Discussion and Conclusions address this topic specifically.		
	3		Contradiction: seemed like study not geared towards rigorous stats analysis. But, methods through 2.7.2 through and transparent. Canopy Closure section could be improved.	Correctm this study was not intended for rigorous statistical analyses. This is not the Effectiveness study (Phase 3). This exploratory study was to dicover the ranges of variabilities in metrics related to riparian functions; to discover any prescriptions that stood out as being different and requiring more in-depth investigation; and to calculate the percentages of RMZs, especially by rescription variant, are on track to meet the DFC basal area target. See Introduction - Purpose and Objectives.		
	3		Authors state they can't measure effective shade but refer to the data as shade sometimes, canopy closure others (consistency). Reduces confidence in results interpretation. Also, authors indicate that they lack confidence that their measurements can be used. Reviewer offers citation.	The "Shade" label is based on the variable labels used in the dataset, which are in fact densiometer canopy cover measurements. We have corrected labels throughout the report. We are confident in the canopy cover results from spherical densiometers. Many studies comparing various methods have found spherical densiometer measurements to be accurate for representing the conditions within a buffer (e.g., Kelly and Krueger 2005). Effective shade, however, requires and incorporates information on the position of the canopy with respect to the measurement point and sun angle. This study was primarily investigating characteristics of the buffer vegetation on one side of the stream and not necessarily the buffer ability to shade a given stream. Given that, we believe the densiometer measurements do adequately represent the buffer character (see Kelly and Krueger 2005). At high levels (above 80 or 85%), studies comparing densiometer canopy cover relationships with effective shade have shown the densiometer measurements overpredicting effective shade as measured by hemispherical photo with sun angle modeling (the "gold standard" of effective shade measurements). We therefore don't have confidence in the ability for the canopy cover measurements to represent effective shade once the reported values exceed about 80%. We are confident they are in fact over 80%, just not the precise values. While it would be interesting to have full-on effective shade analyses for these sites, that would have been a much larger effort beyond the scope of the study design. Revised text to improve description of these relationships and reasoning.		
	3		No explanation on why data not collected on tree heights or subset of heights, or why crown ratio estimates not recorded.	That was a decision made for financial reasons and not by current report authors. Report states what was done, not all the tradeoffs that were considered in developing design or all the things that could have been done but were not.		
	3		Need to explain what is meant by "confirmatory patterns".	deleted		
	3		Need clarify/rewrite metric variability analysis (2.14), not clear what "gathering variabilities" means. Also need more specificity around "future work" stats needed. Need to clarify what asterisk number means for Table 12, Levene's test.	the asterisk definition must have been lost when inserting the table. The Levene's test and data were intended to identify whether any prescriptions were remarkably different from others , which might provide reasons to focus the follow-on Phase IIi study on them. The tests were also idnetify variables for which ANOVA and simple t-tests could be performed without violating equality of variance assumptions. See revision		
	3		Methods for collecting/attributing mortality, downed wood, recruitment adequate, descriptive stats informative.	thank you		
	3		Color scheme used for large/small stream variants may be problematic for readers w/ difficulties interpreting color.	all figures are also interpretable, we believe, without the color scheme but are simply more readily-interpreted by using the consistent color scheme throughout.		
2. Is there sufficient detail in the document to reproduce the study?						
	1		Description of FP history, site selection, site eval, scope of inference, methods included to evaluate study objectives & questions good. Maybe too much info?	tried to streamline somewhat but think most info useful to some readers, especially background, which seems to be unknown to many younger readers, scientists, and policy audience.		
	2		Data collection was well documented.	thank you		
	3		Yes, enough detail for a specialist to reproduce study	thank you		
	1		Info for stats tests missing (Q1).	will be thorough in revision		
	2		More attention to details such as figures and findings needed.	see revision		
3. Were data reasonably interpreted?						
	1		Presented raw patterns. Often could have been simplified. Fig 39 - too busy. Example. Widespread. Captions = not enough info, needed to go back to text.	see revision		
	1		So many figures, hard to understand what was important.	agreed. See revision		
	1		As mentioned in General, limiting figures to those that address questions, breaking into chapters could help readability and understanding.	done		
	1		Text mentions differences without supporting stats findings. Needed means, CIs, p-vals, r2.	added		
	1		Results interpretation: Separate discussion section would be valuable. Need to dedicate space for interpretation and comparison with	added to Chapters		
	2		Sample sizes may not have been sufficient for statistical inference. As the study was not focused on statistical analyses, causal relationships, and inference the data management and targeted use are satisfactory.	okay, but we are mindful to NOT assign causal relationships. This study was specifically not to assign cause.		
	3		Generally yes, but see specific comments in edited MS.	incorporating some suggestions. See MS with responses, in conjunction with revised MS		
	2		Modeling interpretations lack evidence (discussed in Q1).			
4. Do the stated conclusions logically flow from the results?						
	1		Summary section great for distilling key findings.	thank you		
	1		Big jump from cumbersome results to conclusions. Distill results section to main findings, add discussion section to bridge gap between results and summary.	agree; see revision		
	2		Info in results section not efficient and visually appealing in guiding the reader.	see revision		
	3		Need conclusion section that explains how stated objectives met and how the study will provide BACI-supporting info	agree; see revision		
	3		MS well organized generally w/ methods & results.	hope re-organization is even better		
	3		Summary = rapid-fire list of findings. Not sure how useful it is.	sorry you found it so		
	3		Consistency between objectives/results/summary could be improved. Some inconsistencies, such as conclusions on litterfall without any litterfall data reported.	see revision		

	3		General observations need to be identified as such. Avoid terms implying analysis occurred. E.g., "Trend" or "difference" when in the methods it was stated that no analysis took place on the particular riparian function. Another example = summary, where authors make statements about a hypothesis, but no test was conducted.	Thank you. Was mindful about such language in revision.		
	3		Authors need to explain what "detrimental to riparian function" means. Term is loaded and confusing, as windfall isn't "bad" in that it adds material to the forest floor and stream channels.	Good point; see revision		
	3		Variability analysis poorly executed and explained. Unclear what "differences in central tendencies" are. Only two sources of variability. Implies haphazard approach to test and reporting.	added explanations and separated into the chapters where relevant with metrics pertinent to that topic		
	2		Sufficient, but see Q4. Much more out there to support results found.	added more literature, especially related CMER studies		
5. Do the literature citations include the latest applicable information and represent the current state of scientific understanding on this topic?						
	1		Few citations overall, mostly agency reports in intro.	still largely agency reports because the introduction is about the regulations and their development; did add some more peer-reviewed literature. For more context about the regulations and their bases, the cited agency literature should be consulted.		
	1		Since no discussion section, can't tell how results relate to current sci understanding (other studies & reports). NEEDS ATTENTION. Can't tell if findings are outliers or representative.	see revision		
	2		Discussion is necessary to draw conclusions. Will add evidence from other studies to connect the findings, boost reader support for conclusive statements.	see revision		
	3		Literature cited in intro adequate/informative.	okay		
	3		Often citations would improve other specific topics. Methods citations incomplete. Citations for LM/GLM/linear models needed citations and explanation in general. Sections on ordination would benefit from example citations to support decisions to include them and provide a pattern for describing their use and example for reporting results.	see revision		
	3		Records in bibliography that don't appear in the text.	references were for discussion draft that was removed due to conflict and time constraints; see revision		
6. Are uncertainties and limitations of the work stated and described adequately?						
	1		Study did well w/study limitations & scope of inference & sources of uncertainty.	thank you		
	1		Pre-harvest data are often referenced in the methods and in the results, but are not included in figures. Data presented in this report appear to only encompass the post-harvest period data. Summary section 4.1.2 stated that there were pre-harvest differences between sites that were and were not harvested in the inner zone, yet I noticed no figures that compared any pre-post data. Even if there were differences in pre-harvest conditions, what was the relative magnitude of change during the post-harvest period?	Sites that were and were not harvested within the Inner Zone were almost assuredly different prior to harvest because if they had started out the same, the landowners would probably have done a DFC inner zone harvest for the No-harvest sites also. However, this is merely inference; the only pre-harvest data were a few things that were sometimes included in the forest practices application (FPA). We considered recreating, with a lot of uncertainty, pre-harvest stem densities, basal areas, diameters, and conifer fraction for the sites that had inner zone harvest from the DFC input data. However, those data are from the entire length of those riparian buffers whereas we only sampled 300 ft. We found many known cases where we can see that our sample is not consistent with the overall buffer conditions and so decided that was not a good analysis. Pre-harvest data for the other sites could reasonably be assumed equal to the immediate post-harvest (IPH) data, which were created synthetically but with a solid basis (see methods) and in which we have higher confidence.		
	3		See responses to Q1.			
	2		See Q1, 3 responses.			
7. Are assumptions stated and described adequately?						
	1		Little discussion of stats tests assumptions. Needed.	added where any stats were retained		
	3		Numerous assumptions with stats tests and the authors need to report on those. No mention of assumptions with PCA/NMDS or "mixed	removed analysis as did not answer study questions		
	AE		The variance analysis seems unneeded. Many analyses can handle adjustments to heteroscedasticity. See Pinheiro, J.C. and D.M. Bates. Mixed Effects Models in S and S-PLUS. 2000. Springer Verlag, New York.	Variance analyses are used to identify prescriptions that appear to have conditions differing from the other prescriptions and so perhaps indicate where we might focus the future effort. see revision		
	3		Metric variability analysis (Sec 2.14) focused on homogeneity of variance that affects "many statistical analyses". Need to state what tests used are that are reliant on those.	ANOVA and t tests were intended; see revision		
	2		Yes, see Q 1, 3.			
8. Is the information presented in an accurate, clear, complete, and unbiased manner and in a proper						
	AE					
	1		Needs improvement in structural presentation of material, better writing, more refined analyses. Improve clarity.	see revision		
	3		Analysis largely accurate in context and manner. No bias detected.			
	3		Information incomplete as presented. See draft MS comments.			
	3		Intro clear and more complete, description of data collection adequate.	thank you		
	3		An executive summary is needed.	added		
	3		Info presented should discuss context of how to be used to "guide and focus the development of an experimental Before-After, Control-Impact (BACI) study of the effectiveness of the Type F/S Riparian prescriptions for Western Washington."	Added text related to this purpose. We are still working through how, besides using the varibilities, these results will focus the next study. Likely in focusing what to measure. We expected there to be more variation among the prescriptions that would direct us to what prescriptions the more in-depth study should focus on. The overarching result from thsi study is that all the prescriptions perform similarly, despite the large variations on the ground.		
	2		Complete: many important site characteristics which could have been easily added were not considered in study. Elevation examination was appreciated, encourage others. Can help with making more robust and reliable conclusive statements.	Added aspect and buffer exposure analyses. Tree height was considered during design of study but discarded due to perceived cost and time issues based on past studies. Counting of cut stumps was considered but discarded for the same reasons. Cut stumps get covered by slash and brush in Western Washington, especially 3 years after harvest, and are nearly impossible to inventory. This was attempted in a past study and proved extremely time-consuming and resulted in low-quality data. Further studies investigating more characteristics and factors can be performed using this dataset, but go beyond scope of the current study. For example, these data are expected to be combined with data from other CMER studies to perform a more in-depth windthrow analysis, which would also add more site characteristics as potential factors.		
	2		Interpretation of PCA - include correlation and p-values as a table, not in text. Refer to appendix material. Dimensions 3 & 4 missing R2, saw it was significant in Appendix.	removed PCA; does not aid in reaching objectives		

	2		NMDS: Could also look at topography, soil, others. Examined relationships w/ site class and dominant species probably more related to physiography than site class (more useful associations could be drawn). Need to test these before drawing conclusions on site class. Results in Fig 13 probably intertwined w/ elevation or aspect.	Site class is based on and incorporates soil type and other physiographic features within it. Moreover, the rules are based on site class and the rules are ultimately what this series of studies is meant to test. Therefore, we believe site class is a worthwhile variable to investigate and express conclusions about. That is not to say that more detailed investigation of other factors might not be useful and this dataset is well set up to allow that if someone desired to do so. However, this study was not meant to delve to that detail.		
	2	p61-65	Section 3.3.2 Shade 2: Where is the explanation? Seems that there is a missing paragraph. Explain the box plots (figure 33), and include the PCA analysis mentioned on P 62.	removed PCA; does not aid in reaching objectives		
	2		The study has excellent geographical inference. Translate some findings into estimates. How many sites state-wide are likely to not meet shade target?	The problem with inference is, as described in the methods, that the number of different riparian prescriptions in any given FPA is unknown and highly variable and the lengths of stream associated with each prescription are also unknown.		
	2		Consistently report R2 and p-values.	see revision		
	2	Fig 22	Font is very small (as an example). Fix all figures for constant font size.	see revision		
	2	p52	3.2.3: Fig 27 appears to have significant differences in Inner Zone harvest categories. Medians different. Did you mean to say "Core Zone"?	see revision		
	2	p52	Only discuss Figure 26B. Discard A & C? Also, variants 7 & 8 seem to have similar patterns. What do authors have to say about this?	see revision		
	2	p63	Fig 34: Many sites w/ TPS < 250 had >80% Shade. What guarantees that results are not outliers/measurement errors? N = 9.	We inspected site photos, aerial images, and lidar topgraphy to verify the validity of outlier data points. Note that even 200 trees per acre is quite high for stands of harvestable age/size. Data that show shade relationships with stand density tend to show that for stand densities below 150 tpa. Given this, while we might expect a relationship between stem density (or basal area density) and shade for low stem density (or basal area dnesity) values, the relationship flattens out and disappears by the time the stands look like the stands of this study. New discssion section elaborates on this. You really need two of the three basic pieces of information to have any idea what a stand looks like, even when the tree species/type is known: stem density, basal area density, average stem diameter - pick two. Without two, it is difficult to infer anything meaningful. For example, one can have a stand with high basal area density because it has a few very large trees (e.g., many stands in Prescription 1 or because it has many small trees (e.g., stands in Prescription 11 on Site Class V).		
	2	p63	Last sentence: Figure 39? What Figure 39?	figure number link fields must have updated or become warped when document was re-opened. Figure 39 was intended but has now been removed per other comments. See revision.		
	2	p69	3.5: "Labels in Fig 29". Do you mean 40?	figure number reference updated irregularly when sections were moved. Should be corrected in current version.		
	2	p70	Fig 41 doesn't illustrate two DFC sites as stated.	fixed figure		
	AE		Why "exploratory" data analysis? Data dredging? Would like an explanation of what this term means to the authors.	removed PCA; does not aid in reaching objectives. Added different analyses directly related to objectives.		
	AE	p6	What info would BACI produce that this study won't?	As near as I can tell, the main thing some stakeholders want to know is whether there are any prescriptions that, when applied, can result in an increase in the peak 7-day average daily maximum temperature of >0.3 Celsius (anti-degradation standard). The presence of any such increase demonstrates to the Department of Ecology that that riparian buffer prescription is not effective. In order to test for this effect, several years of pre-harvest stream temeprature, several years of post-harvest stream temperature, and paired control sites are required (BACI). I believe that the Depart of Ecology anti-degradataion standard is the only HCP target for riparian buffers that relies on quantifying a change between pre- and post-harvest.		
	AE	p51	Consistency in figures: 3-6 yrs post harvest, or 3 yrs post harvest? Fig 24.	see revision		
	AE		PC3, four were unintelligible. Reason for correlation matrix.	added correlation matrices		
	AE	p34	"r2=57".	fixed		
	AE	p35	"In PCA axes 3&4 we see differences..." I don't see any differences, and can't find any in the appendix.	removed PCA; does not aid in reaching objectives		
	AE	p49	Line 14: "There was a tendency for stands to self-thin at higher relative densities. The trend was, however, not consistent ..." Did you test for trend? What is meant by tendency?	No tests done. Used descriptive terms to describe visual results.		
	AE	p57	Fig 29: Shows a spline fit to the data. Why not linear? State a spline is used?			
	AE	p63	Figs 34, 36. The text (p.63, line 8-9) claims these show the same pattern. I disagree. A spline fit to these data would assist viewers to assess mean trends in particular regions of the plots and across entire plots.	I think there must have been a field code mix-up pointing to the wrong figures, because I completely agree with you. See revision		
	AE	p69	Line 18-19: "Many of the sites... experienced high mortality, but many more did not." Totally uninformative.	Revised.		
	AE		Use sig digits.	not sure what this refers to in particular, but have been conscientious of sig digits in revision.		
	AE	p72	Line 2-3. "Many of the riparian function-related metrics are homogeneous among the prescriptions". Not quite. Failed to disprove equality. This isn't the same as proving it. Also, why is Levene's test necessary? There are numerous ways of incorporating heteroscedasticity into analyses. See Pinheiro & Bates 2001, "Mixed-effects models in S and S-plus". Note that 4.5.2 states that the difference in variation "is high enough to preclude using standard statistical tests." I suggest that the authors talk to a statistician.	Thank you for the reminder. Identifying prescriptions that had variabilities that differed markedly from those of other prescriptions was in and of itself an objective of this study, not merely an assumption check prior to performing t-tests or ANOVA. Completely revised how we did this, when, and where in the relevant report chapters, and most importantly, the explanations of why we did it. See revision.		
	AE	p80	4.4.1.4: Note that this entire section is much longer than what was reported in the results.	See revision. Added a (small) chapter on the sediment delivery portion to show why we investigated it and why the result we found (0) was important.		
	AE	p81	4.6: "However, we would have low confidence in making inferences about conditions across all variants, because the samples are disproportionate to the number of instances in the population." I suggest the authors talk to a statistician about weighted averages.	VERY constrained inferences about the landscape can perhaps be made based on the number of instances where the prescription was applied, but not on stream length affected. We estimated weights based on the number of instances found in the desktop analysis and assume that is representative of FPAs through time, but this does not relate to the amount of stream length associated with each prescription.		