

CMER/Policy Interaction Framework Six Questions

Scott F. Pearson
Washington Department of Fish and Wildlife
Wildlife Science Division
Olympia, Washington

A.J. Kroll
Timberlands Technology
Weyerhaeuser NR
Federal Way, Washington

1. Does the study inform a rule, numeric target, performance target, or resource objective (Yes/No)? If Yes, go to the next question. If No, provide a short explanation on the purpose of the study.)

Yes.

2. Does the study inform the Forest Practices Rules, the Forest Practices Board Manual guidelines, or Schedules L-1 or L-2 (Yes/No - Include whether or not the study answers the critical questions found in the CMER Work Plan.)? (If yes, describe briefly what rules, guidelines, key questions, critical question, resource objectives, performance targets, etc. the study informs, preferably in bulleted format. If no, provide a short explanation on the purpose of the study; do not repeat if already explained in question 1 above. Note: Schedule L1 contains resource objectives and associated functional objectives and performance targets. For the most part, the CMER Work Plan critical questions have replaced L-2. Be sure to use Forest Practice Board approved Schedule L-1 with a Feb 14, 2001 date on it.)

Yes, rule group critical question (see Table 44 in the Fiscal year 2014 CMER Work Plan):

- *“What roles do RMZs, UMAs, and other forest patches play in maintaining species and providing structural and vegetative characteristics thought to be important to wildlife?”*
- *Helps inform the buffer width prescription (by not disagreeing with) under current rules for non-fish bearing streams.*

3. Was the study carried out pursuant to CMER scientific protocols (i.e., study design, peer review)? (Provide short explanation. Be clear on use of ISPR.)

Yes, the following protocols/process was followed:

- *Study design was a before-after control-treatment experiment with sampling immediately post-harvest and 10 years post-harvest. Original study design was developed by the University of Washington and was approved by CMER.*
- *Draft reviewed by LWAG, comments addressed in writing and report revised accordingly*
- *ISPR review (SRC 13-14-01) process followed and Dr. John Richardson synthesized the blind reviews by three peer reviewers plus he provided additional comments. All three reviewers were described as senior scientists with international respect. In addition, the Reviewers had considerable experience with*

the ecology of forest birds and effects of habitat alterations, especially forestry. Two had very detailed knowledge of occupancy models and all have expertise with a range of other statistical methods. In synthesizing the reviews, the AE stated “There are exceedingly few studies that revisit such experiments...” such as this study and he went on to say because of this the “report provides new insights into the use of riparian area buffers by birds as adjacent forests regrow.” Also the Associate Editors stated that “the reviewers are very positive about the manuscript, but also have some suggestions for how it can be improved.”

- *A comment and response matrix was developed by DNR staff*
- *The authors responded to all reviewer comments using the matrix and revised the report accordingly*
- *The revised report was approved by CMER*

4. What does the study tell us? What does the study not tell us? (This is where the study and its relationship to rules, guidance, targets, etc are to be described in detail. Consider technical findings; study limitations; and implications to rules, guidance, resource objectives, functional objectives, and performance targets; in addition to other information.)

What the study tells us:

- *Species richness increased on both the narrow and wide buffer treatment in the short- and long-term post-harvest.*
- *No loss of species from either treatment was detected in either the short- or long-term post-harvest.*
- *There is strong evidence that the high species turnover on both treatments post-harvest was driven not by species loss but by the gain of species on the buffer treatments post-harvest. The change in species turnover did not become evident until 10 years post-harvest for the wider buffer treatment.*
- *No change in total bird abundance was detected on treatments post-harvest*
- *No decline in the abundance of riparian associated birds was detected on either treatment post-harvest.*
- *When we examined buffer width as a continuous variable, some loss of species and some decrease in total bird abundance occurred on two very narrow buffer stands (40' ≤) but not on others, suggesting that stand-level differences exist in bird response. However, no loss of species or decrease in bird abundance occurred on stands with buffers greater than the current 50' buffer for non-fish bearing streams.*

What the study does not tell us:

- *If differences exist in survival or reproduction for birds associated with narrow or wider buffers.*
- *Did not identify a threshold buffer width where breeding bird abundance declined but brackets buffer widths where changes in abundance are observed in some stands (between 39.4 and 69 feet).*

5. What is the relationship between this study and any others that may be planned, underway, or recently completed? Factors to consider in answering this question include, but are not limited to:
- a. Feasibility of obtaining more information to better inform Policy about resource effects.

- b. Are other relevant studies planned, underway, or recently completed? (If yes, what are they?)
- c. What are the costs associated with additional studies?
- d. What will additional studies help us learn?
- e. When will these additional studies be completed (i.e., when will we learn the information)?
- f. Will additional information from these other studies reduce uncertainty? (Consider recommendations on additional studies that may not be in current CMER work plan.)

No relationship exists between this study and those planned or currently underway. However, a deliberate relationship exists between a previously funded CMER project (TFW-LWAG1-00-001) - specifically the bird portion of this study that was ultimately published (Pearson and Manuwal 2001). In contrast to the previous study, this current study was designed to examine the long-term effectiveness of riparian buffers for providing habitat used by wildlife. Although the 10-year resample included birds, mammals and amphibians (Hawkes 2007), we were contracted to analyze the bird data only. This work differed from the previous study by:

- *Providing longer-term responses of breeding birds to riparian forest buffers. As pointed out by Marczak et al. (2010, page 132), estimated effects of forested buffers on riparian fauna that have been calculated from short-term data (≤ 5 years post-harvest) should be “viewed with caution” because both short- and long-term effects may be associated with harvesting forests adjacent to buffers. This new study explicitly addresses this concern.*
- *Addressing issues of detectability that may have been confounded with treatment. If detectability issues are not addressed, they could result in apparent treatment effects that are not present.*
- *Including a new analysis that was not conducted with the short-term data. Specifically, we took advantage of the variability in buffer width both within and among treatments to examine the relative influence of riparian buffer width and vegetation (trees and shrubs) on species occupancy and abundance. This new analysis allowed us to look for thresholds in the effects of buffer width on species associated with riparian habitats, which were not evident.*

6. What is the scientific basis that underlies the rule, numeric target, performance target, or resource objective that the study informs? How much of an incremental gain in understanding do the study results represent? (The specific basis for the current program element may not be known, and in such a case, focus the discussion on the level of confidence in the results, realizing this may be somewhat subjective. Describe any reduction in uncertainty in the science behind the rules as a result of this study, or any changes in level of assessed risk to key aquatic resources processes affected by forest practices (see Schedule L-1) as a result of this study.)

- *By providing longer-term (10 year post-harvest) breeding bird response to buffer treatments, we address the need to view the previous study with caution.*
- *We identified longer-term effects – bird colonization continued for up to a decade post-harvest.*
- *No long-term effect on stand-level species loss or total bird abundance was detected, even in the narrow buffer treatments.*

- *Narrow buffer treatments apparently maintained riparian associated breeding birds even in the longer-term.*
- *However, bird abundance declined on a couple of stands with very narrow buffers ≤ 40 feet but not on other stands with very narrow buffers suggesting that bird response at the narrow end of the spectrum may be site-specific.*

1) If not already done so within the answers to the six questions above, provide the technical implications/recommendations resulting from the study-. Examples of areas on which to comment include:

- New rule tools, models, or field methods that should be developed;
- New research/monitoring for Policy to consider to fill gaps in information and understanding;
- Suggested rules/board manual sections to review/revise. CMER should not directly state whether or not a rule, guidance, or program procedure should be changed; only the results from using the program component, and where known, the relative merits of other approaches. Deciding whether to make any changes is the purview of Policy or the Forest Practices Board; although, Policy or the Board may request CMER participation in the decision process.
- Evaluation of whether key aquatic resource objectives (Schedule L-1) are being met.
- Other areas

New methods:

- *Regardless of the taxa being addressed, it is critical that issues of detectability are considered in all monitoring and research methods/designs. Fortunately, new statistical approaches exist that can be employed to address issues of process and sampling variation if the study is designed appropriately.*

New research to fill in the gaps:

- *Information from this study indicates that presence of bird species associated with riparian habitats is being maintained on relatively narrow riparian buffers. Future research might focus on whether reproduction and survival of birds in these narrow buffers is equivalent to birds in unlogged controls.*
- *Information from this study suggests that bird abundance declined on a couple of very narrow stands but not on others. Future research might focus on identifying what factors influence these apparent differences. Ultimately, this information could be used to help identify these types of stands on the landscape and ultimately influence management prescriptions to decrease the likelihood that bird abundance will decline. However, if maintaining species presence is the target considered adequate, then this research is not needed.*

Literature Cited

- Hawkes, V.C. 2007. Effectiveness of riparian management zones in providing habitat for wildlife: Resampling at the 10-year post-treatment interval. LGL Limited, Environmental Research Associates, Sidney, BC, Canada V8T 3C3.*
- Marczak, L.B., T. Sakamaki, S.L. Turvey, I. Deguise, S.L.R. Wood, and J.S. Richardson. 2010. Are forested buffers an effective conservation strategy for riparian fauna? An assessment using meta-analysis. Ecological Applications 20:129-134.*
- O'Connell, M.A., J.G. Hallett, S.D. West, K.A. Kelsey, D.A. Manuwal, and S.F. Pearson. 2000. Effectiveness of riparian management zones in providing habitat for wildlife. LWAG, Timber Fish and Wildlife Program Final Report (TFW-LWAG1-00-001)*
- Pearson, S.F., and D.A. Manuwal. 2001. Breeding bird response to riparian buffer width in managed Pacific Northwest Douglas-fir forests. Ecological Applications 11:840-853.*