



PROJECT REPORT

Ecosystem Restoration Workshops: Tools and Techniques

Barriers, Knowledge Gaps, and Evaluation Results

Kamloops: Feb. 28th, 2006

Prince George: Mar. 2nd, 2006

**Ecosystem Restoration:
Tools and Techniques**

**Barriers, Knowledge Gaps
and Evaluation Results**

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ABOUT THIS REPORT

Two workshops—“Ecosystem Restoration in Mountain Pine Beetle and Fire-Impacted Areas: Tools and Techniques” and “Ecosystem Restoration in Mountain Pine Beetle-Impacted Areas: Tools and Techniques”—were held on February 28th, 2006 in Kamloops and March 2nd, 2006 in Prince George, respectively. This report summarizes the barriers and knowledge gaps identified during the workshops session as well as the evaluation feedback from workshop participants. Fifty-six percent of the Prince George workshop participants completed and submitted an evaluation, while fifty percent of the Kamloops workshop participants completed and submitted an evaluation. The results presented in this report reflect that input. Results of the workshop evaluations will be used by FORREX to guide future workshops and assist the workshop presenters in improving future presentations.

BARRIERS AND KNOWLEDGE GAPS

As part of the workshop session, time was taken to work with participants to identify barriers and knowledge gaps associated with implementing ecosystem restoration in the province. A number of barriers and knowledge gaps were identified and are summarized below for each workshop location.

Results from the facilitated discussion during the KAMLOOPS workshop

Question 1: What are the barriers to effective implementation of ecosystem restoration in MPB-impacted areas of BC?

- Current provincial and federal standards. For example, stocking standards on the operable landbase.
- To assist nature – need to remove barrier (ecological, economic, etc.) to assist the ecosystem in recovering.
- Funding sources – inconsistently applied. No long-term vision/plan which results in inefficient spending.
- Focus on native species in riparian areas. You will need to provide incentives for the businesses/industry that grow these things.
- We are not dealing with the degraded landscape – only dealing with the symptoms.
- Competing interests of the various tenure systems. Need strategic decisions on where to focus effort. Too many non-replaceable forest licenses.
- Policies/administrative/social issues (institutional barriers) related to not being able/not wanting to do something new.
- No jobs available for those who graduate in ecosystem restoration (UVic program).
- Projects dropped due to lack of funding to continue with the project to full results phase (maintenance of trials/experiments).

Citation—

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- Reluctance to talk about things that didn't work.
- Lack of ability to mesh operational and high level processes.
- Meshing TEK and western science related to ecosystem restoration.
- Unrealistic timelines and expectations for ecosystem restoration and adaptive management.
- Changing scaling regulations - i.e., pay full price for deadwood. The implication of this is that more will be left out there.

Question 2: Where is more information needed? What are the remaining knowledge gaps related to ecosystem restoration techniques?

- Effectiveness monitoring and the suite of tools to do this.
- Are the results of research (e.g., FRBC reports) readily available (no - awareness issue) or translated into operations?
- Disconnect between academics in various institutions and those in operations (as well as between coast and interior).
- Synthesis of restoration information.
- Lack of baseline data (e.g., hydrology data, fish habitat) – experiential knowledge.
- Extension/education effort for informing the public of what is needed.
- Mechanisms to promote opportunities for information exchange on (site-) specific pieces of the land to deal with conflicting objectives? What are they – for best fit opportunities?
- Using traditional knowledge to document “what was there” and is it a reality to ever get it back there when we are only restoring fragments of the landscape?
- What do you do in major drainages that have been impacted by beetle – how/what do you do in those riparian zones (minimal damage to ecosystem)? What options are there based on the “value”?

Results from the facilitated session during the PRINCE GEORGE workshop

Question 1: What are the barriers to effective implementation of ecosystem restoration in MPB-impacted areas of BC?

- Stumpage allowances.
- Lack of staff/resources for implementing restoration plans – institutional barriers by the funders and other involved organizations.
- Administrative barriers related to the application of fire – public negative perception of fire – not enough proactive and continuous education to the public on the benefits of fire.
- Pressure to spend money due to time constraints – don't know when the next pot of money is coming.
- Disconnect between all ecosystem restoration goals and timber supply goals.
- Pressure to have projects on the ground when it may be more appropriate to learn more about the systems first.
- Allocation of resources for activities during harvesting – lack of access by industry to money for doing activities that would not be economical for them to do without a subsidy – possibly related to the appraisal system.

- Tenure system doesn't provide any incentive to plan and implement restoration activities.
- Barrier to watershed/hydrologic restoration is the lack of baseline data.
- Lack of landscape-level research in the north.
- Growth and yield models are based on even-aged stands – need to be updated.
- Retention – lack of incentives to implement (stand and landscape-level) – is this a legislative barrier?
- Lack of recovery strategy teams – those people that are dealing with restoration of riparian areas specifically – development of teams – focus on BMPs.
- Working in silos – timber/silviculture/wildlife – need a more integrated approach based on higher-level objectives – need commitment from a high-level to do this, particularly those working in the timber area.
- In BC, we don't have a lot of proven terrestrial restoration techniques. In the late 90's the US Forest Service initiated the Fire and Fire-Surrogate (FFS) study. This long-term study can help us understand the effects of alternative methods for forest restoration and fuel reduction. We in BC could replicate these studies. See <http://www.fs.fed.us/ffs/>.
- Priority for certain areas – need risk analysis to determine areas most in need of restoration treatments.

Question 2: Where is more information needed? What are the remaining knowledge gaps related to ecosystem restoration techniques?

- Need to know what areas are going to be left over before we know what we can restore – may not know that for 5 – 15 years.
- More research – e.g., in parks – what happens if we leave it alone?
- Uncertainty about how market and economy could change in 50 years – maybe our focus will change over that time period.
- Climate change – what is its impact on species selection?
- Accessible and searchable libraries of reports and research that's been done so no redundancies in studies – learn from what's already been done – could be provisions on all contracts that adding to database is a mandatory deliverable.
- Data mining of old silviculture surveys – would be relatively inexpensive and quick to access.
- Further understanding of ecosystems in general – what are we restoring them to? What are the impacts of our restoration activities?
- What are we doing on the landscape as managers? What are our landscape-level objectives? How can we be more proactive?
- What are the things that are potentially broken? In areas where we couldn't be proactive, focus on compromised elements.
- Continue extension work to bring people up to speed on latest information.
- LRMP documents – impact of MPB on values – puts LRMP objectives and strategies into non-compliance – need to re-visit LRMP objectives due to MPB epidemic and salvage logging and its impacts.

FORUM EVALUATION RESULTS

Overall, how worthwhile were the workshops?

Kamloops

Sixty-seven percent of respondents said that the workshop was very worthwhile or worthwhile. Twenty-nine percent felt it was somewhat worthwhile. No respondents felt that workshop was not at all worthwhile.

Prince George

Fifty percent of respondents said that the workshop was very worthwhile or worthwhile. Forty-two percent felt it was somewhat worthwhile. No respondents felt that workshop was not at all worthwhile.

How would you rate the quality of the workshop organization?

Kamloops

Ninety-two percent of respondents stated that the workshop organization was excellent or very good while the remaining participants felt the workshop was somewhat well organized.

Prince George

Eighty-one percent of respondents stated that the workshop organization was excellent or very good while the remaining participants felt that the workshop was somewhat well organized.

How would you rate the quality of the presentations at the workshop?

Kamloops

Seventy-nine percent of respondents felt that the overall quality of the presentations was good to excellent. Seventeen percent felt that the quality of the presentations was somewhat good.

Prince George

Sixty-five percent of respondents felt that the overall quality of the presentations was good to excellent. Twenty-seven percent felt that the quality of the presentations was somewhat good.

Did this workshop increase your knowledge of:

- a) The Provincial Ecosystem Restoration Strategy?
- b) Ecosystem Restoration Planning and Monitoring?
- c) Terrestrial Restoration Techniques?
- d) Riparian Restoration Techniques?
- e) Aquatic Restoration Techniques?

Kamloops

Eighty-three percent of respondents felt that the workshop increased their knowledge of the provincial ecosystem restoration strategy. Eighty-three percent indicated that the workshop improved their knowledge of ecosystem restoration planning and monitoring. Eighty-four percent of respondents who attended the terrestrial restoration techniques concurrent session indicated that the workshop improved their knowledge of terrestrial restoration techniques. One hundred percent of respondents who attended the aquatic/riparian restoration techniques concurrent session indicated that the workshop improved their knowledge of aquatic and riparian restoration techniques.

Prince George

Eighty-one percent of respondents felt that the workshop increased their knowledge of the provincial ecosystem restoration strategy. Sixty-five percent indicated that the workshop improved their knowledge of ecosystem restoration planning and monitoring. Eighty-eight percent of respondents who attended the terrestrial restoration techniques concurrent session indicated that the workshop improved their knowledge of terrestrial restoration techniques. Fifty percent of respondents who attended the aquatic/riparian restoration techniques concurrent session indicated that the workshop improved their knowledge of riparian restoration techniques, while fifty-six percent of respondents who attended this session indicated that the workshop improved their knowledge of aquatic restoration techniques.

As a result of this workshop I plan to...

Workshop participants were asked to say what they will do as result of this workshop. The following statements reflect the feedback from those responding to the evaluation survey.

Kamloops:

- Learn more about restoration strategies/needs in MPB priority areas.
- Develop a planning process for areas that I am concerned with.
- Incorporate some of the discussed material into my current reports.
- Use FORREX electronic database on restoration; pursue further work in restoration.
- Promote the efficient and effective exchange of ecological knowledge and information.
- Continue attending symposia, workshops, etc.
- Further understand funding sources.
- Continue seeking information on the topic.
- Share the information gained from the workshop with my co-workers, and do more research into the ecosystem restoration efforts being made by government agencies and private consultants.
- Review several hydrological studies/cut block design reliable methods; modify field practices if appropriate to do so.
- Think more on this.
- Recognize the value of ecosystem restoration and support strategies/projects which look at restoration as a whole, not just one specific activity.

- Attempt to implement ideologies in total rehabilitation planning exercises with projects on the ground.
- Consider a broader range of parameters when assessing ecological restoration projects/potential.
- Do more monitoring of work sites where we undertook management actions.
- Investigate several of the main topic areas.

Prince George

- Focus on selecting a topic for an MSc Thesis.
- Use what I learned to enhance projects I am currently working on.
- Use this information to increase the depth of knowledge for my graduate studies.
- Support continued outreach related to the restoration topic/theme (such as a repeat(s) of this workshop or modification of this workshop).
- Be more active in the process.
- Look for higher priority restoration issues than MPB impact.
- Be more conservative in proposing to invest the FFT funding into the MPB-infested areas.
- Pursue further contracts/work on MPB-related restoration and prescriptions and stay tuned to the progress of the provincial ecosystem restoration strategy implemented.
- Learn more about the effects of MPB stands and the management of regeneration.
- Think strategically.
- Spread the good work about ecosystem restoration; emphasize caution in how aggressively we indulge in ecosystem restoration; Lobby government to slow and lengthen the time frame planned for ecosystem restoration—we need to know where we are going before we start pouring money into stand-level projects.
- Contact some of the presenters to ask specific questions relating to my organization's specific and unique issues.
- Talk more with colleagues about this subject.
- Contact BC people regarding vegetation community changes as a result of climate change and MPB.
- Promote restoration in timber salvage areas and not in MPB areas that have not been harvested.
- Follow up on researching invasive plants in the area I work; be proactive in identifying areas with potential for degradation and potential mitigation tools that can be used during salvage harvest operations.
- Re-think restoration projects which are in project development phase.
- Use some of the techniques and ideas in protecting forest values while doing MPB salvage harvesting.

APPENDIX 1: WORKSHOP EVALUATION¹

Thank you for taking a few minutes to give us your feedback. This will help us plan future workshops.

1. How worthwhile was this workshop to you?

Very worthwhile Not at all worthwhile
1 2 3 4 5 6

2. How would you rate the quality of the workshop's organization?

Excellent Poor
1 2 3 4 5 6

3. Overall, how would you rate the quality of the workshop's presentations?

Excellent Poor
1 2 3 4 5 6

4. Please provide any additional/more specific comments regarding the usefulness of the presentations (please specify the presentation you are referring to if possible):

5. How much has this workshop increased your knowledge of:

a. The provincial ecosystem restoration strategy:

Very much Not at all
1 2 3 4 5 6

b. Ecosystem restoration planning and monitoring:

Very much Not at all
1 2 3 4 5 6

c. Terrestrial restoration techniques associated with mountain pine beetle and fire-impacted areas (leave blank if you attended the aquatic/riparian restoration session):

Very much Not at all
1 2 3 4 5 6

¹ Reference to fire only made on the evaluation form for the Kamloops workshop.

d. Riparian restoration techniques associated with mountain pine beetle and fire-impacted areas (leave blank if you attended the terrestrial restoration session):

Very much
1 2 3 4 5 Not at all
6

e. Aquatic restoration techniques associated with mountain pine beetle and fire-impacted areas(leave blank if you attended the terrestrial restoration session):

Very much
1 2 3 4 5 Not at all
6

6. Please complete the following sentence:

As a result of this workshop, I plan to...

7. Please provide us with any additional comments you have regarding the usefulness of the various topics covered in this workshop and/or priority information needs for future events associated with ecosystem restoration of mountain pine beetle- and fire-impacted areas. Include suggestions for improvements to the workshop overall.

APPENDIX 2: KAMLOOPS WORKSHOP EVALUATION SUMMARY

1. How worthwhile was this workshop to you?

Very worthwhile
1 2 3 4 5 Not at all worthwhile
6

Average: 2.17

2. How would you rate the quality of the workshop's organization?

Excellent
1 2 3 4 5 Poor
6

Average: 1.67

3. Overall, how would you rate the quality of the workshop's presentations?

Excellent
1 2 3 4 5 Poor
6

Average: 2.13

5. How much has this workshop increased your knowledge of:

a. The provincial ecosystem restoration strategy:

Very much
1 2 3 4 5 Not at all
6

Average: 2.71

b. Ecosystem restoration planning and monitoring:

Very much
1 2 3 4 5 Not at all
6

Average: 2.63

c. Terrestrial restoration techniques associated with mountain pine beetle and fire-impacted areas (leave blank if you attended the aquatic/riparian restoration session):

Very much
1 2 3 4 5 Not at all
6

Average: 2.47

d. Riparian restoration techniques associated with mountain pine beetle and fire-impacted areas (leave blank if you attended the terrestrial restoration session):

Very much
1 2 3 4 5 Not at all
6

Average: 2.57

e. Aquatic restoration techniques associated with mountain pine beetle and fire-impacted areas(leave blank if you attended the terrestrial restoration session):

Very much
1 2 3 4 5 Not at all
6

Average: 2.57

APPENDIX 3: PRINCE GEORGE WORKSHOP EVALUATION SUMMARY

1. How worthwhile was this workshop to you?

Very worthwhile
1 2 3 4 5 Not at all worthwhile
6

Average: 2.5

2. How would you rate the quality of the workshop's organization?

Excellent
1 2 3 4 5 Poor
6

Average: 1.96

3. Overall, how would you rate the quality of the workshop's presentations?

Excellent
1 2 3 4 5 Poor
6

Average: 2.27

5. How much has this workshop increased your knowledge of:

f. The provincial ecosystem restoration strategy:

Very much
1 2 3 4 5 Not at all
6

Average: 3.00

g. Ecosystem restoration planning and monitoring:

Very much
1 2 3 4 5 Not at all
6

Average: 3.19

h. Terrestrial restoration techniques associated with mountain pine beetle-impacted areas (leave blank if you attended the aquatic/riparian restoration session):

Very much						Not at all
1	2	3	4	5		6

Average: 2.75

i. Riparian restoration techniques associated with mountain pine beetle-impacted areas (leave blank if you attended the terrestrial restoration session):

Very much						Not at all
1	2	3	4	5		6

Average: 3.5

j. Aquatic restoration techniques associated with mountain pine beetle-impacted areas (leave blank if you attended the terrestrial restoration session):

Very much						Not at all
1	2	3	4	5		6

Average: 3.67