



Enhanced Forestry Program

Evaluation Report



EFP Training Needs Assessment and Evaluation Project

March 15, 1999

Version 1.3 edited April 2000

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1.0 INTRODUCTION

1.1 PURPOSE OF THE EFP TRAINING EVALUATION

The Enhanced Forestry Program (EFP) Training Evaluation project reviewed the EFP Training Program for:

- **Program evaluation** — reviewing the program against knowledge and skill requirements identified in the EFP Needs Assessment Survey (Phase 1) and Forest Renewal BC's strategic objectives.
- **Course evaluation** — evaluating courses in the training program for applicability and effectiveness.

This report documents the findings from these two activities.

1.2 PREVIOUS EFP TRAINING EVALUATIONS

The EFP Training Program was previously evaluated in the spring of 1998.

This evaluation report builds on the framework used in the 1998 project and cross-references findings where applicable.



2.0 BACKGROUND

2.1 PROJECT DESCRIPTION

The objective of the EFP Training Needs Assessment and Evaluation Project is to assess the extent to which the EFP Training Program is meeting the identified training needs and to determine the gaps and priorities for the future.

The deliverables from the project include:

- EFP Needs Assessment Report — outlining the results of a detailed needs assessment of the EFP knowledge and skill requirements.
- EFP Evaluation Report (this document) — outlining the results of the evaluation of the EFP Training Program.
- EFP Support Strategy — outlining a strategy for supporting EFP activities over the next three years.

2.2 COURSES TO BE EVALUATED

The following table lists the EFP training courses that were identified for evaluation in this project.

Course No.	EFP Course (short) Name
1.	Getting the Most for Your Silviculture Dollar (Evaluating Silviculture Projects)
2.	2-Day Stand Management Prescription Course
3.	Worker Training Course on Partial Cutting
4.	Decision Analysis Workshop
5.	De-mystifying Adaptive Management
6.	How to Determine Site Index in Silviculture
7.	Growth & Yield Topics in BC (Site Productivity Concepts in BC)



Course No.	EFP Course (short) Name
8.	Wood Quality Attributes and Their Practical Implications
9a.	Aerial Overview Surveys Training Program
9b.	Root Disease Management Course
9c.	Forest Health Surveys & Prescriptions Module
9d.	Root Disease Pop-Up Spacing Module
9e.	Tree Doctor CD-ROM
9f.	Forest Worker Data Base
9g.	Forest Health in Stand Management Prescriptions in North
10.	Workshop on Partial Cutting Procedures and Processes
11.	Planning and Harvest Layout for Partial Cutting
12.	Uneven-aged Silvicultural Systems: Prescribing for Success

2.3 OVERVIEW OF EVALUATION STEPS

The following five steps were used to evaluate the training program:

1. **Compare skills and knowledge requirements with course learning objectives** — to assess the extent to which the stated learning objectives of courses in the existing EFP training program address the skills and knowledge requirements identified in the EFP Needs Assessment Survey (Phase 1).
2. **Validate the course learning objectives against Forest Renewal BC's strategic objectives** — to ensure courses are designed to meet Forest Renewal BC strategic objectives.
3. **Assess course effectiveness** — to determine how well each course meets its stated learning objectives.
4. **Review course assessments and tests** — to determine whether the assessments accurately measure participants achievement of the course objectives.
5. **Tabulate course attendance** — to identify any issues related to availability, accessibility, and instructor performance.



2.4 KNOWLEDGE AND ABILITY REQUIREMENTS IDENTIFIED IN THE SURVEY

The primary knowledge and skill requirements identified by the EFP Needs Assessment Survey fall within three categories:

- forest-level planning,
- stand-level planning, and
- implementation.

FOREST-LEVEL PLANNING REQUIREMENTS

The five highest rated knowledge and skill requirements, in decreasing order of importance, are:

1. Defining objectives for the landscape

Defining landscape-level objectives that meet objectives stated in higher level plans by balancing competing objectives (e.g., social, environmental, economic).

2. Evaluating activities

Tools and techniques for analyzing return on investment over the landscape (e.g., cash flow, net present value). Justifying and prioritizing treatments by biological, social, and economic objectives.

3. Tools to use in the forest-level planning process

For example, growth and yield tools, simulators, and other tools to measure how many cubic metres are added to the allowable annual cut (AAC) for each activity.

4. Dealing with uncertainty

Dealing with uncertainty in managing the land base through adaptive management tools and techniques.

5. Decision analysis

Probability and risk analysis when making investment decisions.

6. Timber supply area (TSA) and Innovative Forest Practices Agreements (IFPA) plans

Tools and techniques for developing TSA-wide plans and forestry plans for IFPAs.



STAND-LEVEL PLANNING REQUIREMENTS

The knowledge and skill requirements identified as “should have” or “must have” training, in decreasing order of importance, are:

- 1. Identifying forest health concerns** — identification of forest health concerns at the reconnaissance and prescription stages, and incorporating the information into the selection of the treatment. In some regions of the province, treatments were selected that were inconsistent with the forest health issues in the stand.

Related training requirements include:

- tools and techniques to estimate the incidence of forest health concerns in a stand;
 - treatments to manage/address forest health concerns; and
 - understanding the relationship between forest health and EFP treatments (e.g., treatments may be unnecessary or cause additional forest health concerns depending on the life cycle of the pest).
- 2. Managing stand density** — policies and regulations around stand density management including using stand management diagrams and interpreting the information.
 - 3. Writing effective prescriptions** — defining stand-level objectives to meet forest-level objectives. Drafting the prescription to achieve the objectives in a legal, enforceable, and easy to understand manner:
 - writing plans that effectively communicate the objectives, treatments, and expected results to all users of the plan (i.e., planner, approver, implementers, and monitor);
 - tying the prescription and standards to the contract to ensure the objectives are met and correct treatments are applied in the correct area (e.g., layout of boundaries); and
 - amending the plan — drafting plans that provide flexibility in implementation as well as when and how to amend a plan. Clarify which amendments do and do not require an RPF signature.



4. **Identifying stands to treat** — survey tools and techniques to select appropriate sites for treatments:
 - determining the information to collect,
 - collecting the information, and
 - interpreting the results to determine if stands should be treated.
5. **Selecting the right treatment for the stand** — identifying and evaluating treatment options to select a treatment that meets biological, economic, and social objectives for the stand:
 - interpreting stand information to identify treatment options. Consideration of biodiversity and other non-timber resource values;
 - evaluating treatments including impact on stand dynamics and expected results in the short and long term;
 - stand modelling tools and techniques to evaluate various treatment options, and conditions and situations for using the various tools;
 - selecting treatment(s) that meets biological (environmental), economic, and social objectives for the stand; and
 - determining timing for delivery of treatments including combining treatments into a single entry.
6. **Prioritizing EFP activities** — tools and techniques to prioritize treatments given stand objectives, availability of funds, and the timing (window) for conducting treatments.
7. **Writing woodlot license plans** — training targeted at woodlot license holders to assist them develop stand management prescriptions, including surveying, selecting treatments, and drafting the prescription.
8. **Considering fish and wildlife habitat** — consideration of wildlife and fish habitat when planning EFP activities:
 - knowledge of ecosystems (functions, structure, genetic biodiversity);
 - treatments to create and maintain habitat; and



- treatments in riparian areas for habitat management and timber supply objectives.

IMPLEMENTATION REQUIREMENTS

Knowledge and skill requirements for implementation activities were significantly less than forest- and stand-level requirements. The highest rated requirements include:

1. **applying forest health treatments** — such as pop-up spacing to mitigate the impact on timber volumes.
2. **monitoring** — designing a monitoring program plus a feedback mechanism on local successes and lessons learned.



3.0 RESULTS: PROGRAM EVALUATION

The EFP Training Program was evaluated by:

- comparing course objectives against the knowledge and skill requirements identified in the EFP Needs Assessment Survey (Phase 1); and
- validating course objectives against meeting program objectives (i.e., Forest Renewal BC's EFP strategic objectives and the Ministry of Forests [MOF], mandate).

The results are summarized under the following headings:

1. EFP knowledge and skill requirements met through existing courses;
2. EFP knowledge and skill requirements not met (i.e., gaps); and
3. EFP courses covering Forest Renewal BC's strategic objectives.

A summary of courses meeting requirements is shown in **Appendix 1: Comparison of Skills and Knowledge Requirements with Current EFP Training**. Detailed evaluations for each course are in Appendix 2.



3.1 EFP KNOWLEDGE AND SKILL REQUIREMENTS MET

FOREST-LEVEL PLANNING REQUIREMENTS

The following table lists the knowledge and skills requirements for forest-level planning that are or will be met by existing courses:

Knowledge and Skill Requirement	Met by the Following Course(s)
1. Defining objectives for the landscape	<ul style="list-style-type: none"> • Getting the Most for Your Silviculture Dollar.
2. Evaluating activities	<ul style="list-style-type: none"> • Getting the Most for Your Silviculture Dollar.
3. Choosing tools for forest-level planning	<ul style="list-style-type: none"> • De-mystifying Adaptive Management—may meet some of these requirements (course not yet developed).
4. Dealing with uncertainty	<ul style="list-style-type: none"> • Growth & Yield Topics in BC — a subset of this workshop contains information on tools applicable to EFP.
5. Analyzing decisions	<ul style="list-style-type: none"> • De-mystifying Adaptive Management — may meet some of these requirements (course not yet developed).
6. Making TSA plans and IFPA (forestry) plans	<ul style="list-style-type: none"> • Decision Analysis Workshop.
	<ul style="list-style-type: none"> • De-mystifying Adaptive Management — may meet some of these requirements (course not yet developed).
	<ul style="list-style-type: none"> • Decision Analysis Workshop.
	<ul style="list-style-type: none"> • Getting the Most for Your Silviculture Dollar — course provides a process that helps foresters develop TSA-wide plans.
	<ul style="list-style-type: none"> • De-mystifying Adaptive Management — course may help professionals developing forestry plans for IFPAs (course not developed yet).



3.0 Results: Program Evaluation

STAND-LEVEL PLANNING REQUIREMENTS

The following knowledge and skills requirements for stand-level planning are met or will be met by the following existing courses:

Knowledge and Skill Requirement	Met by the Following Course(s)
1. Identifying forest health concerns	<ul style="list-style-type: none"> • Root Disease Management — addresses the identification of root disease. • Forest Health for Surveys & Prescriptions — course needs updating. • Tree Doctor CD-ROM — contains information on forest health concerns in B.C. (under development). • Forest Health in SMPs in the North.
2. Managing stand density	<ul style="list-style-type: none"> • SDM Policies and Procedures course — (under development). • How to Determine Site Index — provides some background information on using site index when formulating prescriptions.
3. Writing effective prescriptions	<ul style="list-style-type: none"> • 2-day SMP Course.
4. Identifying stands to treat	<ul style="list-style-type: none"> • 2-day SMP Course. • How to Determine Site Index — provides information on estimating site index. • Forest Health for Surveys & Prescriptions — provides some surveying information (course needs updating). • Forest Health in SMP in North — provides some surveying information. • Incorporating G&Y in Stand Tending Prescriptions course — (course under development). The course will cover collecting the right data and using decision aids to select the right treatment(s).



3.0 Results: Program Evaluation

Knowledge and Skill Requirement	Met by the Following Course(s)
5. Selecting the right treatment for the stand	<ul style="list-style-type: none"> • 2-day SMP Course. • De-mystifying Adaptive Management — may provide some tools and techniques for selecting treatments and learning from previous activities (course under development). • How to Determine Site Index — provides background information to assist in selecting the right treatment. • G&Y Topics in BC — a subset of this workshop provides tools to use in evaluating treatments. • Wood Quality Attributes — provides information on treatments to address end-product objectives. • Root Disease Management — provides information on treatments to address root disease concerns in a stand. • Forest Health for Surveys & Prescriptions — provides information to consider when selecting treatments to address forest health concerns (course needs updating). • Tree Doctor CD-ROM — provides information on treatments to address forest health concerns (under development). • Forest Health in SMP in North — provides information on treatments to address forest health concerns. • Workshop on Partial Cutting — provides information on equipment options and capabilities if selecting treatments involving partial cutting. • Planning & Harvest Layout for Partial Cutting — provides information for planning treatments involving partial cutting. • Uneven-aged Silvicultural Systems — provides background information for treatments based on uneven-aged silvicultural systems (e.g., partial cutting). • Incorporating G&Y in Stand Tending Prescriptions course — (course under development). The course will cover collecting the right data and using decision aids to select the right treatment(s).
6. Prioritizing EFP activities	<ul style="list-style-type: none"> • Not met by existing courses.



3.0 Results: Program Evaluation

Knowledge and Skill Requirement	Met by the Following Course(s)
<p>7. Writing woodlot license plans (note: an extension contractor is working on training requirements with woodlot license holders)</p>	<ul style="list-style-type: none"> • 2-day SMP Course. • How to Determine Site Index — provides site index information required in developing plans. • G&Y Topics in BC — a subset of this workshop provides tools to use in evaluating treatments. • Wood Quality Attributes — provides information on treatments to achieve end-product objectives. • Workshop on Partial Cutting — provides information on equipment options and capabilities for plans involving partial cutting activities. • Planning & Harvest Layout for Partial Cutting — provides information for planning activities involving partial cutting. • Incorporating G&Y in Stand Tending Prescriptions course — (course under development). The course will cover collecting the right data and using decision aids to select the right treatment(s).
<p>8. Considering fish & wildlife habitat</p>	<ul style="list-style-type: none"> • Planning and Harvest Layout for Partial Cutting — a topic in this course covers fish and wildlife habitat considerations when partial cutting.



3.2 EFP KNOWLEDGE AND SKILL REQUIREMENTS NOT MET (GAPS)

FOREST-LEVEL PLANNING REQUIREMENTS

The following knowledge and skill requirements are not met by existing courses:

Knowledge and Skill Requirement	Description
1. Defining objectives for the landscape	<ul style="list-style-type: none"> Met by existing courses.
2. Evaluating activities	<ul style="list-style-type: none"> Techniques to evaluate activities (e.g., NPV, cash flow, ROI) are not covered in any course. These concepts were in the original <i>Getting the Most for Your Silviculture Dollar</i> course but were removed because of the complexity of the topic. This requirements could be addressed by a decision-making framework (see comments under "Prioritizing EFP activities" under Stand- Level Planning Requirements).
3. Choosing tools for forest-level planning	<ul style="list-style-type: none"> These are covered partially in the <i>Growth & Yield Topics in BC</i> workshop. However, the workshop is not targeted at tools specifically for planning silviculture treatments at the forest estate level. A growth and yield (G&Y) Web site is planned for spring 1999. The site will provide information on selecting and using the appropriate G&Y tool. Courses on G&Y tools such as MGM and Prognosis are under development.
4. Dealing with uncertainty	<ul style="list-style-type: none"> Met by existing courses.
5. Analyzing decisions	<ul style="list-style-type: none"> Met by existing courses.
6. Making TSA plans and IFPA (forestry) plans	<ul style="list-style-type: none"> Met by existing courses.



3.0 Results: Program Evaluation

STAND-LEVEL PLANNING REQUIREMENTS

The following knowledge and skill requirements are not met by existing courses:

Knowledge and Skill Requirement	Met by the Following Course(s)
1. Identifying forest health concerns	<ul style="list-style-type: none"> • Met by existing courses.
2. Managing stand density	<ul style="list-style-type: none"> • Met by existing courses.
3. Writing effective prescriptions	<ul style="list-style-type: none"> • Met by existing courses.
4. Identifying stands to treat	<ul style="list-style-type: none"> • Met by existing courses.
5. Selecting the right treatment for the stand	<ul style="list-style-type: none"> • Met by existing courses.
6. Writing woodlot license plans	<ul style="list-style-type: none"> • Met by existing courses.
7. Prioritizing EFP activities	<ul style="list-style-type: none"> • This requirement is not addressed in existing courses. One instructor felt this concept is best learned on the job as it is not easy to teach. • This requirement could be met by a decision-making framework. The tool could be used by planners to guide them through the decision-making process and encourage the documentation of choices. The tool would help to balance the various factors to consider in making decisions (e.g., financial, health, biodiversity, habitat).
8. Considering fish and wildlife habitat	<ul style="list-style-type: none"> • This requirement not addressed in existing courses. However, MELP indicated this should not be a separate course but a component added to the development and/or delivery of future EFP courses. In addition, non-training initiatives to address this requirement include the development of standards for habitat management as well as a silviculture agreement between MELP and MOF.



3.0 Results: Program Evaluation

IMPLEMENTATION REQUIREMENTS

The following knowledge and skill requirements are not met by existing courses:

Knowledge and Skill Requirement	Met by the Following Course(s)
1. Applying forest health treatments	<ul style="list-style-type: none"> • Only the treatment of root disease is addressed in the current program. However, it is not clear from the survey, what specific forest health treatments need training. • Some forest worker training for addressing forest health in conducting EFP activities has been developed in the Cariboo Region ("tailgate training" designed for delivery at moment of need). This training package may address this requirement, at least for the forest health problems in the Cariboo Region.
2. Monitoring	<ul style="list-style-type: none"> • This requirement is not covered in detail in existing courses. • Some external courses exist, for example the BCFCNSN offers a "Principles of Effectiveness Monitoring" course that would address the "designing a monitoring program" component of this requirement. • Requirement remains for a mechanism for sharing of successes and lessons learned.



3.0 Results: Program Evaluation

3.3 EFP COURSES COVERING FOREST RENEWAL BC'S STRATEGIC OBJECTIVES

Overall, the Forest Renewal BC strategic objectives are well covered by the existing EFP Training Program. This broad coverage is due in part to:

- the inter-relatedness of the Forest Renewal BC strategic objectives, and
- the general nature of the Forest Renewal BC objectives.

The following table summarizes the coverage of Forest Renewal BC strategic objectives by the EFP Training Program:

EFP Course (short) Name	Forest Renewal BC Strategic Objective			
	Sustained Harvest	Informed Decisions	Increased Growing Area	New Timber Volumes
1. Getting the Most for Your Silviculture Dollar (Evaluating Silviculture Projects)		✓	✓	✓
2. 2-Day Stand Management Prescription Course	✓	✓		✓
3. Worker Training Course on Partial Cutting	✓			✓
4. Decision Analysis Workshop		✓		
5. De-mystifying Adaptive Management	✓	✓	✓	✓
6. How to Determine Site Index in Silviculture	✓	✓	✓	✓
7. Growth & Yield Topics in BC (Site Productivity Concepts in BC)		✓		
8. Wood Quality Attributes and Their Practical Implications	✓	✓		✓
9a. Aerial Overview Surveys Training Program	✓	✓		
9b. Root Disease Management Course	✓	✓	✓	✓
9c. Forest Health for Surveys & Prescriptions Module	✓	✓	✓	
9d. Root Disease Pop-Up Spacing Module*				
9e. Tree Doctor CD-ROM	✓	✓	✓	✓
9f. Forest Worker Data Base*				
9g. Forest Health in Stand Management Prescriptions in North	✓	✓	✓	
10. Workshop on Partial Cutting Procedures and Processes	✓	✓	✓	✓
11. Planning and Harvest Layout for Partial Cutting	✓	✓	✓	✓
12. Uneven-aged Silvicultural Systems: Prescribing for Success	✓	✓	✓	✓

*Course not developed. See details in Appendix 2.



4.0 RESULTS: COURSE EVALUATION

The course evaluation is based on an analysis and consolidation of the individual course evaluations (see Appendix 2: EFP Course Evaluation Details).

The results of the course evaluations are summarized by each of the evaluation steps:

1. assess course effectiveness,
2. review course assessments and tests,
3. tabulate course attendance.

Note: This evaluation focuses on assessing courses as applicable to the EFP. While courses may not be applicable to EFP, they still may address other legitimate forest knowledge and skills requirements.

4.1 ASSESS COURSE EFFECTIVENESS

In this step, various tools were used to assess the effectiveness of each course:

- a review of the course design using a set of diagnostic questions;
- a review of comments received in the EFP Needs Assessment Survey. Note: the survey asked respondents to rate how effective they thought each course was but attendance at the course was not required;
- a review of end-of-course evaluations; and
- telephone interviews with selected participants and instructors.

Our analysis concluded that courses in the EFP Training Program are well designed, effective in meeting their objectives, and have generally been well received by course participants.



4.0 Results: Course Evaluation

The following table summarizes the overall effectiveness of each course:

EFP Course (short) Name	Diagnostic Questions	Course Effectiveness		
		Survey Score (out of 5)	End-of-Course Evaluation	Inter-views
1. Getting the Most for Your Silviculture Dollar (Evaluating Silviculture Projects)	good	2.93	good	excellent
2. 2-Day Stand Management Prescription Course	excellent	3.6	excellent	—
3. Worker Training Course on Partial Cutting	average	2.2	good	—
4. Decision Analysis Workshop	good	2.85	—	good
5. De-mystifying Adaptive Management	good		—	—
6. How to Determine Site Index in Silviculture	excellent	4.2	good	good
7. Growth & Yield Topics in BC (Site Productivity Concepts in BC)	good	3.83	good	excellent
8. Wood Quality Attributes and Their Practical Implications	average	3.13	good	good
9a. Aerial Overview Surveys Training Program	excellent	—	good	—
9b. Root Disease Management Course	excellent	—	—	—
9c. Forest Health for Surveys & Prescriptions Module	good	—	—	—
9d. <i>Root Disease Pop-Up Spacing Module</i>	—	—	—	—
9e. Tree Doctor CD-ROM	—	—	—	—
9f. Forest Worker Data Base	—	—	—	—
9g. Forest Health in Stand Management Prescriptions in North	—	—	—	—
10. Workshop on Partial Cutting Procedures and Processes	average	3.25	good	good
11. Planning and Harvest Layout for Partial Cutting	excellent	—	good	—
12. Uneven-aged Silvicultural Systems: Prescribing for Success	good	—	—	—



KEY FINDINGS

Key findings from the assessment of course effectiveness are:

- **Limited number of training delivery vehicles.**

Of the 18 training courses assessed, only two represented alternative training vehicles (Tree Doctor CD-ROM and the Forest Worker Data Base). All other training delivery was by courses and workshops. While respondents to the EFP Needs Assessment Survey indicated a preference for workshops, they also indicated a strong preference for alternative training delivery vehicles such as quick reference tools, Web sites, and group self-study programs. In addition, alternative training vehicles would help to address the primary reasons identified by respondents for preventing training: availability of training at the moment of need and time away from the office.

4.2 REVIEW COURSE ASSESSMENTS AND TESTS

Assessments could clearly be addressed in the overall training program. Of the 18 courses evaluated, only one had an assessment. However, three courses still to be developed will have assessments. Many of the courses have comprehensive exercises and activities. However, the lack of an assessment makes it difficult for participants to evaluate whether they met the course learning objectives.

4.3 TABULATE COURSE ATTENDANCE

In fiscal year 1998/99, eight courses were delivered for a total of 24 deliveries and 445 attendees from MOF, industry, and consulting organizations.

The following table compares this attendance record to previous years. The table shows that in 1998/99, more courses were delivered, more often to roughly the same number of people as the previous year (i.e., attendance per course is declining). It also highlights that course delivery



4.0 Results: Course Evaluation

and attendance is far short of the projected number in the EFP Training Strategy (1997–2002).

Fiscal Year	# Courses Delivered	# of Deliveries	Total Attendees
1998/99	8	20	445
1997/98	6	15	455
Projected*	—	100	2000

*Yearly projections from EFP Training Strategy (1997–2002)

The table below lists all EFP course deliveries to date, in fiscal year 1998/99 (Apr. 1/98 - Mar. 15/99). This table includes course deliveries organized by BCFCSN and MOF. It also includes attendees from all organizations (MOF, industry, consultants). Detailed course attendance information is in Appendix 2.

EFP Course (short) Name	Number Sessions	Attendance (Total)
1. Getting the Most for Your Silviculture Dollar	2	18
2. 2-Day Stand Management Prescription Course	3	55
3. Worker Training Course on Partial Cutting	—	—
4. Decision Analysis Workshop	—	—
5. De-mystifying Adaptive Management	—	—
6. How to Determine Site Index in Silviculture	6	89
7. Growth & Yield Topics in BC	3	94
8. Wood Quality Attributes and Their Practical Implications	3	31
9a. Aerial Overview Surveys Training Program	—	—
9b. Root Disease Management Course	—	—
9c. Forest Health for Surveys & Prescriptions	—	—
9d. Root Disease Pop-Up Spacing Module	—	—
9e. Tree Doctor CD-ROM	—	—
9f. Forest Worker Data Base	—	—
9g. Forest Health in SMP in North	1	40
10. Workshop on Partial Cutting Procedures and Processes	1	118
11. Planning and Harvest Layout for Partial Cutting	1	**
12. Uneven-aged Silvicultural Systems: Prescribing for Success	—	—
TOTAL	20	445

**trial session: number of participants not available



4.0 Results: Course Evaluation

While 445 EFP personnel have taken EFP training over the last fiscal year, the delivery of one course, *Workshop on Partial Cutting*, accounts for over 25% of the attendance numbers.

These relatively low attendance numbers may be due to several factors:

- **Availability and funding** — courses tend to be offered infrequently, and several course offerings were cancelled or postponed due to funding issues. Financial issues were the main reason preventing participants from attending training courses (EFP Needs Assessment Survey).
- **Target audience definition** — many courses did not have clearly defined target audiences. Therefore, participants may be unsure of which course to attend to meet their requirements.
- **Length of time away from office** — this issue was one of the key deterrents to future training identified in the EFP Needs Assessment Survey. Of the 16 training courses evaluated (two of the 18 are alternative training vehicles), 12 were either two days or longer in length. Only four were day-long courses and six were three days or longer. This factor may limit attendance and should be considered in any future training development.
- **Course names** — course names are often long, confusing, and subject to change. A few courses have similar names. These minor factors may be impacting attendance (e.g., identifying a course to attend) and should be addressed.



5.0 CONCLUSIONS

The MOF training program in support of Forest Renewal BC's EFP completed its second year with the successful delivery of about 23 training sessions to 700 participants. Training courses included stand- and forest-level planning and management for EFP activities.

Workshops were held on new techniques and tools for partial cutting operations, and growth and yield concepts. As well, five pilot sessions covering partial cutting prescription development, partial cutting harvesting methods, and adaptive management methodology were delivered to about 80 participants.

5.1 PROGRAM EVALUATION

Much of the knowledge and skill requirements identified in the EFP Needs Assessment Report are met by existing EFP courses.

The EFP Training Program also meets, and supports Forest Renewal BC's strategic objectives and MOF's mandate.

MEETING EFP KNOWLEDGE & SKILLS REQUIREMENTS

The following courses meet some or all of the knowledge and skill requirements identified in the EFP Needs Assessment Survey (Phase 1):

No.	EFP Course (short) Name	Requirements Met		
		Forest-Level	Stand-Level	Implement
1.	Getting the Most for Your Silviculture Dollar	significant		
2.	2-Day Stand Management Prescription Course		significant	
3.	Worker Training Course on Partial Cutting			
4.	Decision Analysis Workshop	some		
5.	De-mystifying Adaptive Management	some*		some*
6.	How to Determine Site Index in Silviculture		significant	
7.	Growth & Yield Topics in BC	some	some	
8.	Wood Quality Attributes and Their Practical Implications		some	
9a.	Aerial Overview Surveys Training Program			
9b.	Root Disease Management Course		some	some
9c.	Forest Health for Surveys & Prescriptions		some	
9d.	Root Disease Pop-Up Spacing Module		may*	may*
9e.	Tree Doctor CD-ROM		significant	some
9f.	Forest Worker Data Base			



5.0 Conclusions

9g. Forest Health in SMP in North		significant	
10. Workshop on Partial Cutting Procedures and Processes		some	some
11. Planning and Harvest Layout for Partial Cutting		some	some
12. Uneven-aged Silvicultural Systems: Prescribing for Success		some	
Stand Density Management (SDM) Policies and Procedures*		significant*	
Incorporating G&Y in Stand Tending Prescriptions*		significant*	

*course under development (information not available).

EFP KNOWLEDGE & SKILL REQUIREMENTS NOT MET (GAPS)

The following knowledge and skills requirements are not addressed significantly by existing courses:

Forest-Level Planning Requirements

- **Evaluating activities** — financial analysis of alternatives (e.g., NPV, ROI, cash flow). This requirement could be met by a tool that would guide planners through the decision-making process.
- **Tools to use in forest-level planning** — growth and yield simulators and other tools to assist in evaluating activities at the forest level.

Stand-Level Planning Requirements

- **Prioritizing EFP activities** — tools and techniques to prioritize treatments. This requirement could be met by a decision-making framework—see “Evaluating activities” in Forest-Level Planning Requirements.
- **Fish and wildlife habitat** — this information should, where feasible, be solicited from the Ministry of Environment, Lands and Parks (MELP) and incorporated into future course development and delivery activities. This includes:
 - knowledge of ecosystems — should be incorporated into all training involving the planning and implementation of treatments; and



5.0 Conclusions

- creating and maintaining habitat — should be incorporated into training involving planning of treatments in areas with fish and wildlife objectives and/or riparian areas.

Implementation Requirements

- **Forest health treatments** — for EFP activities other than the treatment of root disease.
- **Monitoring** — designing a monitoring program (may be met by external course) and capturing/disseminating information on successes and lessons learned.

5.2 COURSE EVALUATION

The main conclusions from the course evaluation are:

- Individual EFP courses are well designed. However, all courses are not integrated or focused on EFP activities.

One option to address this issue is to build on MELP's idea for fish and wildlife habitat training (i.e., incorporate topics into existing courses). Existing courses could be repackaged into an integrated, task-based program, organized around forest-level planning, stand-level planning, and implementation/monitoring. For example, the stand-level planning component could have two packages comprising modules that are delivered based on demand:

- surveying — identifying stands to survey and collecting the necessary field data, including forest health and other resource values; and
 - writing the prescription — setting objectives and selecting the right treatment(s) that address forest health, wood quality, fish and wildlife, and other concerns/resource values. Tools (e.g., growth and yield) specific to EFP would also be covered.
- Most EFP training relies on traditional training methods. Alternative training delivery vehicles could be used to effectively deliver some of the EFP training and address



5.0 Conclusions

some of the training preferences identified in the EFP Needs Assessment Survey.

- Many EFP training courses lack assessment tools such as end-of-course tests. Assessments should be included in course deliveries to enable participants to assess their achievement of the learning objectives and provide feedback to the MOF on course effectiveness.
- Course attendance could be improved by better target audience definition, more deliveries (e.g., lower cost, timely, and closer to the participant), and shorter course durations.



APPENDICES

APPENDIX 1: COMPARISON OF SKILLS AND KNOWLEDGE REQUIREMENTS WITH CURRENT EFP TRAINING

APPENDIX 2: EFP COURSE EVALUATION DETAILS

1. Getting the Most for Your Silviculture Dollar (Evaluating Silviculture Projects)
2. 2-Day Stand Management Prescription Course
3. Worker Training Course on Partial Cutting
4. Decision Analysis Workshop
5. De-mystifying Adaptive Management
6. How to Determine Site Index in Silviculture
7. Growth & Yield Topics in BC (Site Productivity Concepts in BC)
8. Wood Quality Attributes and Their Practical Implications
- 9a. Aerial Overview Surveys Training Program
- 9b. Root Disease Management Course
- 9c. Forest Health Surveys & Prescriptions Module
- 9d. Root Disease Pop-Up Spacing Module
- 9e. Tree Doctor CD-ROM
- 9f. Forest Worker Data Base
- 9g. Forest Health in Stand Management Prescriptions in North
10. Workshop on Partial Cutting Procedures and Processes
11. Planning and Harvest Layout for Partial Cutting
12. Uneven-aged Silvicultural Systems: Prescribing for Success