FRDA II
Program 3.0 – Research

B.C. Ministry of Forests
Highlights and Accomplishments

Appendices

FRDA Report 248a

Canada
Preface

The following three appendices are a compilation of products generated by B.C. Ministry of Forests FRDA II research projects as outlined in FRDA Report No. 248, FRDA II Program 3.0 – Research B.C. Ministry of Forests Highlights and Accomplishments. The appendix for each research subprogram lists projects and their associated products.

While many FRDA II projects carried on research initiated under FRDA I, these appendices only report products funded by FRDA II.

FRDA Memos and Reports are available, while supplies last, from:

B.C. Ministry of Forests
Production Resources Group
Room 206, 1205 Broad Street
Victoria, B.C.
V8W 3E7
Telephone: (604) 387-6719
Fax: (604) 356-2093
# Table of Contents

Preface ......................................................................................................................... iii

Appendix 1. Subprogram 3.1: Forest Renewal ................................................................. 1
  1. Conifer Plantation Establishment ............................................................... 1
  2. Hardwood/Mixedwood Silviculture ............................................................. 10
  3. Vegetation Management .............................................................................. 17

Appendix 2. Subprogram 3.2: Growth and Yield and Stand Tending ......................... 31
  1. Field Experiments ....................................................................................... 31
  2. Stand Modelling ......................................................................................... 35

  1. Biodiversity ................................................................................................. 39
  2. Old Growth ................................................................................................ 44
  3. Environmental Impacts .............................................................................. 48
  4. Administration ............................................................................................ 62
Appendix 1. Subprogram 3.1: Forest Renewal

1. Conifer Plantation Establishment

BC-FR01  *Site stress x stock type stress resistance interactions on SBS NSR backlog sites.*

Contact: Marek Krasowski  
Phone: 963-9651

**FRDA Memos**


BC-FR02  *Assessment of treatment options for backlog hardwood stands in the BWBS – Overwinter injury to planted white spruce in BWBS.*

Contact: Marek Krasowski  
Phone: 963-9651

**Field Tours**


Guided tour of research installations, FRDA site preparation field tour. Sept. 1992. Dawson Creek, B.C.

**FRDA Reports**


**Journal Articles**


**Other Reports**


———. 1995. Overwinter injury to planted and directly sown seedlings of white spruce (Favell Creek and Sundown Hill installations). Progress report No. 1, E.P. 986.03. B.C. Min. For., Victoria, B.C.


———. 1995. Winter injury and site preparation by stock type interactions at km 2.5 Stewart Lake Forest Rd. Progress report No. 1, E.P. 986.02. B.C. Min. For., Victoria, B.C.

Posters


Workshops/Seminars


Dawson Creek and Fort St. John Forest Districts staff and local industry representatives. Feb. 1994. Update on research projects in the Dawson Creek and Fort St. John Forest Districts.


Silviculturalists’ Meeting. Apr. 1994. Update on current research projects. Richmond, B.C.

Silviculture Institute of B.C. Mar. 1995. The effects of frost and snow on seedlings at the plantation establishment stage.

BC-FR03  Assessment of treatment options and effects in rehabilitating dense, suppressed lodgepole pine stands.

Contact: Marty Kranabetter  Phone: 847-7435

Journal Articles


BC-FR05  Post-planting injury to white spruce seedlings on cold and dry sites (desiccation and water relation studies).

Contact: Marek Krasowski  Phone: 963-9651

Field Tours


Guided tour of research installations, FRDA site preparation field tour. Sept. 1992. Dawson Creek, B.C.

Journal Articles


Other Reports


**Posters**


**Workshops/Seminars**


Dawson Creek and Fort St. John Forest Districts staff and local industry representatives. Feb. 1994. Update on research projects in the Dawson Creek and Fort St. John Forest Districts.


Silviculturists’ Meeting, Apr. 1994. Update on current research projects. Richmond, B.C.


Univ. Victoria, Oct. 1995. Summary of research on desiccation injury to seedlings. Victoria, B.C.

**BC-FR08** *Establishing germination temperature optima for nursery seedling production of white spruce (Picea glauca).*

Contact: Carole Leadem

Phone: 952-4130

**Journal Articles**


**Other Reports**


Posters


Workshops/Seminars


BC-FR20 Application of DNA probes to the analysis of spruce introgression.

Contact: Alvin Yanchuk Phone: 387-3338

Other Reports


BC-FR34 The use of photoperiodic cultural treatments to induce dormancy and bud formation of spruce in northern nurseries.

Contact: Chris Hawkins Phone: 969-9651

FRDA Reports


Journal Articles

Other Reports


Posters


Workshops/Seminars


BC-FR35  Drought resistance of conifer nursery stock treated with triazoles and ABA analogs.

Contact: Bob van den Driessche  Phone: 952-4124

Journal Articles


**BC-FR36**  
Root development in relation to moisture supply and mineral nutrition.

Contact: Bob van den Driessche  
Phone: 952-4124

**Journal Articles**


**Workshops/Seminars**


**BC-FR37a**  
Evaluation of SMP efficacy in Shuswap Adams low seed orchard.

Contact: Michael Stoehr  
Phone: 952-4120

**Other Reports**


**Posters**


Contact: Michael Stoehr Phone: 952-4120

Other Reports


BC-FR46 Relationship between productivity and internal nutrient retranslocation.

Contact: Bob van den Driessche Phone: 952-4124

Posters


Workshops/Seminars

BC-FR51  *Amabilis fir stock type trials (SX84103-V) Gold River.*  
Contact: Brian D’Anjou  
Phone: 751-7116

**Journal Articles**


BC-FR52  *FRDA I projects finalization.*  
Contact: Chris Thompson  
Phone: 354-6704

BC-FR64  *DNA markers for terminal weevil resistance in spruce.*  
Contact: Alvin Yanchuk  
Phone: 387-3338

BC-FR67  *Identification of hypervariable regions in the chloroplast genome of lodgepole pine.*  
Contact: Michael Stoehr  
Phone: 952-4120

**Other Reports**


**Workshops/Seminars**


2. Hardwood/Mixedwood Silviculture

BC-FR13  *Maintenance and updating of the COMB computerized bibliography on the ecology and management of several trees, shrubs, and herbs.*  
Contact: Phil Comeau  
Phone: 387-3299

BC-FR14  *Northern mixedwood forests, the carbon cycle, and sustainable production.*  
Contact: Phil Comeau  
Phone: 387-3299
FRDA Reports


Journal Articles


Other Reports


BC-FR15 Use of red alder in managing Phellinus weirii root disease.

Contact: Rona Sturrock (CFS) Phone: 363-0789

Field Tours

Professional and training tours have been conducted at the Chilliwack River Valley site. Demonstration sites are planned at both test sites (Chilliwack River Valley and Greater Victoria Watershed).

Other Reports


BC-FR16 Analysis of quality and productivity of birch-dominated stands in the Prince George Forest Region.

Contact: Les Herring Phone: 565-6179

Other Reports

BC-FR38  *Adaptive variation and genetic architecture in red alder (Alnus rubra), black cottonwood (Populus trichocarpa) and balsam poplar (P. balsamifera) populations.*

Contact: Cheng Ying  Phone: 387-3976

**FRDA Reports**


**Journal Articles**


**Other Reports**


---

BC-FR42  *Long-term effects of management practices on productivity of mixedwood stands in the ICH zone in the southern interior of B.C.*

Contact: Suzanne Simard  Phone: 828-4175

**FRDA Reports**


**Journal Articles**

biomass and nutrient accumulation in an age sequence of paper birch (*Betula
papyrifera*) stands in the Interior Cedar-Hemlock zone, British Columbia.

Other Reports

Sachs, D.L. [1996]. Simulation of the growth of mixed stands of Douglas fir and
paper birch using the FORECAST model. In Proc. Silviculture of Temperate
and Boreal Broadleaf-Conifer Mixtures Workshop, Feb. 28-Mar. 1, 1995,
Richmond, B.C. P.G. Comeau and K.D. Thomas (editors). Land Manage.
Handb. In press.

biomass and nutrient accumulation in an age sequence of paper birch (*Betula
papyrifera*) stands in the Interior Cedar-Hemlock zone, British Columbia. In
Proc. Silviculture of Temperate and Boreal Broadleaf-Conifer Mixtures
Workshop, Feb. 28-Mar. 1, 1995, Richmond, B.C. P.G. Comeau and K.D.

BC-FR47  Regeneration of paper birch/conifer mixtures in the ICH zone in the
southern interior of B.C.

Contact: Suzanne Simard  Phone: 828-4175

FRDA Reports

Simard, S.W. [1996]. Ecological and silvicultural characteristics of paper birch in
of B.C. Hardwoods Workshop, Dec. 1–2, 1993, Richmond, B.C. P.G.
Comeau, G.J. Harper, M.E. Blache, J.O. Boateng, and K.D. Thomas

Other Reports

Prescott, C.E. [1996]. Decomposition patterns in mixed species forests in the
southern interior of British Columbia. In Proc. Silviculture of Temperate and
Boreal Broadleaf-Conifer Mixtures Workshop, Feb. 28-Mar. 1, 1995,
Richmond, B.C. P.G. Comeau and K.D. Thomas (editors). Land Manage.
Handb. In press.

Simard, S.W. 1995. Interspecific carbon transfer in ectomycorrhizal tree species

———. 1995. Shading influences net carbon transfer among ectomycorrhizal tree
species in the field. In Dynamics of Physiological Processes in Woody
Roots: Booklet of Abstracts, Oct. 8–11, Ithaca, N.Y. M.A. Topa, P.T.
Rygiewicz, and J.R. Cummings (editors). Boyce Institute for Plant Research,
U.S. Environ. Protection Agency, IUFRO Root Physiology and Symbiosis
Working Party.
BC-FR47a Belowground interactions between paper birch and Douglas-fir in the ICH zone of the southern interior of British Columbia.

Contact: Suzanne Simard
Phone: 826-4175

FRDA Reports

Journal Articles

Other Reports
Jones, M.D. 1993. Belowground interactions between *Betula papyrifera* and *Pseudotsuga menziesii* in the ICH zone of the southern interior of British Columbia: 1993 working plan. B.C. Min. For., Kamloops Forest Region, Kamloops B.C.


Posters


Workshops/Seminars


BC-FR53  

**Effects of red alder density on conifer growth and nitrogen availability.**

Contact: Phil Comeau  

Phone: 387-3299

Demonstration Sites

Four research and demonstration sites: Sunshine Coast Forest District (2), Port Alberni Forest District (1), and Duncan Forest District (1).

FRDA Memos


FRDA Reports


Other Reports


BC-FR54  *Investigations of planting white spruce under a trembling aspen canopy.*  
Contact: Craig Delong  
Phone: 561-6133

**FRDA Reports**

**Other Reports**
Delong, C. 1991. Assessment of the past success of white spruce planted under aspen canopies of different ages and structures. File report E.P. 1114.01. B.C. Min. For., Victoria, B.C.

---

BC-FR59  *Effect of aspen density and stocking on the performance of coniferous stands in the Cariboo Region.*  
Contact: Teresa Newsome  
Phone: 398-4408

**Other Reports**

---

BC-FR63  *Poplar nutrition and productivity.*  
Contact: Bob van den Driessche  
Phone: 356-9053

**Other Reports**

**Posters**

**Workshops/Seminars**
3. Vegetation Management

BC-FR04 Trement development for rehabilitation of ESSF backlog brushfields.

Contact: Teresa Newsome   Phone: 398-4408

Other Reports
Knowalyk, L. 1994. Root form of seedlings planted on mounds in the ESSF subzone. File report. B.C. Min. For., Cariboo Forest Region, Quesnel, B.C.

Posters

Workshops/Seminars
Regional summer workshop. 1992. Quesnel, B.C.

BC-FR06 The conversion of multistoried brushfields to coniferous plantations—a benchmark evaluation of alternative silvicultural treatments.

Contact: Dave Coates   Phone: 847-7436

Other Reports

BC-FR07 Development of vegetation management techniques for sites prone to salal domination.

Contact: Brian D'Anjou   Phone: 751-7116

Field Tours
FRDA Memos


FRDA Reports


Other Reports


BC-FR09 Site preparation and planting procedures to minimize seedling water and temperature stress in backlog areas in the southern interior.

Contact: Graeme Hope
Phone: 826-4127

FRDA Memos


Journal Articles


Other Reports


BC-FR10 Effects of competing vegetation on growth and survival of Engelmann spruce seedlings.

Contact: Phil Comeau Phone: 387-3299

Journal Articles


Other Reports


Workshops/Seminars


FRDA II PROGRAM 3.0 – RESEARCH
B.C. Ministry of Forests Highlights and Accomplishments

—. 1993. Presentation on competition indexes. B.C. Min. For., Nelson Forest Region staff, Nelson, B.C.

—. 1993. Presentation on competition indexes. Southern Interior Silviculture Committee summer workshop.


**BC-FR11** Assessing the effects of fireweed and associated vegetation on planted conifer survival and growth in the southern interior.

Contact: Phil Comeau Phone: 387-3299

**FRDA Memos**


**Other Reports**

Lindeburgh, S. 1991. Assessing the effects of fireweed (*Epilobium angustifolium* L.) and associated vegetation on planted conifer survival and growth in the southern interior. Third year accomplishments. B.C. Min. For., Kamloops Forest Region, Kamloops, B.C.

——. 1993. Assessing the effects of fireweed (*Epilobium angustifolium* L.) and associated vegetation on planted conifer survival and growth in the southern interior. Fourth year accomplishments. B.C. Min. For., Kamloops Forest Region, Kamloops, B.C.


**BC-FR17** Development of a database system for entry and retrieval of vegetation management trial information.

Contact: Phil Comeau Phone: 387-3299

**Other Reports**


BC-FR18  Comparison of four brushing treatments for release of young, shrub-dominated spruce plantations in the ICH.

Contact: Phil Comeau  Phone: 387-3299

Other Reports

BC-FR30  Effects of different rates/timing of glyphosate application on willow in moose winter range in SBS1.

Contact: Phil Comeau  Phone: 387-3299

Other Reports
Bancroft, B.G. 1994. The effects of different rates and timing of glyphosate on willow species in moose winter range in the Sub-Boreal Spruce zone: fifth year results. Draft report prepared for B.C. Min. For., Victoria, B.C.

BC-FR32  Quantitative screening of the competitive effects of common coastal non-crop species.

Contact: Phil Comeau  Phone: 387-3299

FRDA Reports

Effectiveness of repeated manual cutting for release of Engelmann spruce from mixed-shrub communities in the Revelstoke District.

Contact: Phil Comeau
Phone: 387-3299

Demonstration Sites:
Research and demonstration site near Mica (Revelstoke Forest District).

FRDA Reports

Other Reports


Appraisal and development of backlog reforestation mechanical site preparation systems.

Contact: Lorne Bedford Phone: 387-8901

Demonstration Sites

Bednesti and Inga Lake FRDA trials (Prince George Forest Region): permanent demonstration sites.

Field Tours

Bednesti Site, Testing the biological effectiveness of mechanical site preparation equipment, field tour. 1994.


FRDA Reports


Other Reports


Videos


**BC-FR40**  
A comparison of seeding mixes applied to site prepared areas for vegetation control in the wet climatic zone of the Nelson Forest Region.

Contact: Chris Thompson  
Phone: 354-6704

**FRDA Reports**


**Other Reports**

Thompson, C.F. 1991. A comparison of seeding mixes applied to site prepared areas for vegetation control in the wet climate region. Working plan E.P. 1116.02. B.C. Min. For., Victoria, B.C.

**Workshops/Seminars**


**BC-FR41**  
Controlling aspen regeneration in cutovers by the use of girdling and chemical treatments before harvesting.

Contact: Suzanne Simard  
Phone: 828-4175

**Other Reports**

Bancroft, B. 1991, 1993–95. A trial to assess the effects of preharvest treatments type and the interval between treatment and harvest on aspen suckering. Annual updates. B.C. Min. For., Kamloops Forest Region, Kamloops, B.C.

**BC-FR43**  
The effect of mechanical and chemical site preparation treatments on the growth and survival of planted PI and Se in rhododendron brushfields.

Contact: Dennis Lloyd  
Phone: 828-4129
Other Reports

BC-FR44  
*Comparison of site preparation treatments on a steep, dry grassy site in the IDF zone.*

Contact: Suzanne Simard  Phone: 828-4175

FRDA Memos

Other Reports


BC-FR45  
*Below ground factors limiting seedling productivity in recently clearcut salal-dominated sites on northern Vancouver Island.*

Contact: Phil Comeau  Phone: 387-3299

FRDA Reports
Journal Articles


Other Reports


Messier, C., R. Keenan, and J.P. Kimmins. 1993. The effects of soil mixing on soil nutrient status, recovery of competing vegetation and conifer growth in cutovers originating from old-growth forests on northern Vancouver Island. FRDA file report. B.C. Min. For., Victoria, B.C.
BC-FR48  *Operational site preparation and planting stock trials on cool, dry IDFdk4 and SBSdw1 backlog sites in the Cariboo (Improving plantation performance of Douglas-fir).*

Contact: Teresa Newsome  
Phone: 398-4408

**Demonstration Sites**

Hance's Timber. Williams Lake Forest District.

**Field Tours**

Regional summer workshop, field tour. 1993. Williams Lake, B.C.

**Other Reports**


**Workshops/Seminars**


---

BC-FR49  *Herbicide rate and timing trial in a fireweed complex in the ICHe.*

Contact: Teresa Newsome  
Phone: 398-4408

**Workshops/Seminars**


---

BC-FR50  *Legume and grass seeding for brush control (knapweed) on mechanically prepared backlog brush field sites (ICH and ESSF).*

Contact: Ordell Steen  
Phone: 398-4406

**FRDA Reports**


**BC-FR55**  
*Effect of manual treatment timing and glyphosate on non-crop vegetation and conifer development.*

Contact: Brian D’Anjou  
Phone: 751-7116

**Field Tours**

Coastal Silviculture Committee, summer tour. 1992. Growth response of several vegetation species to herbicides and manual cutting treatments in the Vancouver Forest Region.

---

**BC-FR56**  
*Comparison of mulch mat and herbicide.*

Contact: Phil Comeau  
Phone: 387-3299

**Demonstration Sites**

Research and demonstration site near Boston Bar.

**FRDA Reports**


**Other Reports**


**BC-FR57**  
*Effect of timing of manual release treatments on physiology and growth of spruce seedlings.*

Contact: Chris Thompson  
Phone: 354-6704

**Other Reports**


**BC-FR58**  
*Effect of manual treatment timing on red alder regrowth/conifer response in Okeover Inlet.*

Contact: Brian D'Anjou  
Phone: 751-7116

**Field Tours**


**FRDA Memos**


**Other Reports**


**BC-FR60**  
*Rehabilitation of Sitka alder/fireweed dominated backlog sites.*

Contact: Dennis Lloyd  
Phone: 828-4129
BC-FR61  *Effects of diffuse and spotted knapweed competition on the survival and growth of lodgepole pine and Douglas-fir seedlings.*

Contact: Brian Wikeem  
Phone: 376-3973

Other Reports


BC-FR62  *Evaluation of forest vegetation community dynamics, biodiversity and wildlife forage values eight years after herbicide and manual brushing treatments on the Bush River Brushing Trial Site.*

Contact: George Harper  
Phone: 387-7794

FRDA Reports


Other Reports


BC-FR66  *Seedling survival and growth on LGP skidder trails.*

Contact: Terry Rollerson  
Phone: 751-7121
Appendix 2. Subprogram 3.2: Growth and Yield and Stand Tending

1. Field Experiments

BC-GY03 Provincial growth and yield experiments: coast.

Contact: Louise de Montigny Phone: 367-3295

Demonstration Areas

Over 190 new permanent sample plots at 10 sites across Vancouver Forest Region.

Field Tours

Coastal Silviculture Committee. June 1994. E.P. 1065.01, Chilliwack, B.C.


FRDA Reports


Journal Articles


Other Reports


**BC-GY04**  *Provincial growth and yield experiments: interior.*

Contact: Wayne Johnstone  
Phone: 549-5683

**Demonstration Areas**

Some 348 permanent sample plots established across B.C. Interior.

**Other Reports**


———. 1993. The effects of spacing on the growth and yield of lodgepole pine – Bobtail Road. 10-year progress report E.P. 922.01. B.C. Min. For., Victoria, B.C.


———. 1994. The effects of spacing on the growth and yield of lodgepole pine – Deserters Creek. 10-year progress report E.P. 922.03. B.C. Min. For., Victoria, B.C.


BC-GY05  *Provincial growth and yield experiments: nutrition.*  
Contact: Rob Brockley  
Phone: 549-5682

**Demonstration Areas**  
Permanent sample plots across B.C. Interior.

**Field Tours**  
Stand Tending Foresters’ Meeting. June 1993. Cranbrook, B.C.

**FRDA Memos**  

**FRDA Reports**  

**Journal Articles**  


**Other Reports**  


Posters

Workshops/Seminars

2. Stand Modelling

BC-GY01 *Dynamics of mixed-species stands.*

Contact: Ian Cameron Phone: 828-3707

Field Tours
Tour of Opax Mountain for 10 specialists. 1994.

FRDA Reports

Journal Articles

Other Reports


Posters

Workshops/Seminars
Southern Interior Silviculture Committee winter workshop. 1995.

BC-GY02  **Construction of managed stand yield tables for root rot infested stands of coastal Douglas-fir, and interior Douglas-fir, white spruce, and lodgepole pine.**

Contact: Ken Mitchell  Phone: 387-6673

Workshops/Seminars
Phellinus Co-op Meeting. 1991. Duncan, B.C.

BC-GY07  **Comprehensive, value-based management of second-growth western hemlock forests.**

Contact: Ken Mitchell  Phone: 387-6673

Other Reports
BC-GY08  *Predicting overstory and understory floristics, structure, and grizzly bear habitat value following logging of the Khutzeymateen watershed.*

Contact: Tony Hamilton (MELP)  Phone: 387-9761

**Other Reports**


BC-GY09  *Fertilization and thinning effects on a Douglas-fir ecosystem at Shawnigan Lake: a synthesis of results.*

Contact: Barrie Phillips  Phone: 387-6642

**FRDA Reports**


BC-GY10  *Facilitate the process of determining the status of current research activities in B.C. and identifying client research needs.*

Contact: Lynn Husted  Phone: 356-8056

**FRDA Reports**


BC-GY11  *Construction, calibration, and validation of managed stand yield tables of root rot infected stands of coastal Douglas-fir.*

Contact: Ken Mitchell  Phone: 387-6673

**Databases**

Managed stand yield tables for precommercial and commercially thinned stands of coastal Douglas-fir.
BC-GY12 *PROGNOSIS management simulation experiments for Douglas-fir.*
Contact: Catherine Bealle Statland
Phone: 387-5447

FRDA Reports

BC-GY13 *Wildlife tree and woody debris module for an existing B.C. forest growth and yield model.*
Contact: Jeff Stone
Phone: 387-6672

Computer Models
Dead tree model. 1996. B.C. Min. For., Res. Br., Victoria, B.C.

FRDA Memos

BC-GY14 *The dynamics of regenerating lodgepole pine stands.*
Contact: Gordon Nigh
Phone: 387-3093

Computer Models
Simulation program.

FRDA Reports

BC-GY15 *Structure and dynamics of mixed-species interior Douglas-fir stands.*
Contact: Catherine Bealle Statland
Phone: 387-5447

FRDA Reports

Workshops/Seminars

1. Biodiversity

BC-IR06  Proposal for a biodiversity gap analysis of Vancouver Island.
Contact: Marvin Eng  Phone: 387-2710

Other Reports

BC-IR07  Provincial gap analysis of protected areas and biodiversity.
Contact: Andy MacKinnon  Phone: 387-6536

Journal Articles

Maps
Digitized mapping of ecoregion and biogeoclimatic unit lines at 1:250 000.

Other Reports

**BC-IR12**  
*Evaluating minimum patch sizes for viable populations of vertebrates living within the Coastal Western Hemlock zone for Vancouver Island.*

Contact: Brian Nyberg  
Phone: 387-3144

**FRDA Memos**


**Journal Articles**


---

**BC-IR13**  
*Maintaining wildlife diversity in managed coastal stands.*

Contact: Dale Seip  
Phone: 565-6137

**Journal Articles**


**Other Reports**


**Workshops/Seminars**

More than 30 presentations of research results were made at public meetings, forestry workshops and meetings, universities, and schools.
BC-IR15  *Biomass and carbon storage in the forest floor and woody debris of old-growth, western redcedar and western hemlock forests on northern Vancouver Island.*

Contact: Cindy Prescott  Phone: 822-4701

**Journal Articles**


BC-IR18  *The development of a gene conservation strategy for the economically important conifers of B.C.*

Contact: Alvin Yanchuk  Phone: 387-3338

**Journal Articles**


**Other Reports**


**Workshops/Seminars**


BC-IR19  *Management guidelines for biological diversity in the Prince Rupert Forest Region.*

Contact: Doug Steventon  Phone: 847-7761

**Other Reports**

BC-IR21  
**Assessing impacts on biological diversity of the distribution of forestry practices through time and space.**

Contact Fred Bunnell (UBC)  
Phone: 822-5928

**FRDA Memos**


**Journal Articles**


**Other Reports**


BC-IR36  
**Development of grazing management programs to maintain avian diversity in B.C.**

Contact: Harold Armleder  
Phone: 398-4407

**FRDA Reports**


**Journal Articles**


**Other Reports**

Evaluating the economic implications of managing forest land to maintain biological diversity.

Contact: Fred Bunnell (UBC) Phone: 622-5928

Journal Articles

Other Reports

Posters

Workshops/Seminars
BC-IR44  The role of riparian corridors for maintaining vertebrate diversity in coastal ecosystems.

Contact: Louise Waterhouse  Phone: 751-7100

2. Old Growth

BC-IR08  Community ecology of the canopy-forest floor insect/arthropod fauna from an old-growth forest.

Contact: Neville Winchester (U Vic)  Phone: 721-7099

Journal Articles


Other Reports


Posters

Workshops/Seminars

and their species: Going, going,...Indianapolis, Ind.


Canadian Entomological Society. 1994. Centinelan extinctions: extirpation of
northern temperate old-growth rainforest arthropod communities. Winnipeg,
Man.

Canadian Entomological Society. 1994. The arboreal highway: arthropods and
landscape dynamics. Winnipeg, Man. Invited paper.

Canadian Entomological Society. 1995. Arthropods of coastal old-growth Sitka
spruce forests. Victoria, B.C. Invited paper.

Canadian Entomological Society. 1995. Canopy arthropods of coastal Sitka
spruce trees on Vancouver Island. Victoria, B.C. Invited paper.

northern temperate old-growth rainforest arthropods. Ellensberg, Wash.
Invited paper.

Royal Entomological Society. 1995. Arthropods of coastal old-growth Sitka
Invited paper.

The Carmanah Canopy Project: conservation of biodiversity in a northern
temperate rainforest. N.B.

Miscellaneous

Contribution to “The Secret Life of Plants” television series
(host David Attenborough).

Discovery Channel. 1994. Film segment for “Clayoquot, the Sound of Wonder.”
Forthcoming magazine articles related to this project in National Geographic,
Canadian Nature, and Canadian Geographic.

BC-IR09  *Macrofungi of old-growth forests: saprophytes and biotrophs and
their correlation to biogeoclimatic zones and humus forms.*

Contact: Shannon Berch Phone: 952-4122

Journal Articles

Posters

BC-IR10  Old-growth lichens – status reports for rare species. Lichens of old-growth forests of the CWH and ICH.
Contact: Ted Lea (MELP) Phone: 387-9781

Other Reports

BC-IR11  Amphibian and forest bird association in old-growth and second-growth communities.
Contact: Dale Seip Phone: 565-6137

Other Reports

BC-IR14  Carbon emissions from harvesting coastal old-growth forests.
Contact: Phil Comeau Phone: 387-3299

FRDA Reports


Other Reports


Porter, G. 1994. Site characteristics and indicator species analysis for the Coastal Forest Chronosequence Project. FRDA/ENFOR report prepared for Can. For. Serv., Victoria, B.C.


Workshops/Seminars

A functional assessment of old-growth stand structures in some southern interior forest types.
Contact: Evelyn Hamilton Phone: 387-3650

Journal Articles


Other Reports


The role of large woody debris in old growth forest streams: a spatial analysis of biogeoclimatic zones.
Contact: Steve Chatwin Phone: 387-5887

Other Reports
The role of large woody debris in old-growth forests: A spatial analysis of biogeoclimatic zones. File report. B.C. Min. For., Res. Br., Victoria, B.C.

3. Environmental Impacts

Watershed sediment budget studies.
Contact: Steve Chatwin Phone: 387-5887

Field Tours
Field review of hazard mapping. B.C. Min. For., Pacific Northern Gas, and Skeena Cellulose staff.

Maps
Floodplain hazard mapping: Lower Zymoetz River Watershed.
Sediment source maps: Zymoetz River and Coal Creek watersheds.
Other Reports


Workshops/Seminars

Coal Creek: Presentations to B.C. Min. For., Bulkley Forest District, licensee, and B.C. Min. Environ., Lands and Parks staff.

Zymoetz River: Presentation to B.C. Min. For., Kalum Forest District staff on floodplain erosion hazard mapping and watershed sediment sources.

BC-IR02  Efficacy of biological control on diffuse knapweed.

Contact: Brian Wikeem Phone: 376-3973

Field Tours


Posters


BC-IR03a  The response of planted spruce to slash-burn severity, initial seedling condition, and vegetation levels in the SBS zone.
Contact: Evelyn Hamilton  Phone: 387-3650

BC-IR03b  Vegetation development patterns after clearcutting and different slash-burn activities in the SBS and ESSF zones.
Contact: Evelyn Hamilton  Phone: 387-3650

Databases
Ongoing data collection and analysis in the SBS (8 sites) and ESSF (4 sites) biogeoclimatic zones.

BC-IR04  Problem analysis of the impacts of site preparation on habitat utilization and availability for red-, blue-, and yellow-listed wildlife species in interior B.C.
Contact: Andy MacKinnon  Phone: 387-6536

FRDA Reports

BC-IR05  The influence of vegetation management on the diversity of plants, small mammals, birds and furbearers.
Contact: Tom Sullivan (UBC)  Phone: 822-3543

Journal Articles

Other Reports
BC-IR20  Adaptive management in forestry: a research proposal.
Contact: Chris Fletcher
Phone: 356-5959

Other Reports

BC-IR22  Resource use conflicts problem analysis.
Contact: Robin Hoffos (MELP)
Phone: 398-4559

FRDA Reports

BC-IR25  Effects of vegetation management for brush and alder on forest birds in the Adam and Eve watersheds.
Contact: Rhonda Millikin (CWS)
Phone: 946-8546

Other Reports

Posters

BC-IR26  Stuart-Takla fisheries/forestry interaction project.
Contact: Peter Tschaplinski
Phone: 387-3025

Field Tours
B.C. Min. For. operational and research staff. June 1993. Stuart-Takla study site.

Journal Articles

Other Reports


Workshops/Seminars

BC-IR30  Ecology of Pacific yew (Taxus brevifolia).
Contact: Alison Nicholson  Phone: 953-4107

Other Reports


BC-IR31  Long-term soil productivity study.
Contact: Marty Osberg  Phone: 387-7795

Demonstration Sites
Prince George and Smithers, B.C.

Field Tours
Other Reports


———. 1995. Change in soil hydraulic properties caused by compaction and organic matter retention during forest harvesting the Sub-Boreal Spruce zone. Progress report prepared for B.C. Min. For., Victoria, B.C.

Thrower, J.S. and Assoc. Ltd. 1991. Site quality evaluation of the long-term productivity research installation at Log Lake near Prince George, B.C. Report prepared for B.C. Min. For., Victoria, B.C.


Posters


Workshops/Seminars


BC-IR32  

**Nutritional sustainability of timber harvesting.**

Contact: Tim Ballard (UBC)  
Phone: 822-2300

Other Reports


BC-IR33  Effects of high impact skid trail compaction on soil physical properties.
Contact: Marty Osberg  Phone: 387-7795

Demonstration Sites
Demonstration site at 76 Mile House study site: includes a signed trail for self-guided tours and a rhizotron constructed for underground observations of root growth and soil organisms in undisturbed and compacted soil.

Other Reports

Workshops/Seminars

Forest Harvesting Council Technical Advisory Committee, Pacific Regional Soil Sciences Society Annual Workshop, and Provincial Engineering Program.

Slide presentations to: Prince George Forest Region and District Timber and Silviculture staff; Dawson Creek Forest District and licensee staff; Fort St. John Forest District and licensee staff; Cariboo Forest Region licensee staff; and Interior Forest Harvesting Council Technical Advisory Committee.

BC-IR34  Alternatives to broadcast burning following clearcutting on medium sites in the SBSmc/ESSFk transition zone.
Contact: Marty Kranabetter  Phone: 847-7435

Demonstration Sites
Reagan Creek (Bulkley Forest District).

FRDA Memos
Alternatives to broadcast burning in the northern Interior: Soil disturbance. FRDA Memo. In preparation.

Alternatives to broadcast burning in the northern Interior: Soil properties. FRDA Memo. In preparation.

Other Reports


Alternatives to broadcast burning in the northern Interior FRDA project IR34. E.P. 1164. Second-year post-treatment progress report. B.C. Min. For., Prince Rupert Forest Region, Smithers, B.C.

Carnation Creek – an experiment towards long-term integrated resource management.

Contact: Dan Hogan

Phone: 660-1812

Databases

Five years of detailed data collection on fish populations, climate, hydrology, and stream channel structure. Carnation Creek, Vancouver Island.

Other Reports


Workshop/Seminars

Carnation Creek-Queen Charlotte Islands Fishery/Forestry 20-Year Workshop. May 1994. Queen Charlotte City, B.C.


BC-IR37

The hydrological recovery of regenerating forests: snow accumulation and snow melt characteristics.

Contact: Dave Toews Phone: 354-6284

Other Reports

Toews, D.A.A. and R. Eremko. 1994. Hydrological recovery: When does it occur?

BC-IR39

The effects of cattle grazing, forage seeding rates, basal scarring and shoot damage on forest regeneration.

Contact: Brian Wikeem Phone: 376-3973

Field Tours


Range Section, Kamloops Forest Region, District and Regional staff. June 1991. Tunkwa Lake, B.C.

Univ. B.C., Faculty of Agricultural Sciences, third year field trip. Aug. 1991. Tunkwa Lake, B.C.

Univ. B.C., Faculty of Agricultural Sciences, third year field trip. Aug. 1993.
FRDA Memos


Journal Articles


Other Reports


Posters


Workshops/Seminars


Wikeem, B.M. Apr. 1994. Synopsis of forest grazing research in the Kamloops Forest Region for forest and livestock industries. Grass/Tree/Cattle Task Group, Kamloops Forest District office, Kamloops, B.C.


Kamloops Forest Region, district and regional staff field day. Aug. 1991. Tunkwa Lake, B.C.

**BC-IR40**  
*Upper Penticton Creek experimental watershed study.*
Contact: Rita Winkler  
Phone: 828-4169

**Field Tours**
B.C. Min. For.; B.C. Min. Environ., Lands and Parks; City of Penticton; and Water Survey of Canada staff.

**Journal Articles**

**Other Reports**

**Posters**
Penticton Forest District Open House. May 6, 1993. Penticton, B.C.

**BC-IR41**  
*Hydrologic controls of landsliding in coastal British Columbia.*
Contact: Dan Hogan  
Phone: 660-1812

**Other Reports**


**BC-IR42**  
Contact: Graeme Hope  
Phone: 828-4127
Field Tours

Several presentations on multi-disciplinary tours of Sicamous Creek alternative silvicultural systems site.

Posters


Hope, G. Soil properties and productivity in ESSF forests. Presented at High Elevation Workshop, 1992, Kamloops, B.C.; and Southern Interior Silviculture Committee winter workshop, 1993.

BC-IR45  
**Coarse woody debris dynamics in wet and dry ESSF forests.**

Contact: Cindy Prescott (UBC)  Phone: 822-2507

BC-IR46  
**Marbled murrelet nesting habitat on the Sunshine Coast.**

Contact: Andrew Derocher  Phone: 751-7126

Journal Articles


Other Reports


Posters


Workshops/Seminars


BC-IR47  The relationship among grassland floral diversity, soil seed banks, and plant community stability.

Contact: Michael Pitt (UBC)  Phone: 822-3453

Other Reports


4. Administration

BC-IR23  Administration.

Contact: Art Scott  Phone: 356-6813

Other Reports

