

Small Stream Riparian Management: Central Interior Projects

Coastal FREP & Industry
Small Streams Workshop
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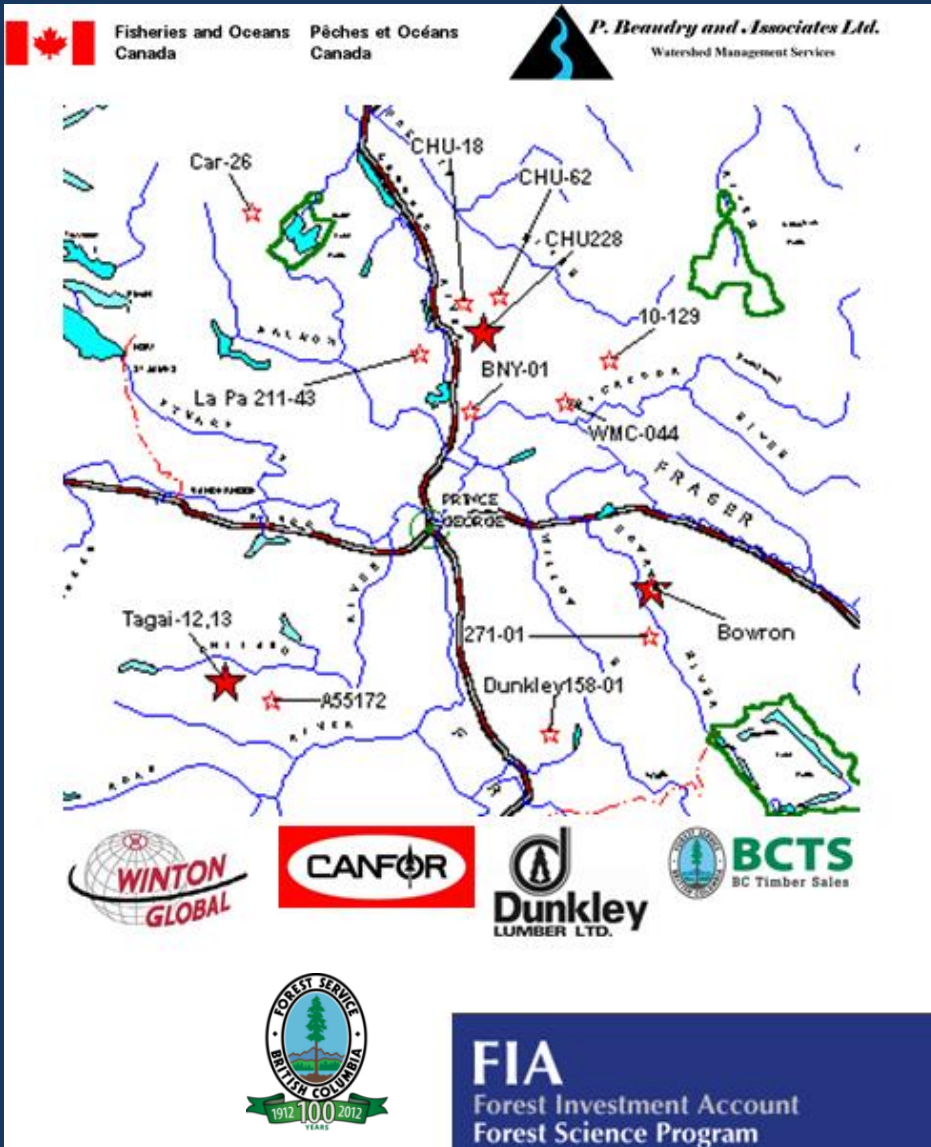


Outline

- Past and present central interior research:
 - PG Small Streams
 - Bowron River Watershed
 - THLB Industry Collaboration
 - FREP Overview

Past : Prince George Small Streams Study

J. Rex, D. Maloney, E. MacIsaac, H. Herunter, P. Beaudry, and L. Beaudry



- District manager policy to address small stream retention around fish-bearing streams.
- A paired watershed before and after control study.
- Test effectiveness of minimum prescription (10 stems/100m to meet 5 management objectives).

Parameters Monitored

Agency	Parameters Studied
Department of Fisheries and Oceans	Water Quality and Quantity Biological productivity (Primary and Secondary) Fisheries Surveys
Pierre Beaudry & Associates	Channel Morphology (LWD/Erosion) Riparian Tree Inventory Angular Canopy Densimeter
Ministry of Forests and Range	Air and Stream Temperature

Prince George Findings

- Significant change associated with low retention (10 stems/100m or less): management concern for shade, temperature, wood dynamics, and litterfall.
- LWD modeling and source distance information identifies importance of retention within first 10m.
- Relationship to natural disturbance of interior riparian zones and climate change.

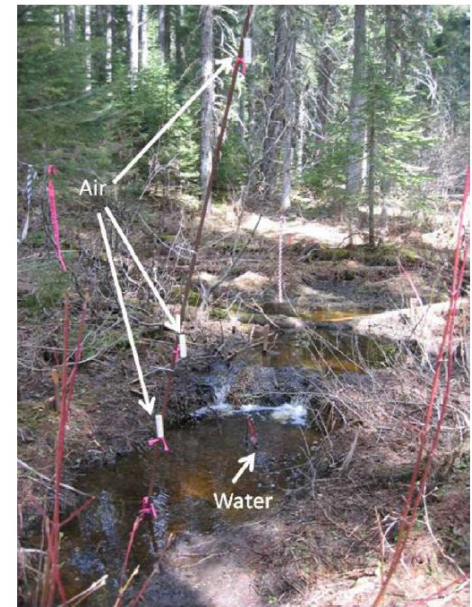
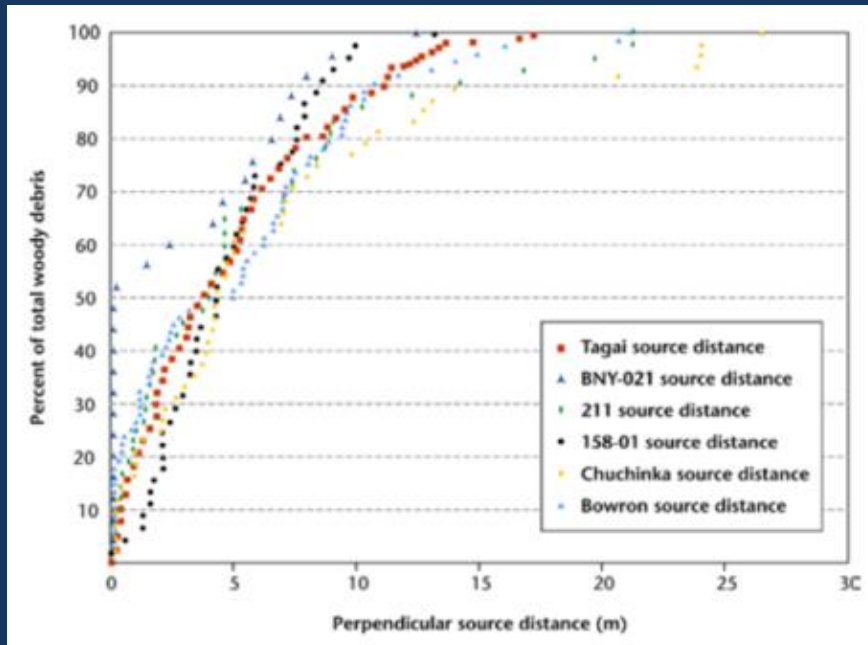
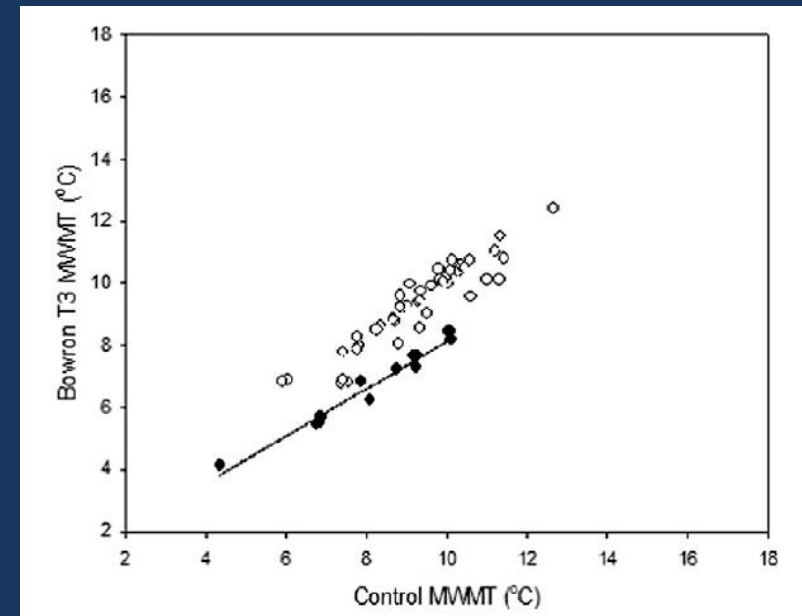


Fig. 2. Study stream showing placement of air temperature probes at 0.5, 1.0, and 2.5 m along with the water temperature probe in the thalweg.



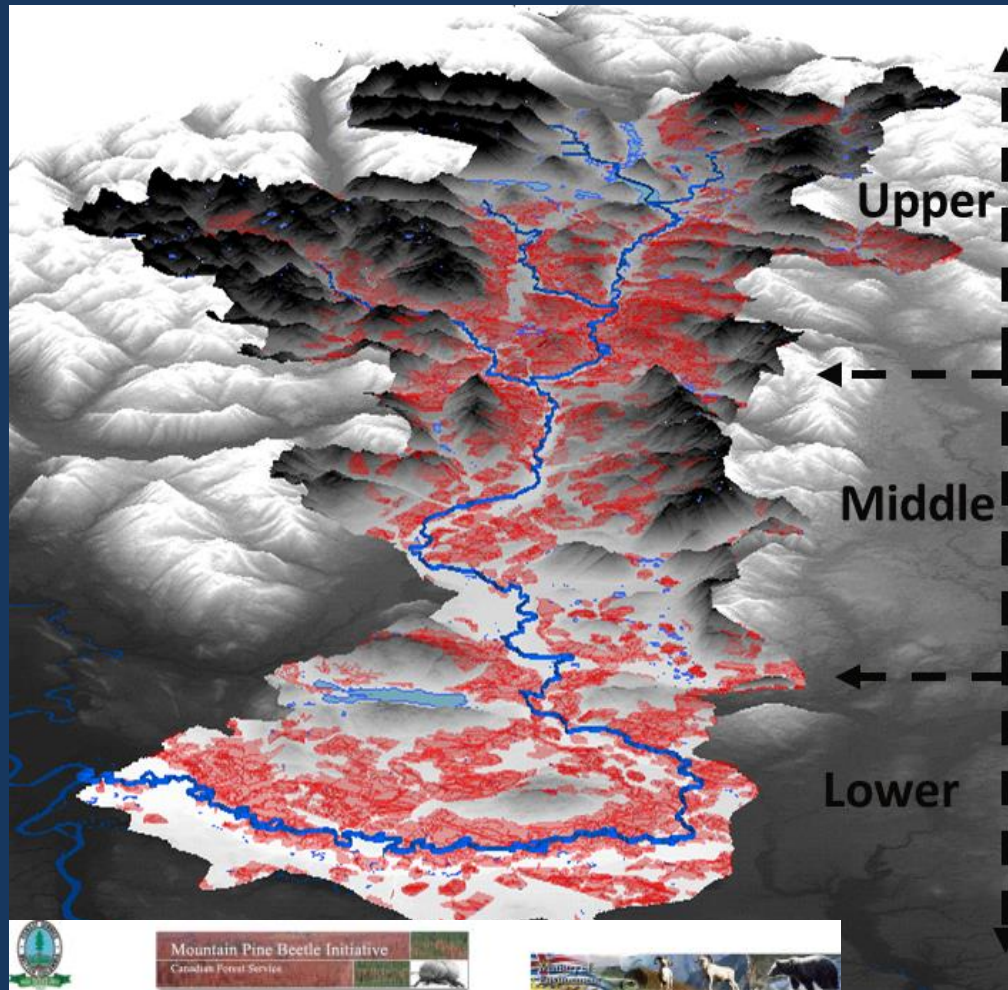
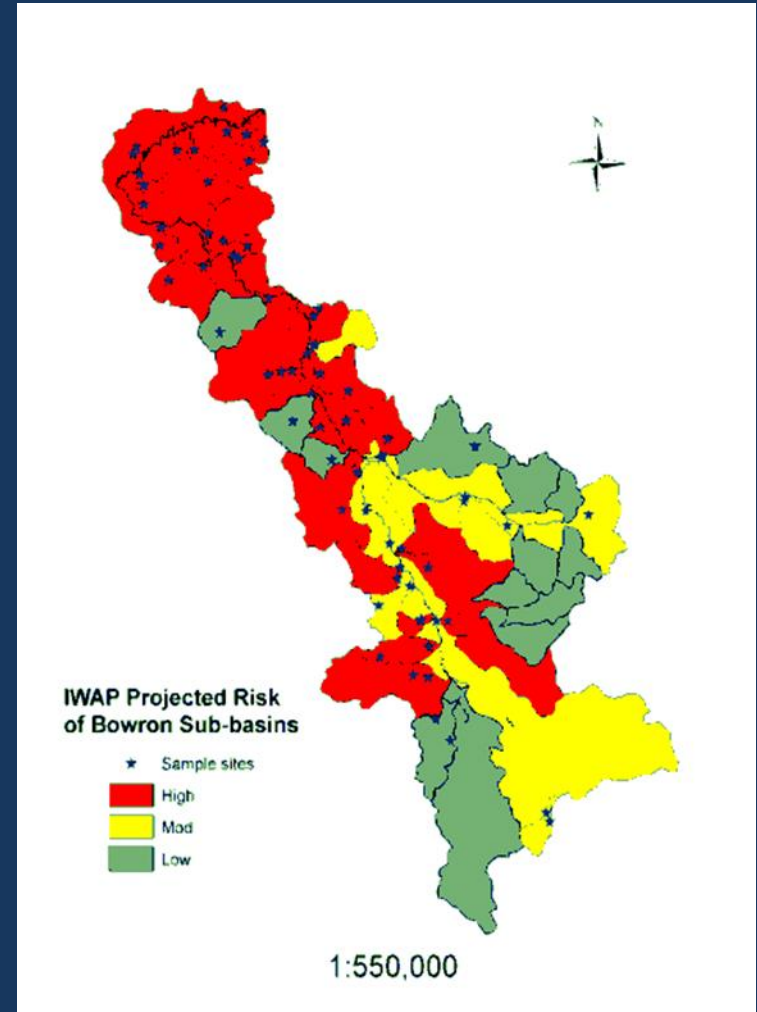
(Pierre and Leisbet Beaudry)- Extension Note 100



(Rex et al., 2012)

Bowron River Watershed Study

L. Nordin, P. Krauskopf, D. Maloney, J. Rex, P. Tschaplinski, D. Hogan



Bowron Findings

- Headwater and larger streams slow to recover from extensive harvesting.
- Buffers of ~3m for small streams were inadequate.
- Value of IWAP as a screening tool.

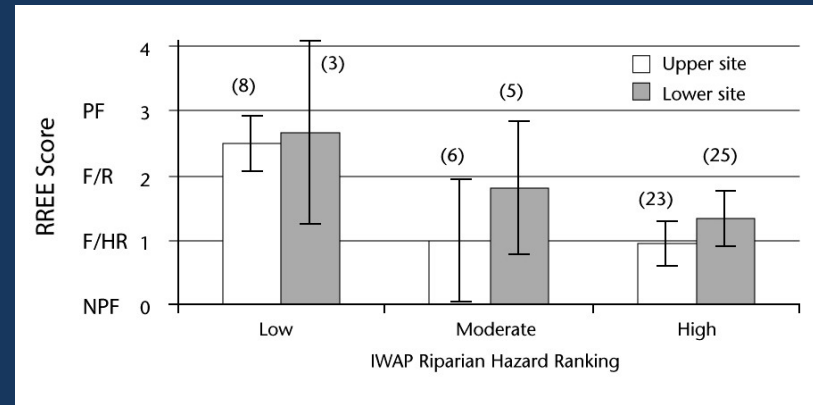
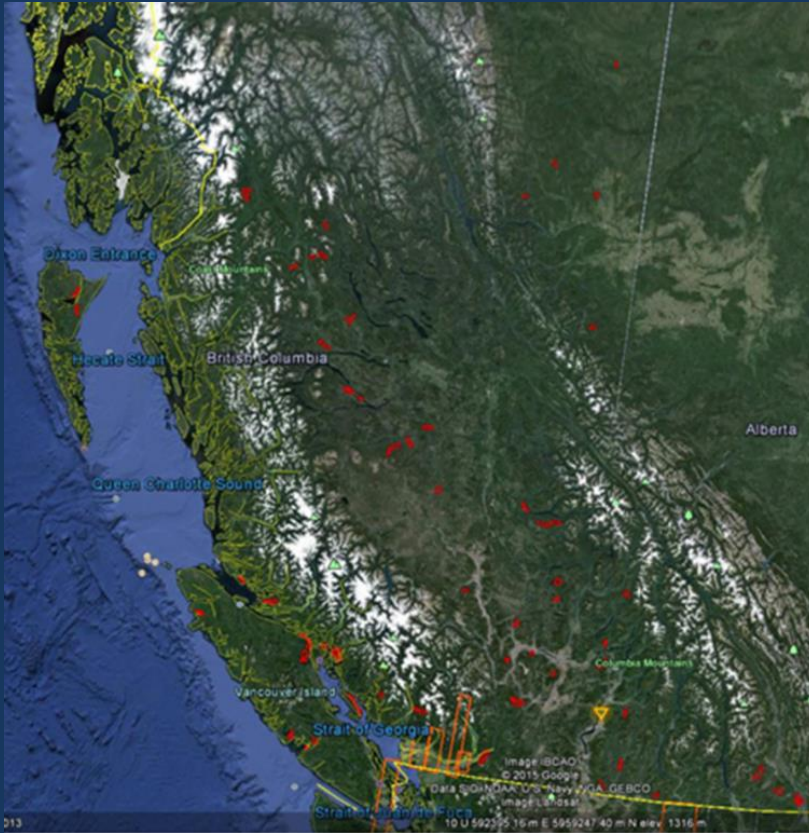
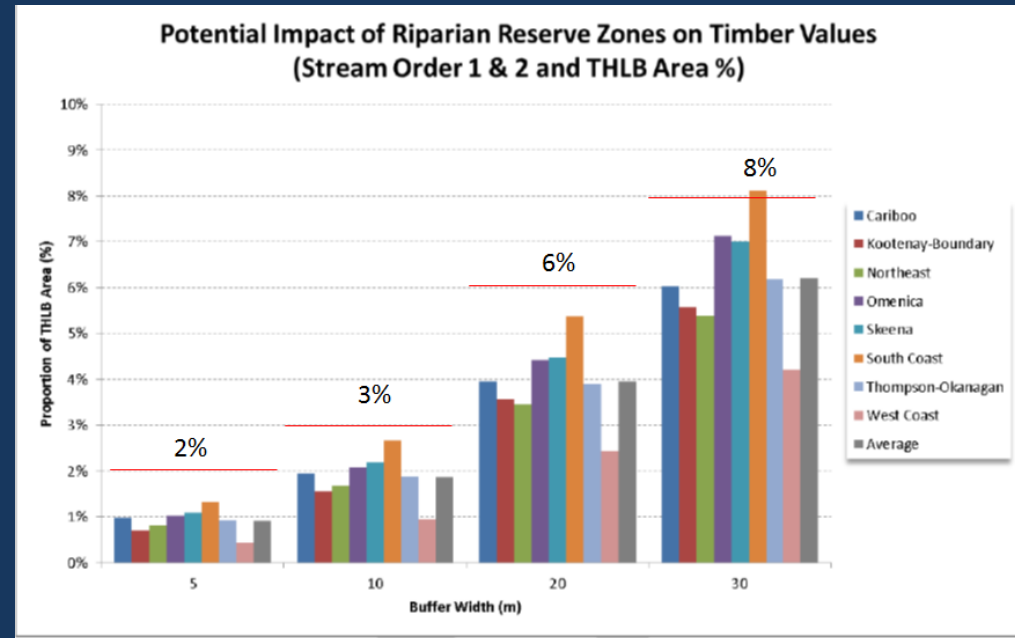


Figure *IWAP Riparian hazard ranking vs average 2007 evaluation score*. NPF = not properly functioning, F/HR = functioning at high risk, F/R = functioning at risk, PF = properly functioning. Error bars = 95% CI.

Research Present: THLB

Terry Sullivan, Shannon Pearce, Peter Baird, Jeff Mycock, John Rex



Validation: (7 regions, 17 Watersheds)

- Variability in stream presence and estimates,
- Riparian volumes overestimated (limited coastal data)

Operational considerations

- GIS analysis completed for 104 watersheds by Forsite,
- Field validation for stream line work and riparian trees.



Present: FREP Data Analysis

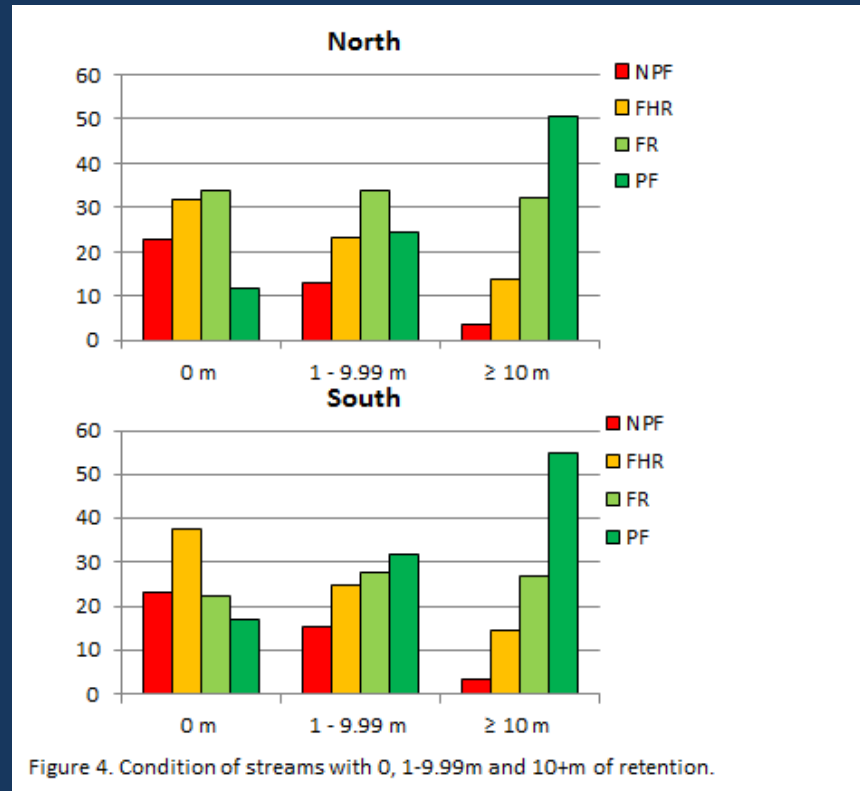
- Sample size of 1314 for small streams (<3m).
- Reviewing data with FREP team to look for trends and ways to improve outcomes.
- Three eras sampled, namely
 - FPC –pre 2004 (n= 559)
 - Transition 2004-2007 (n=398)
 - FRPA >2007 (n=357)
- FREP data files include information on:
 - Area
 - Timing of harvesting and licensees,
 - Stream morphology,
 - Distance to merchantable trees,
 - 15 indicator questions,
 - Commentary related to questions – i.e. is response due to natural disturbance or forest, range, mining, or other human development factors



A properly functioning stream and non-properly functioning stream.

<https://www.for.gov.bc.ca/hfp/frep/values/watershed.htm>

Present: Interior FREP Analysis (Draft)



Nordin et al., in process

Factors Influencing Outcomes	Factors Not influencing Outcomes
Distance to Harvest	Gradient
10m Buffer	Bedrock
RMA Retention	Stream Morphology (S)
Site Elevation	Channel Width (S)

Opportunities & Next Steps

- Develop consistent provincial messaging:
 - Support District Manager Engagement with FSP preparers/reviewers
 - Deliver winter workshops with the Small Stream Community of Practice, FLNRO, ABCFP, Licencees (Nanaimo Jan. 31, Prince George Feb. 21/22, Kamloops – TBD March)
- Explore recommendations to manage small streams at the watershed or landscape level
- Pilot recommendations, target monitoring, and obtain results and feedback.



How can we manage small stream riparian zones?

Consider natural disturbance regimes and responses.



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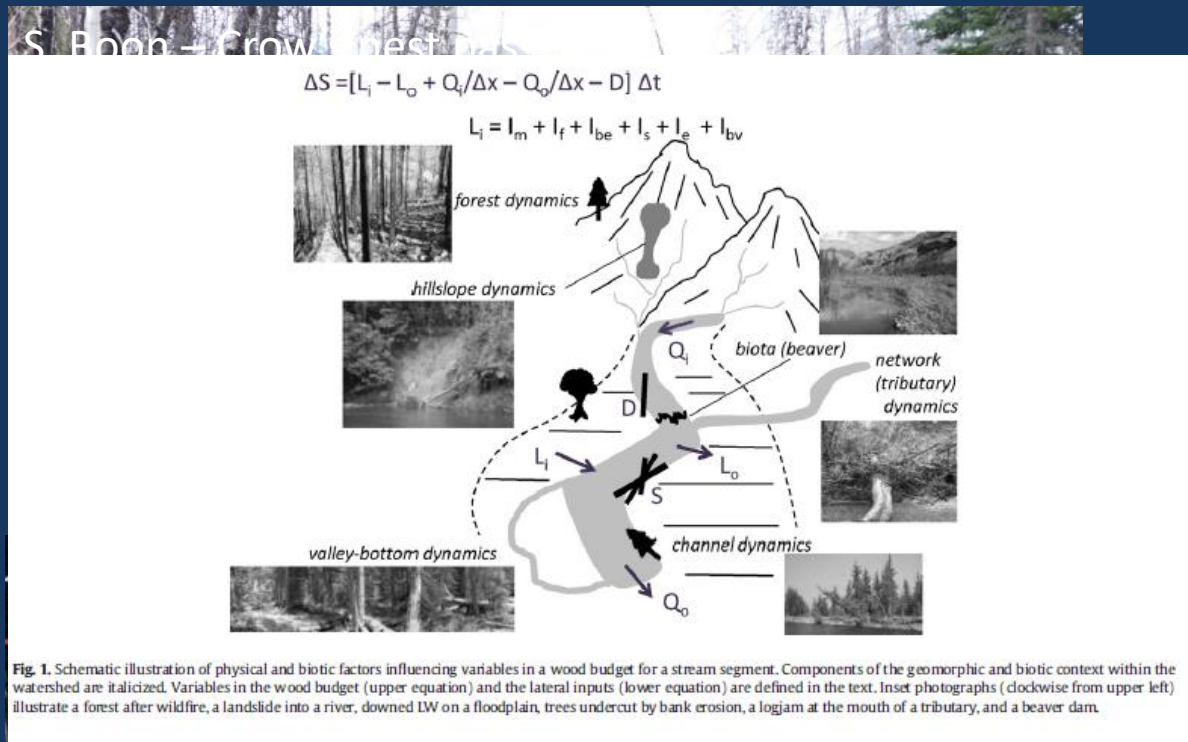


Table 3. Sources of large wood in the North Fork of Cherry Creek basin.

	Wood pieces (%)		Wood volume (%)		Median piece volume (m ³)
	Colluvial tributaries	Alluvial mainstem	Colluvial tributaries	Alluvial mainstem	
Local hillslopes and riparian areas	63	36	89	74	2.75
Fluvial redistribution	1	9	1	2	0.25
Debris flow transported	—	33	—	18	0.77
Unknown source	36	22	10	6	0.63

UBC- Fishtrap Creek

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Fig. 1. S
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UBC- Fishtrap Creek



Reference Material:

ADM Resource Stewardship Report Regional Results of the Forest and Range Evaluation Program: FREP Report #41.

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