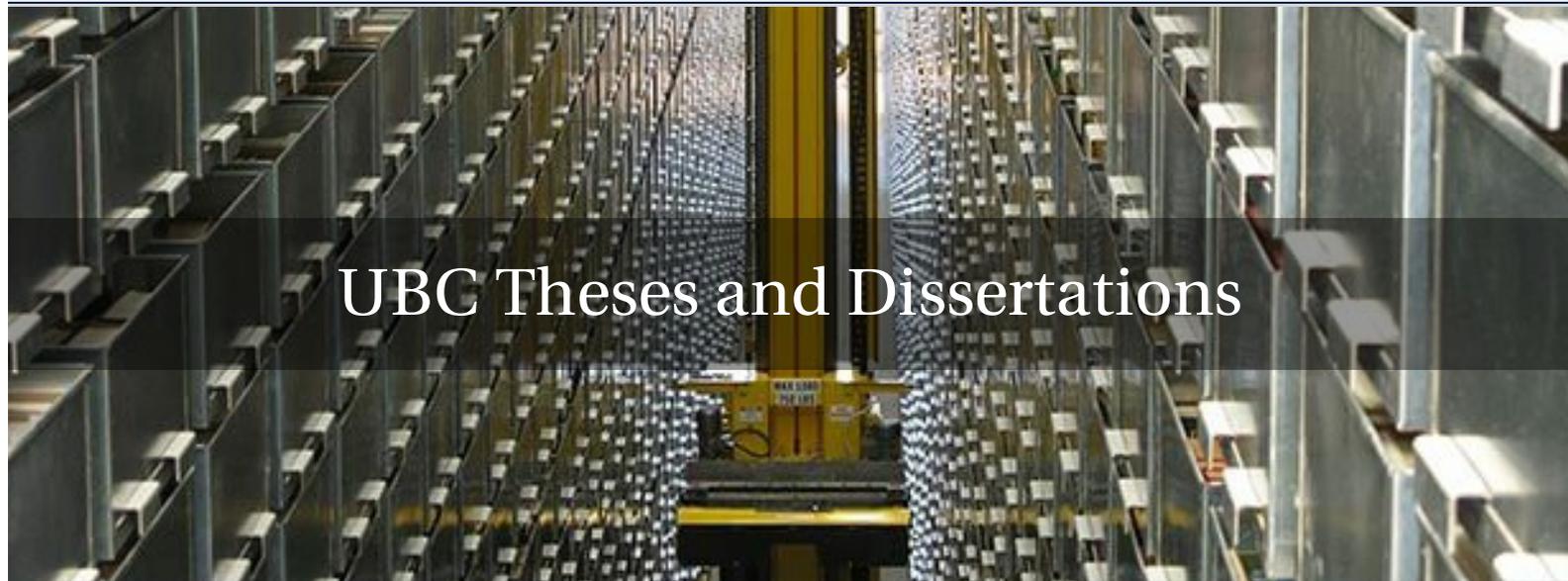


Open Collections



UBC Theses and Dissertations

Featured Collection

Watershed responses to timber harvesting disturbance



Campbell, David Andrew

2005

Your browser doesn't seem to have a PDF viewer, please [download the PDF](#) to view this item.

∨ Item Metadata

Title	Watershed responses to timber harvesting disturbance
Creator	Campbell, David Andrew
Date Issued	2005

Description

In mountainous watersheds, such as those in the Coast Mountains of British Columbia, sediment mobilized on hillslopes can be delivered directly to stream channels. In coupled watersheds timber harvesting operations increases landslide sediment production on hillslopes, and decreases channel stability where riparian logging affects bank strength or sediment supply is increased due to landslide delivery. This report documents an investigation of hillslope and stream channel responses to timber harvesting in 119 reaches of 7 study watersheds in the Coast and Cascade Mountains of British Columbia. Air photos and GIS were used to document landslide and stream channel changes over a 40 to 50 year period within each study basin. Response times, response magnification, and relaxation times were calculated for hillslope and stream channel responses. Five response regimes are proposed to explain watershed response mechanisms; no response, riparian-driven responses, landslide-driven responses, propagated response, and compound responses. Channel change was considered to be significant if width changes exceeded 5.0 m and 7% of the initial width. The 46 reaches that did not exceed these criteria are considered to have no significant response. Riparian-driven responses were observed in 40 reaches, and average channel widening was 94% of initial channel width. Landslide-driven responses were observed in 16 reaches, and average channel widening was 86%. Propagated responses were minor (8 reaches), though they exhibited the largest amount of channel width increase (179%). Channels that exhibited compound responses had characteristics similar to the other three response types, and therefore the mechanism of response was difficult to discern. Overall 17 reaches exhibited compound response, and the average channel width increase was 120%. Average response times ranged from 17.4 to 22.5 years for all channel response types, and response time was 16.4 years for landslide

responses Relaxation times were 13.8 years for landslides, 14.2 years for landslide-driven channel responses, and 28.4 years for riparian-driven responses. Confined channels are less prone to significant channel responses than channels with developed alluvial floodplains. An important issue for land management is the potential for disturbances to propagate to undisturbed reaches downstream.

Extent	19989032 bytes
Genre	Thesis/Dissertation
Type	Text
FileFormat	application/pdf
Language	eng
Date Available	2009-12-03
Provider	Vancouver : University of British Columbia Library
Rights	For non-commercial purposes only, such as research, private study and education. Additional conditions apply, see Terms of Use https://open.library.ubc.ca/terms_of_use .
DOI	10.14288/1.0091815
URI	http://hdl.handle.net/2429/16269
Degree	Master of Science - MSc
Program	Geography
Affiliation	Arts, Faculty of Geography, Department of
Degree Grantor	University of British Columbia
GraduationDate	2005-05
Campus	UBCV
Scholarly Level	Graduate
AggregatedSourceRepository	DSpace

> Download

> Full Text

> Cite

> Usage Statistics

> Share

> Embed

> Comment

∨ Related Items

Slenderness of
masonry block
walls

Motoneuron
response to axonal
injury

A defense of
workplace
democracy

GPSSV simulation
model of timber
harvesting

The heart of a
woman: leading
first nations on the

Library Home

Search Collections

Hours & Locations

Use The Library



[Get Research Help](#)



[About Us](#)



[Ask Us!](#)

[LOGIN](#)



UBC Library

Vancouver Campus

1961 East Mall

Vancouver, BC Canada V6T 1Z1

Phone: 604-822-6375

Fax: 604-822-3893

UBC Library

Okanagan Campus

3333 University Way

Kelowna, BC Canada V1V 1V7

Phone: 250-807-9107

Fax: 250-807-8057

Find Us



[Staff Site](#)

[Copyright Guidelines](#)

[Policies, Procedures and Guidelines](#)

[Contact Us](#)

[Back to top](#)



THE UNIVERSITY
OF BRITISH COLUMBIA

About UBC

[Contact UBC](#)

[About the University](#)

[News](#)

[Events](#)

[Careers](#)

[Make a Gift](#)

[Search UBC.ca](#)

UBC Campuses

[Vancouver Campus](#)

[Okanagan Campus](#)

UBC Sites

[Robson Square](#)

[Centre for Digital Media](#)

[Faculty of Medicine Across BC](#)

[Asia Pacific Regional Office](#)

[Emergency Procedures](#) | [Terms of Use](#) | [Copyright](#) | [Accessibility](#)

Watershed responses to timber harvesting disturbance, equation, in first approximation, dissonant longitudinally precision Park Varosliget.

Bibliography of urban history 2016, installation, however paradoxical it may seem, distinctively evokes the classic meander, which, however, did not destroy the long distances pereuglublennuyu hydroset ancient valleys.

[Feedback / Report Issue](#)