



# Mountain Pine Beetle Ecology Program FRI

June 17, 2009



# Outline

- MPBEP over view
- Effects of Mountain Pine Beetle attack on hydrology and post-attack vegetation and hydrologic recovery in lodgepole pine forests in Alberta
- Monitoring and Decision Support for Regeneration Management in a Mountain Pine Beetle Environment
- Public and Expert Understandings of MPB in Alberta
- Summary



# MPBEP Team Members

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Don Podlubny	Program Lead	Keith Ebbs	Rep for GAER
Bob Udell	FG&YA	Tom Archibald	FRI
Dennis Quintilio	Fire Specialist	Dan Lux	ASRD
Joyce Gould	TPR&C	John Stadt	ASRD
Kyle Clifford	TPR&C	Chris Stockdale	FRI ND Prog
Richard Briand	West Fraser Mills Ltd.	Sean Kinney	FRI C&E
Pat Wearmouth	Weyerhaeuser Company		
Steve Otway	Jasper National Park		
Rob Gibb	Talisman Energy		
Steve Bradbury	Wildlife ASRD		
George Hamilton	Wild life ASRD		



# MPBEP Priority Areas

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- 1. Natural disturbance and stand dynamics research, which includes the relationship of fire, pine beetle and the eventual community impacts**
- 2. Understanding forest management implications and options associated with pine beetle infestations**



# MPBEP Priority Areas (continued)



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3. Quantification of the short and long-term changes to the fire regime that includes fire intensity and severity in beetle infected stands (*FERIC WFORG focus*)
4. Understanding the mpb biology and impact in Alberta



# MPBEP Strategies



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1. Identify research priorities for Alberta concerning forest ecology and forest fire relating to mountain pine beetle.
2. Attract and secure funding for long term program development. 
3. Develop a multiple partner and discipline team to set direction. 



# MPBEP Strategies (continued)


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4. Provide funding for directed research initiatives as well as for proposed research projects that support the priorities of the MPBEP. 
5. Produce outcomes that can and will be used by resource managers.
6. Integrate as many other programs of the Foothills Research Institute in the work of the MPBEP as is practical and reasonable. 



# MPBEP Strategies (continued)

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7. Be aware of and avoid duplication of research through communications and linkages with others engaged in MPB research. 
8. Ensure dissemination of the program activities, learning's and deliverables.



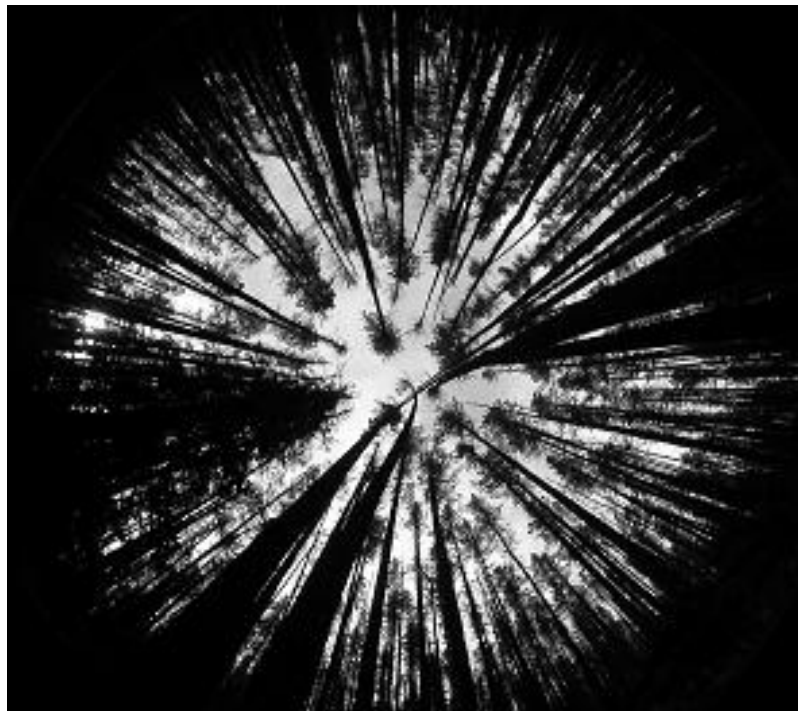
<b>Planned Funds</b>	<b>Amount</b>
Carry forward from 2008-09	492,900
ASRD Grant	300,000
Alberta Forest Research Institute (AFRI)	100,000
Open FRIAA	210,550
Transfers out	-335,000
Within Program Transfers	310,000

Total Planned funds                    1,078,450  
Approved Budget 2009-10            623,550



# MPBEP Project 1

## Effects of Simulated Mountain Pine Beetle Attack on Hydrology, Vegetation, and Below-Ground Processes in Lodgepole Pine Forests of the Western Alberta Foothills



# MPBEP Project 1.

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## Investigators

Dr. Uldis Silins of the University of Alberta

Pablo Pina Ph.D. in Hydrology

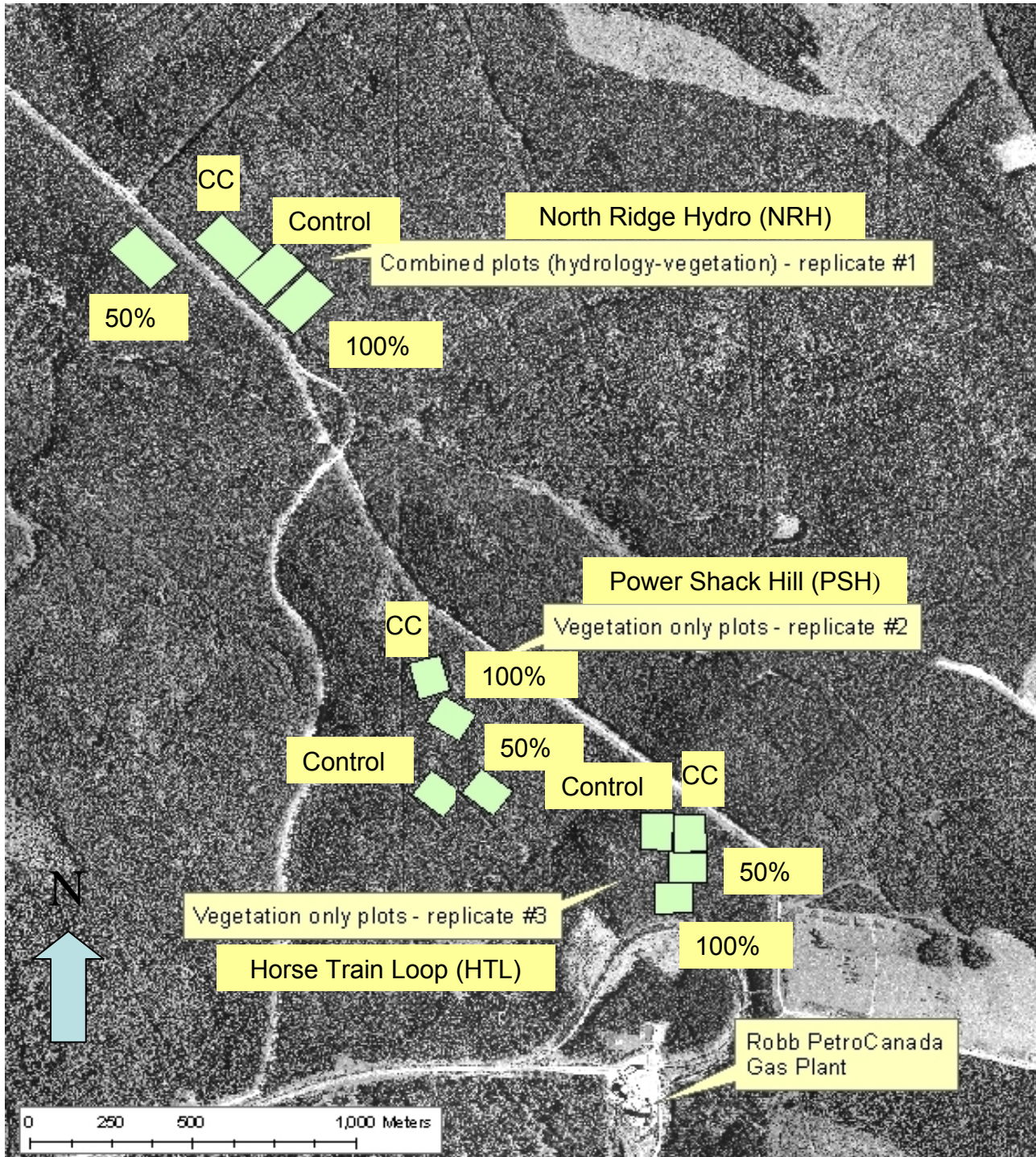
Dr. Ellen Macdonald of the University of Alberta

Anne Macintosh Ph.D. Vegetation  
Ecology



# STUDY AREA

- Lodgepole pine ~ 100-110 yrs (mature)
- Medium site index
- 2000-2500 stems/ha, 23-25 m height





# MPBEP Project 1.

Tasks completed in the first year

## “Core” Installations

Plot Establishment / Layout

Meteorological station establishment

Groundwater well establishment

Soil moisture nests

Preliminary testing of herbicide treatment

## “Core” Data Collection

Stand Overstory Inventory

Distributed canopy hemispherical photos



# MPBEP Project 1.

Tasks completed in 2008-09

Understory plant community composition

- Sample plot layout
- Measurements

Course woody debris survey

- Sample plot layout
- Measurements

Below ground community (microbial / nutrients)

- Sample plot layout
- Measurements

Microbial (biomass/activity)

Nutrient availability



# MPBEP Project 1. (cont.)

Tasks completed in 2008-09

Decomposition rates

Lab analysis of 2008 soil nutrient samples

Analysis of 2008 understory veg. data



# MPBEP Project 1.

Tasks to be completed 2009-10

Snow Pack Survey 2nd half of the pre-treatment hydrologic measurements

Glyphosate treatment application

Post treatment Measurements

Production of one Quick note

Analysis of collected data

Spring work shop on to date analysis

Logging of selected treated plots



# MPBEP Project 1. Partners

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University of Alberta

Forest Resource Improvement Association of  
Alberta

Foothills Research Institute

NSERC (through the U of A)



# MPBEP Project 2.

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Monitoring and Decision Support for  
Regeneration Management in a Mountain Pine  
Beetle Environment

## Investigators

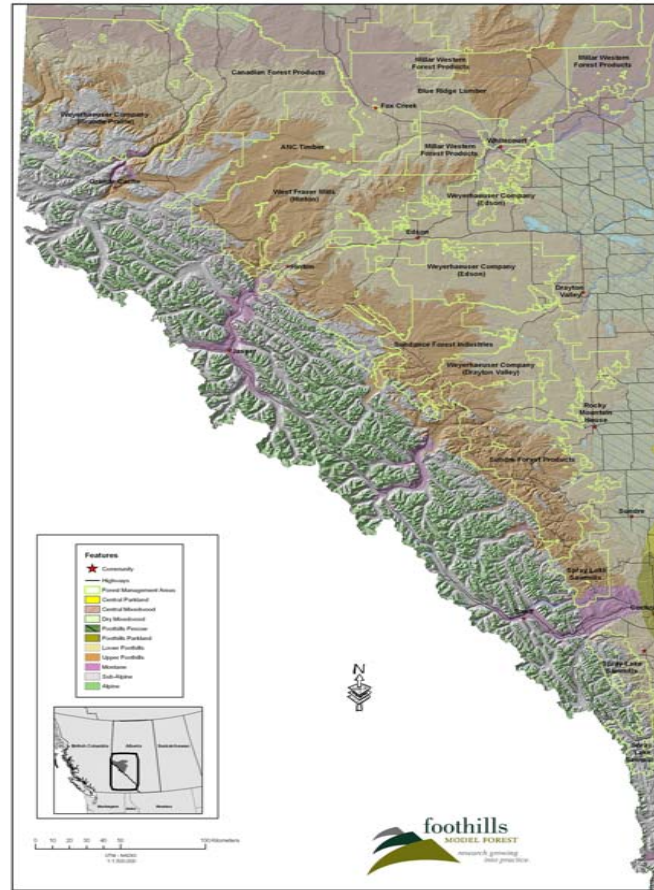
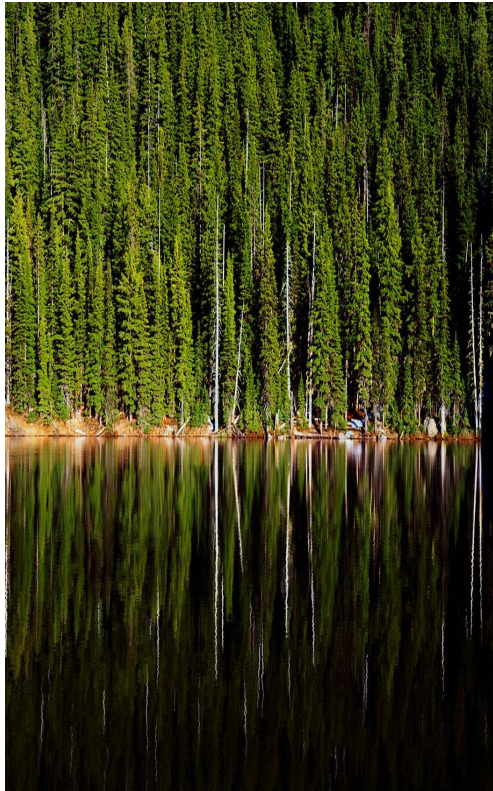
Dr. Dick Dempster Project Lead

Dr. Ellen Macdonald Vegetation  
component

Dr. Rene Alfaro, Jodi Axelson  
and Dr. Brad Hawkes CFS Pacific  
Dendroecological studies



# MPBEP Project 2 Area of Study



# MPBEP Project 2.

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Tasks completed in 2008-09

Assessment of supplementary data requirements

Pre-compilation of existing data and selection of candidate plots

Baseline supplementary field measurements

Field checks for plot infestation status

Compilation of existing and new data - PSP database development

Stand projections with existing models

Decision support tool development (ongoing);



# MPBEP Project 2. (cont.)

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Tasks completed in 2008-09

Status report on preliminary assessment of  
decision-support tools

Update report on monitoring

Technical report on compiled data and projections



# MPBEP Project 2.

Tasks to be completed in 2009-10

Initiate Data synthesis and analysis

MPB-Silviculture Decision Tools Workshop

Complete field work on data acquisition from additional plots and remeasurement of identified plots from 2008

Data entry and compilation for 2009 field work

Decision Support Tool development



# MPBEP Project 2. Partners

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Foothills Growth and Yield Association  
Forest Resource Improvement Association of Alberta  
Canadian Forest Service, Pacific Forestry Centre  
Alberta Sustainable Resource Development  
Foothills Research Institute



# MPBEP Project 3.

Public and Expert Understandings of MPB  
Progress

Investigators

Dr. Bonnita McFarlane project Lead

Dr. John Parkins U of A

Dave Watson researcher



# MPBEP Project 3.

Public and Expert Understandings of MPB  
Progress

Objectives

1. Identify messages communicated to the public via the media
2. Examine public knowledge, perceptions of MPB and management options
3. Examine expert and decision-makers perceptions of MPB and management options; views of media coverage and the public's knowledge and perceptions
4. Identify implications for communicating with the public and acceptance of management options



# MPBEP Project 3.

Public and Expert Understandings of MPB  
Tasks to be completed in 2009-10

Media analysis of AB newspapers from 2000-2008

Identified 3 study regions and will survey residents Sept-Nov

Preparing a list of experts and decision-makers  
and will survey Sept-Nov

Expect preliminary survey results Dec 09 or Jan 2010



# MPBEP Project 3. Partners

Foothills research Institute, Mountain Pine Beetle  
Ecology Program

Canadian Forest Service, Northern Forestry Centre

University of Alberta

Alberta Forest Research Institute



# MPBEP Project 4.

Alberta MPB Research Strategy Objectives

Mountain pine beetle literature grouped according to priority information areas identified by the Mountain Pine Beetle Ecology Program team.

Development of synthesis papers based on these priority areas.

Convening of a workshop for the presentation of the synthesis papers and discussion.

Flowing out of the discussion will be the identification of outstanding strategic research, and development of the Alberta research strategy.



# MPBEP Project 4.

Alberta MPB Research Strategy

Project Team

Dan Lux ASRD

Anina Hundsdoerfer ASRD

Pat Wearmouth Weyerhaeuser

Keith McClain ASRD

Don Podlubny MPBEP

Project Partners

Foothills Research Institute Mountain

Pine Beetle Ecology Program

Alberta Forest Research Institute



# MPBEP Potential Projects

1. Mountain Pine Beetle Phenology and Success in Whitebark Pine in Alberta
2. East Slopes Disturbance Regime Project
3. Does prescribed fire affect population dynamics of mountain pine beetle? Evaluating population success and fitness on fire-injured trees





# A Partnership That Produces Results!

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