

# Whitebark Pine Conservation in the Canadian Kootenays



**Michael Murray, Ph.D.**  
**BC Forest Service**  
**(Ministry of Forests, Lands, and Natural Resource Operations)**

# *Pinus albicaulis* Engelm. – Whitebark pine Range in British Columbia





*Cronartium ribicola*





**COSEWIC**  
**Assessment and Status Report**

on the

**Whitebark Pine**  
*Pinus albicaulis*

in Canada



ENDANGERED  
2010

**COSEWIC**  
Committee on the Status  
of Endangered Wildlife  
in Canada



**COSEPAC**  
Comité sur la situation  
des espèces en péril  
au Canada

***“High risk of extirpation  
in Canada”***

***“We will have to get into  
screening on the scale the  
USDA is doing.”***

**John King, emeritus,  
BC Forest Service**

DRAFT

*Species at Risk Act*  
Recovery Strategy Series

## Recovery Strategy for Whitebark Pine (*Pinus albicaulis*) in Canada

***“ Resistance to white pine blister rust is the foundation of Whitebark Pine recovery. “***

Whitebark Pine



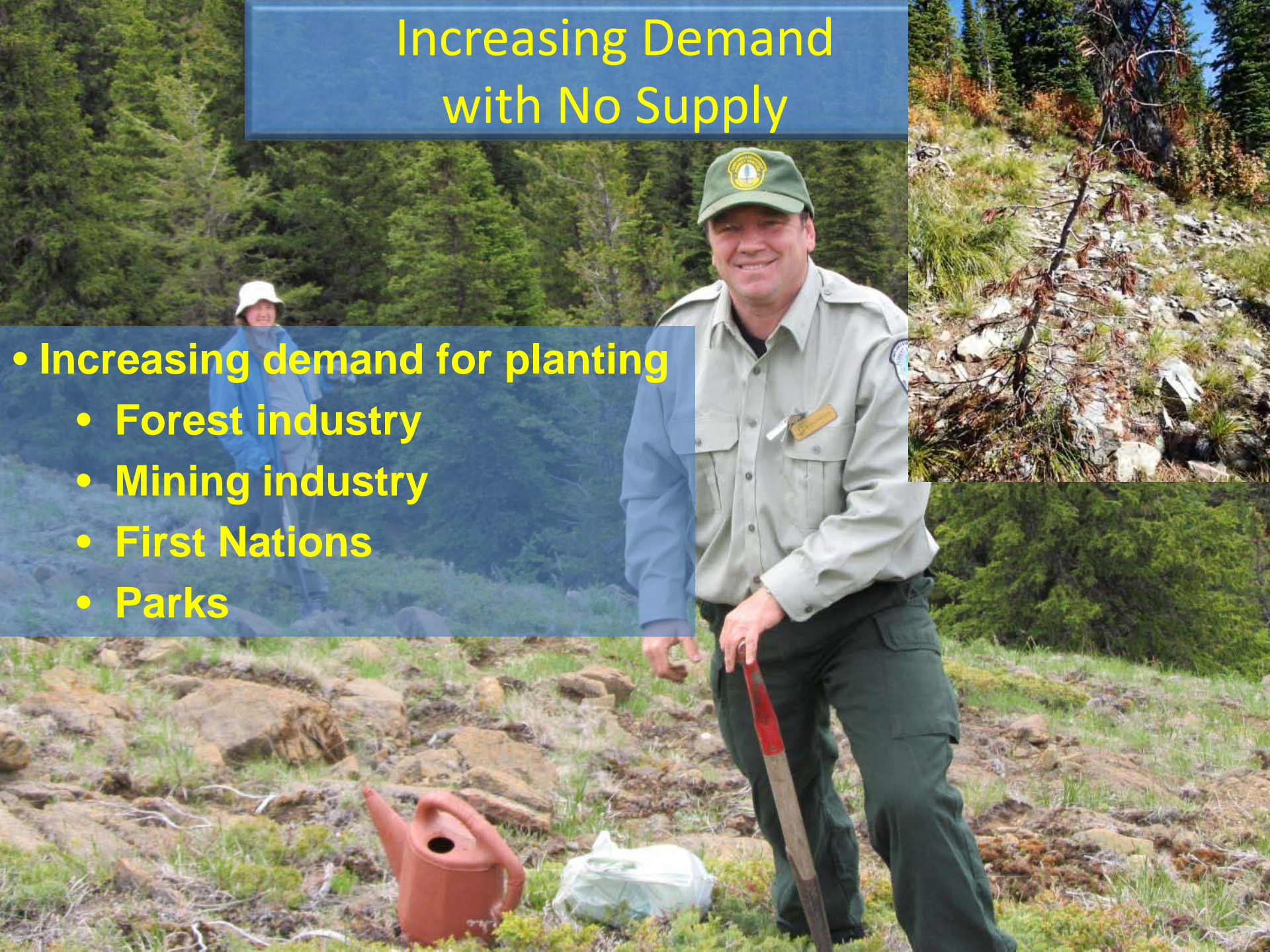
2013

Canada



# Increasing Demand with No Supply

- Increasing demand for planting
  - Forest industry
  - Mining industry
  - First Nations
  - Parks





# Blister Rust Screening

Selection &  
Collection

Propagation  
& Rearing

Inoculation

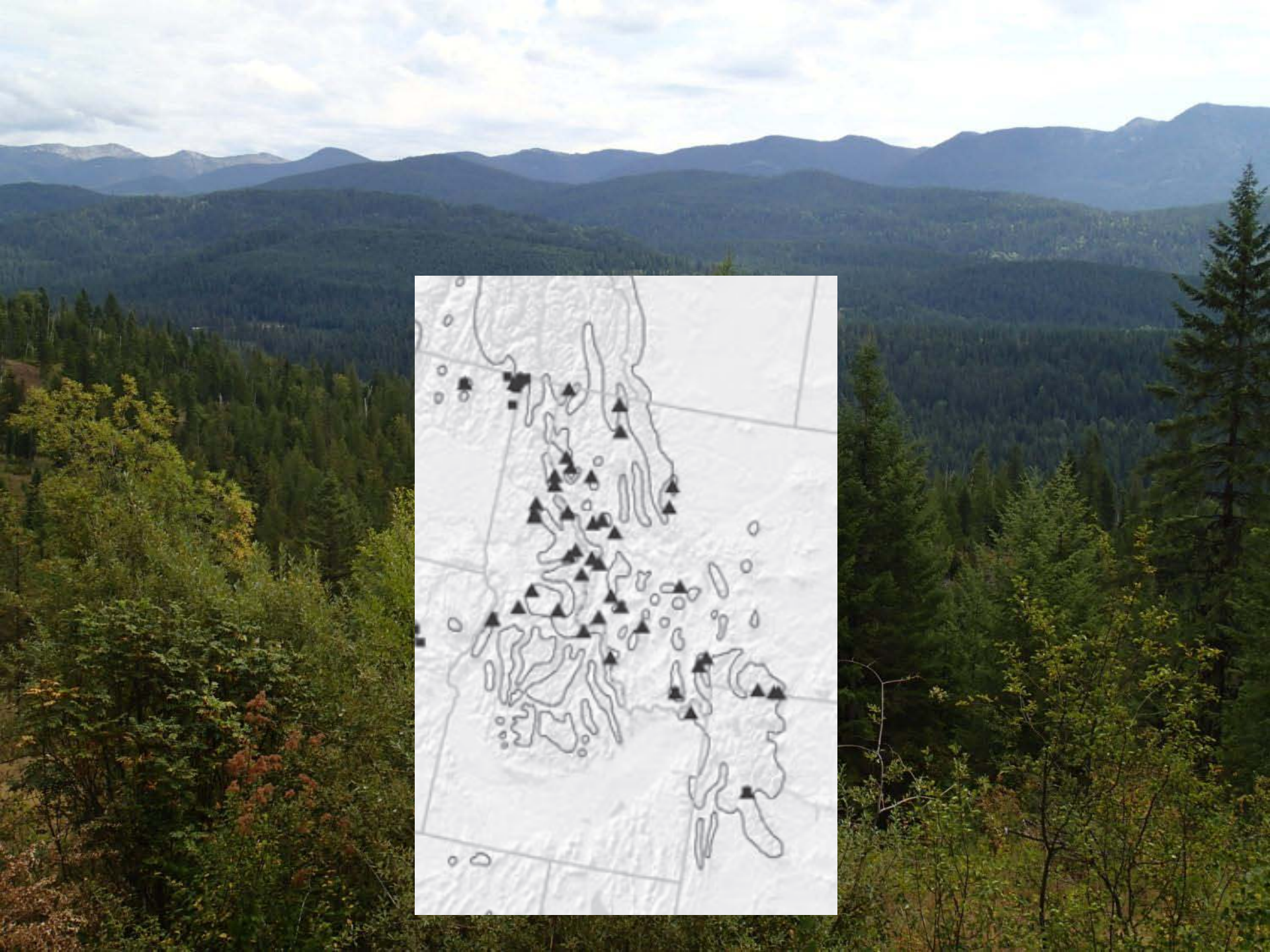
Repeated  
Observation

Disease  
Resistant  
Trees











## Summer 2011

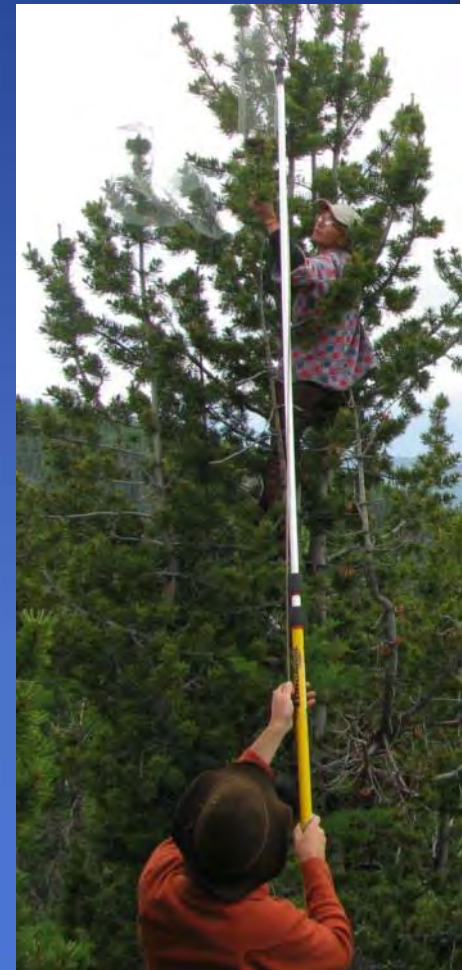
### West Kootenays

- 6 Sites
- 20 Trees



### East Kootenays

- 5 Sites
- 20 Trees





KEVIN COSTNER

THE  
POSTMAN

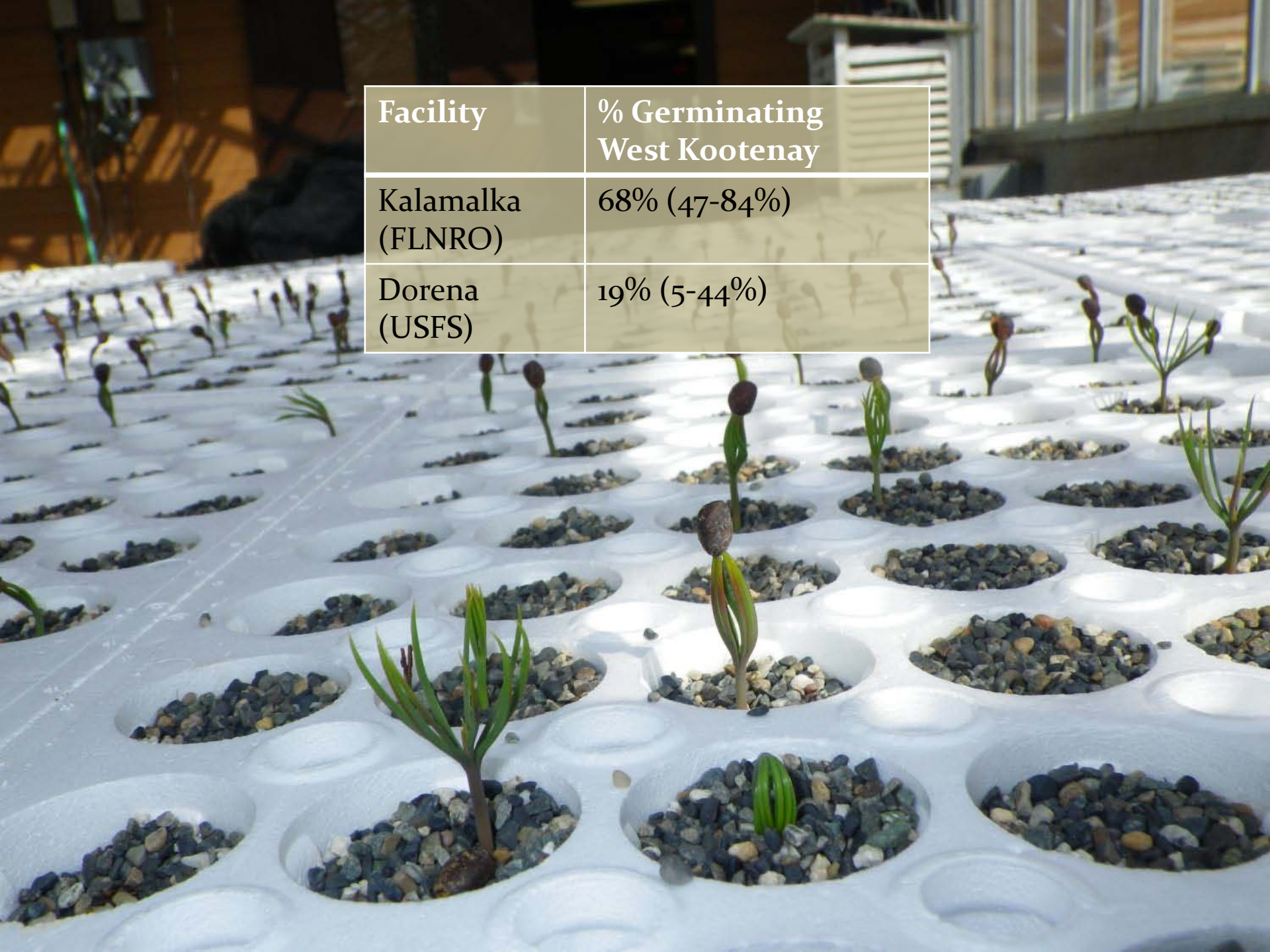
FROM THE ACADEMY AWARD-WINNING DIRECTOR OF "DANCES WITH WOLVES."



*It is 2013.  
War has crippled  
the Earth.  
Technology has  
been erased.  
Our only hope  
is an unlikely hero.*

DVD  
VIDEO





Facility	% Germinating West Kootenay
Kalamalka (FLNRO)	68% (47-84%)
Dorena (USFS)	19% (5-44%)









- USFS Dorena's Methods
- 10 families x 50 seedlings
- Target Basidiospore Load = 3,000/cm<sup>2</sup>





# TEAM KAL 2013

(L-R)

*Nick Ukrainetz, Ward Strong, Randy Armitage, Michael Murray, Vicky Berger*





# Three Runs

(replicates with same 10 families)

## Greenhouse Chamber



## Room Chamber



## Dorena



# Three Runs

(replicates with same 10 families)

Greenhouse Chamber



Room Chamber

**Defeat!**



Dorena





# Assess

2014 – 2019+

Kalamalka & Dorena



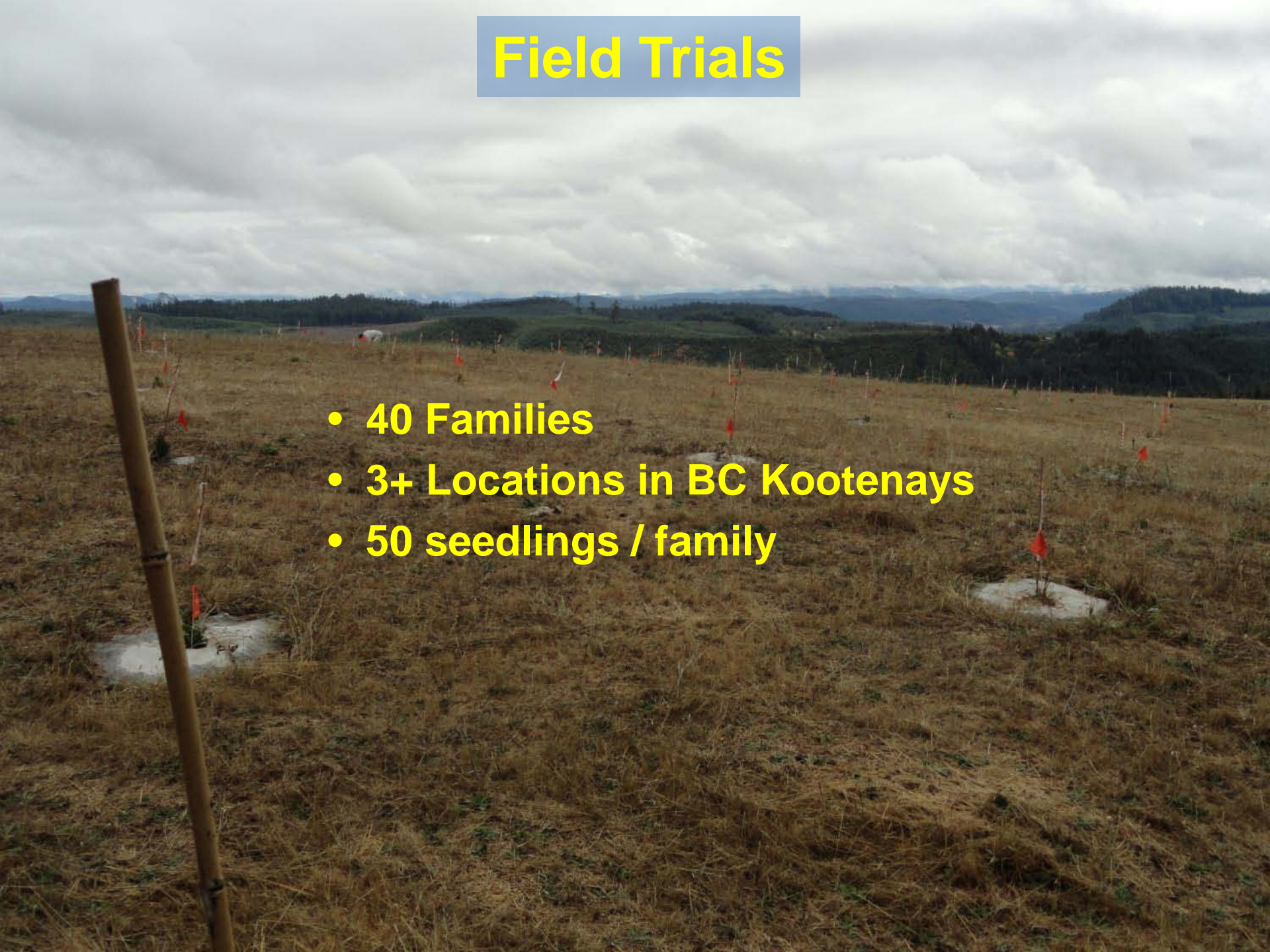
Field Trials





# Field Trials

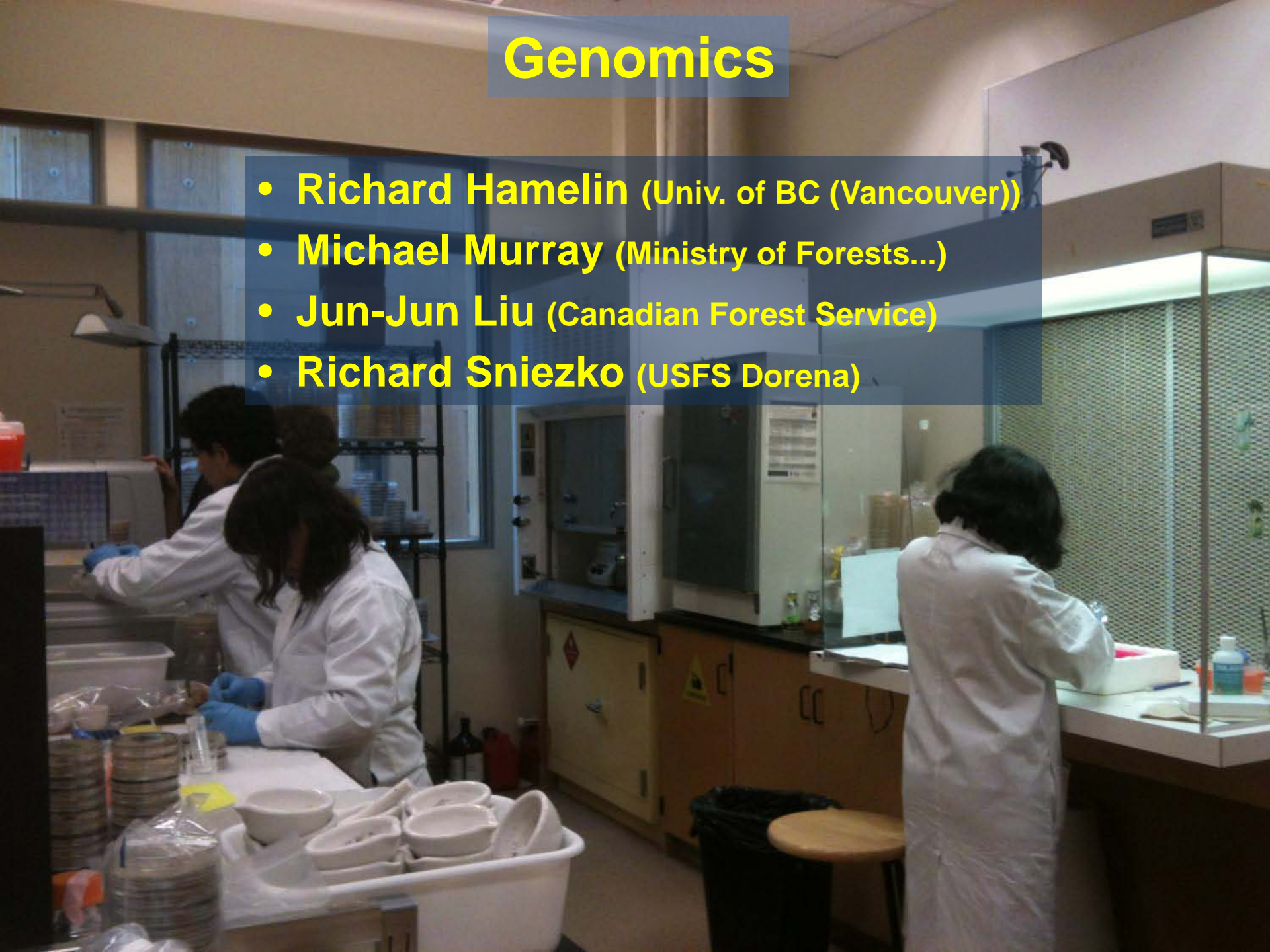
- 40 Families
- 3+ Locations in BC Kootenays
- 50 seedlings / family





# Genomics

- **Richard Hamelin (Univ. of BC (Vancouver))**
- **Michael Murray (Ministry of Forests...)**
- **Jun-Jun Liu (Canadian Forest Service)**
- **Richard Sniezko (USFS Dorena)**





# More Projects





# Adrian Leslie

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- **Thinning Treatments**

**(Objective: Increase Health, Survival And Cone Production)**

- **Three even-aged sites, ages 12, 25, 60.**

- **Direct Seeding Trials**

- **Planting 1,200 seedlings (Field Trial).**

- **Collecting from 40 new parent trees.**



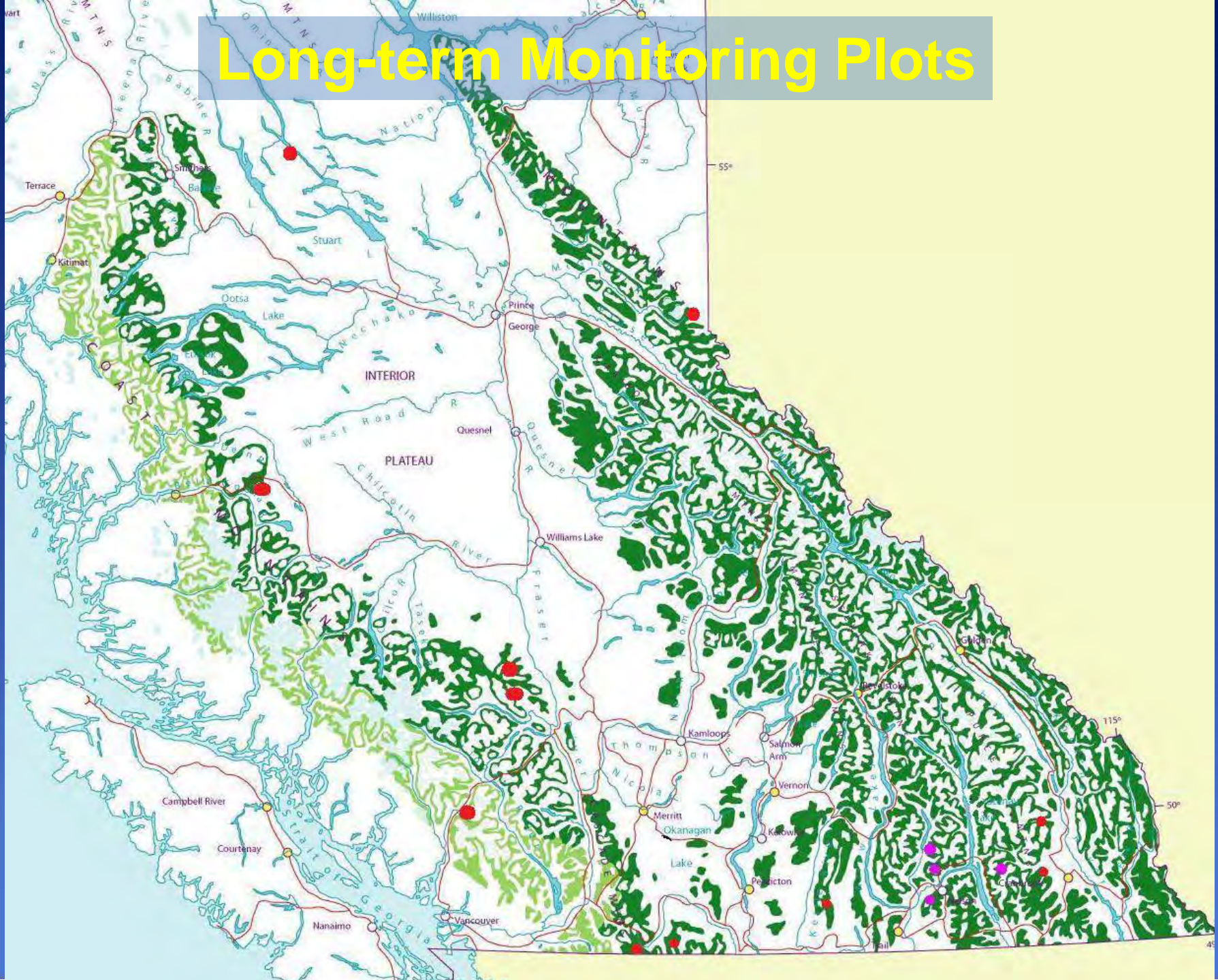


- 
- Surveyed burns for whitebark regen
  - Selected 4 burns for planting
  - Planted using assistance from ATV club and Horse Outfitters
  - Identified old mine spoils for planting trials.

**Randy Moody**  
randy@keefereco.com



# Long-term Monitoring Plots













# Thanks



**Joan Dunlap (IFG)**  
**John Gleason (IFG)**  
**Rich Hunt (CFS, retired)**  
**Angelia Kegley (DGRC)**  
**Richard Sniezko (DGRC)**  
**Det Vogler (IFG)**  
**Paul Zambino (RMRS)**



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