

Whitebark Pine and Forest Health in SE British Columbia



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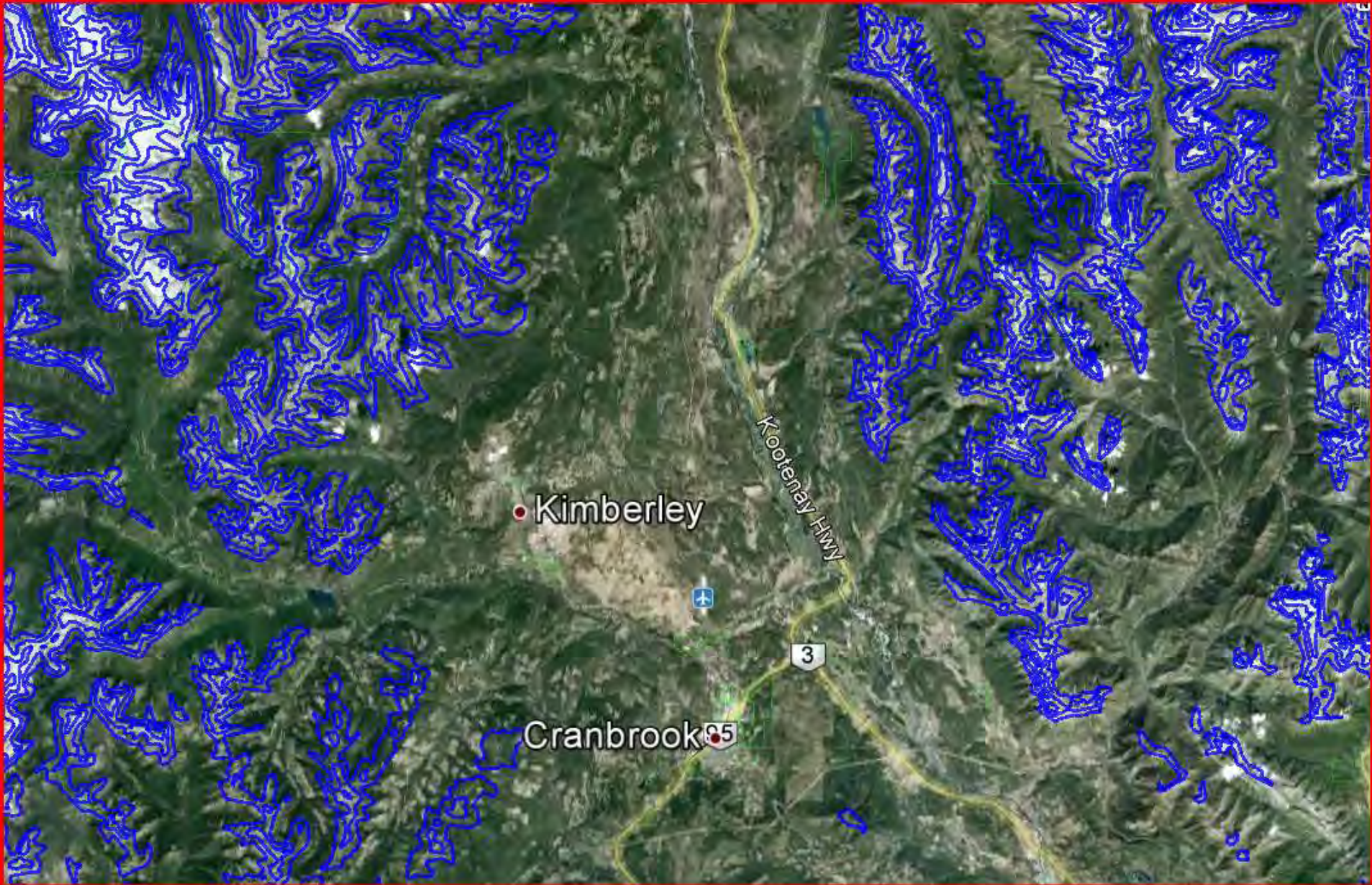


BRITISH
COLUMBIA



Pinus albicaulis Engelm. – Whitebark pine Range in British Columbia



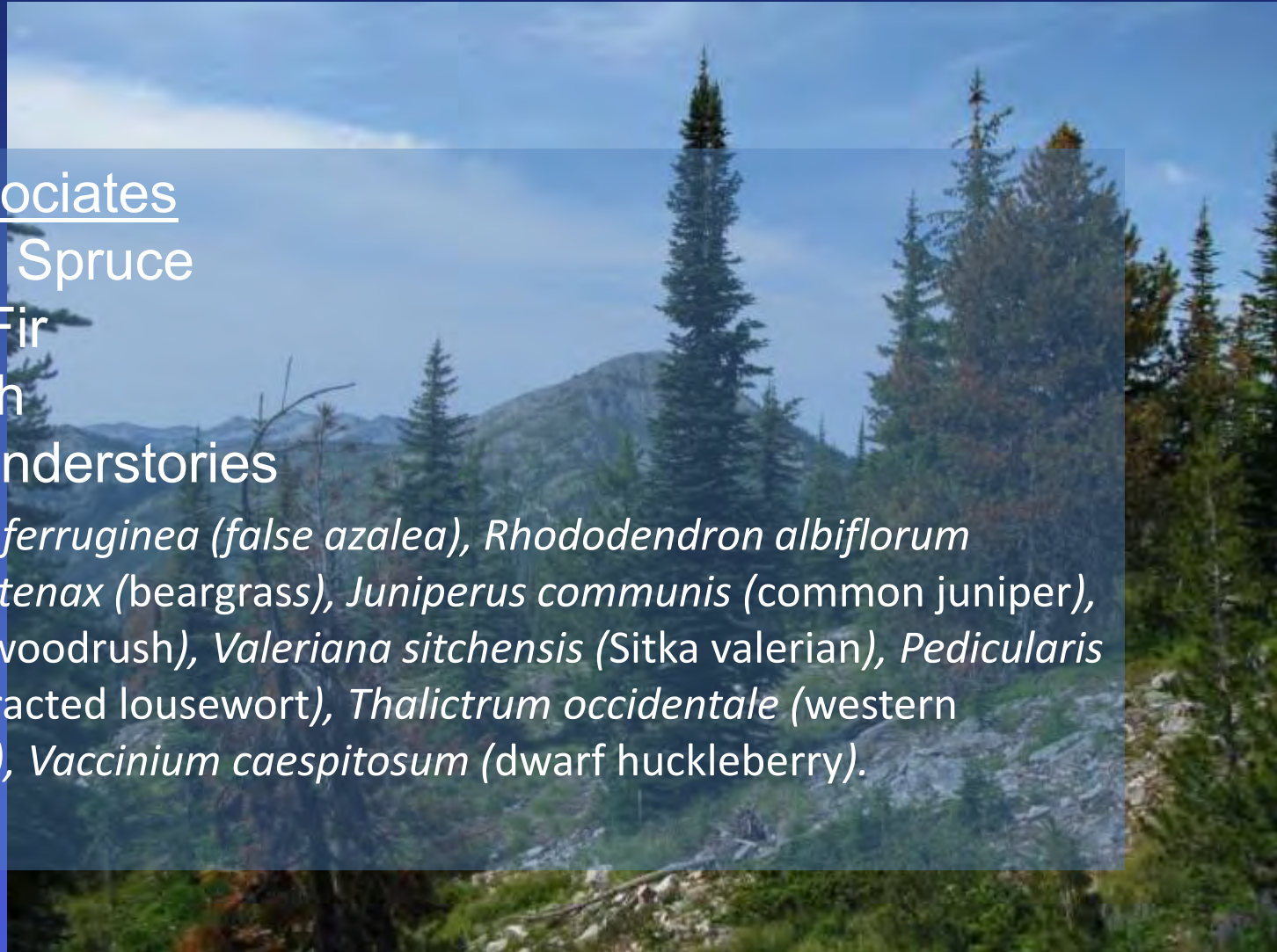


Whitebark Pine

Common Associates

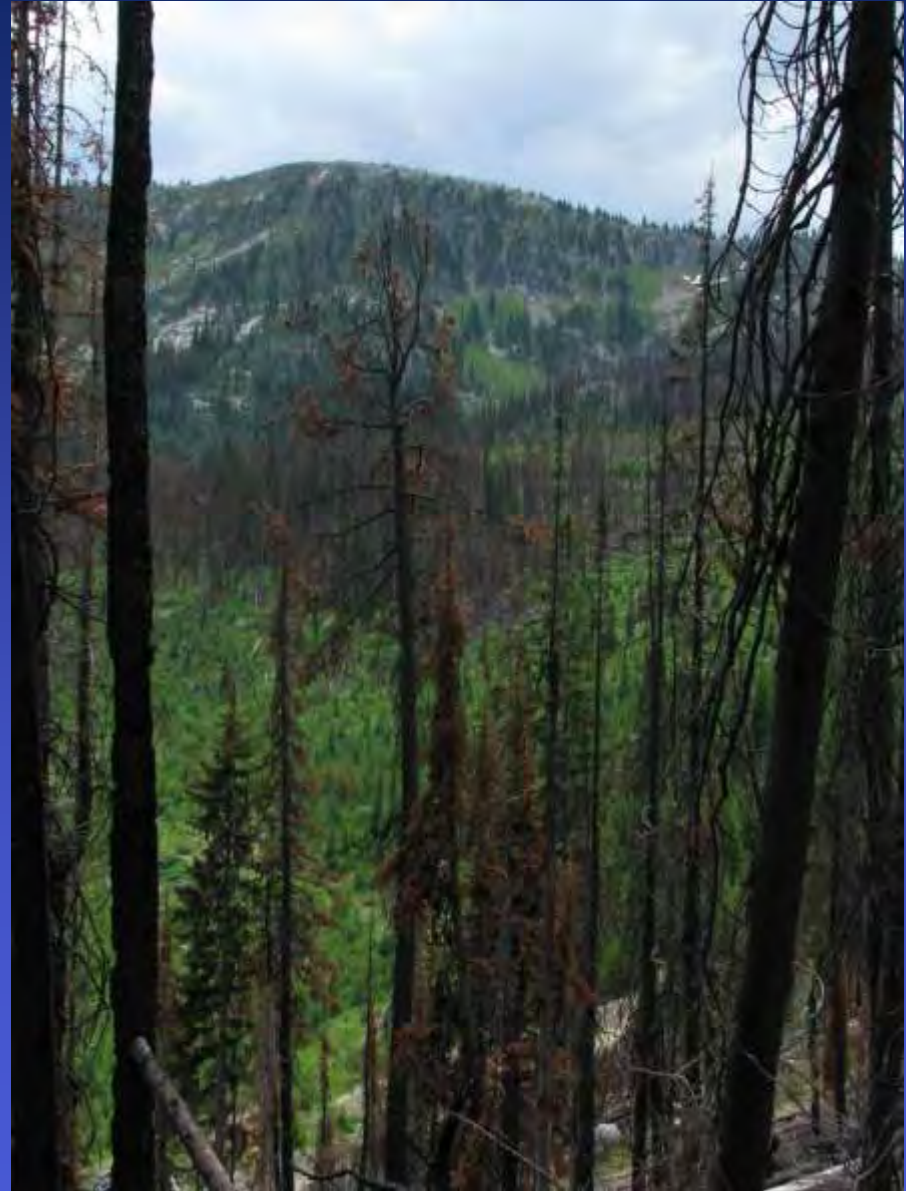
- Engelmann Spruce
- Subalpine Fir
- Alpine Larch
- Common Understories

- *Menziesia ferruginea* (false azalea), *Rhododendron albiflorum*
Xerophyllum tenax (beargrass), *Juniperus communis* (common juniper),
Luzula spp. (woodrush), *Valeriana sitchensis* (Sitka valerian), *Pedicularis
bracteosa* (bracted lousewort), *Thalictrum occidentale* (western
meadow rue), *Vaccinium caespitosum* (dwarf huckleberry).



Forest Health

Fire



Blister Rust Disease



EVIL



White Pine Blister Rust (*Cronatium ribicola*)

Native to Eurasia - Siberia

Introduced 1910

- **Vancouver, BC**
- **Possibly other ports**



- **Airborne Spores enter through needles**
- **Travel towards stem**
- **Damage living tissue**
- **Girdle the tree**
- **Often kills cone-bearing branches first**



White Pine Blister Rust

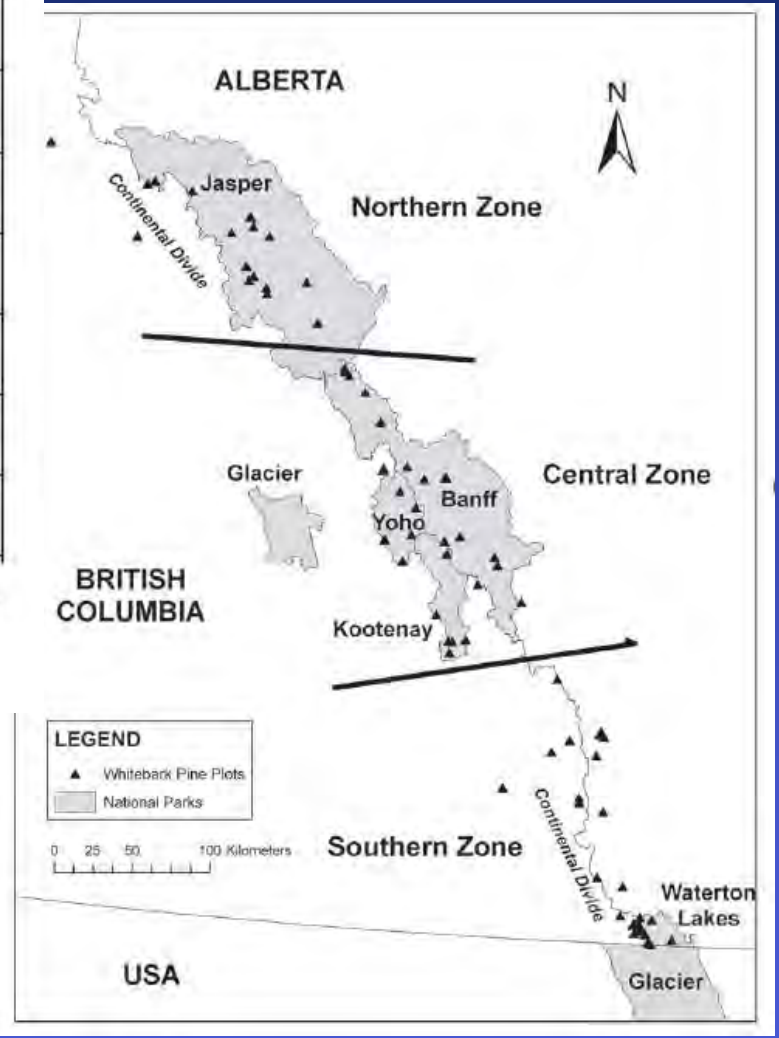
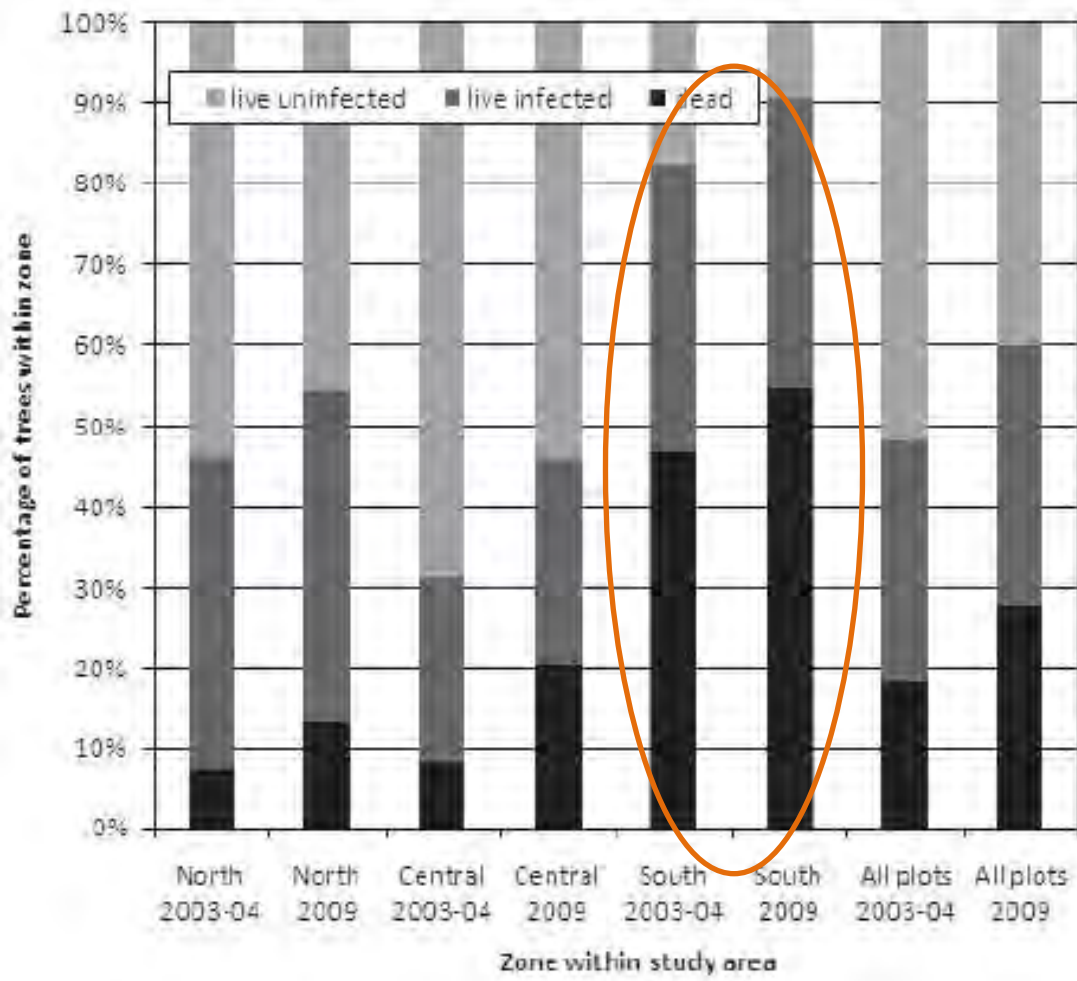
Western White, Whitebark, Limber



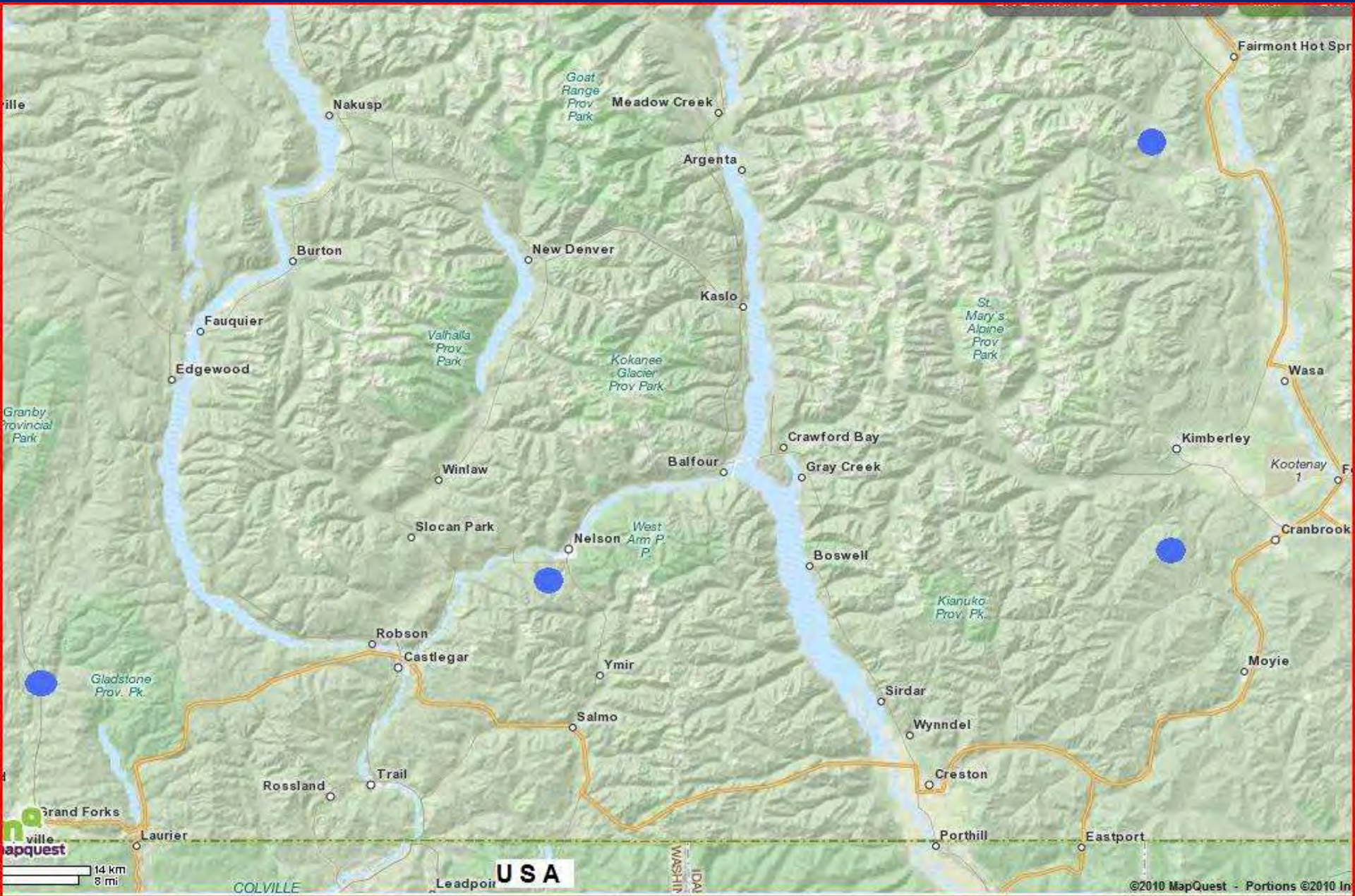
Blister Rust Incidence

Blister Rust Incidence (% trees within a stand)	Location	Source
14 – 71%	Kootenays (BC)	Murray 2010
16 - 73%	Continental Divide (BC/AB)	Smith 2010

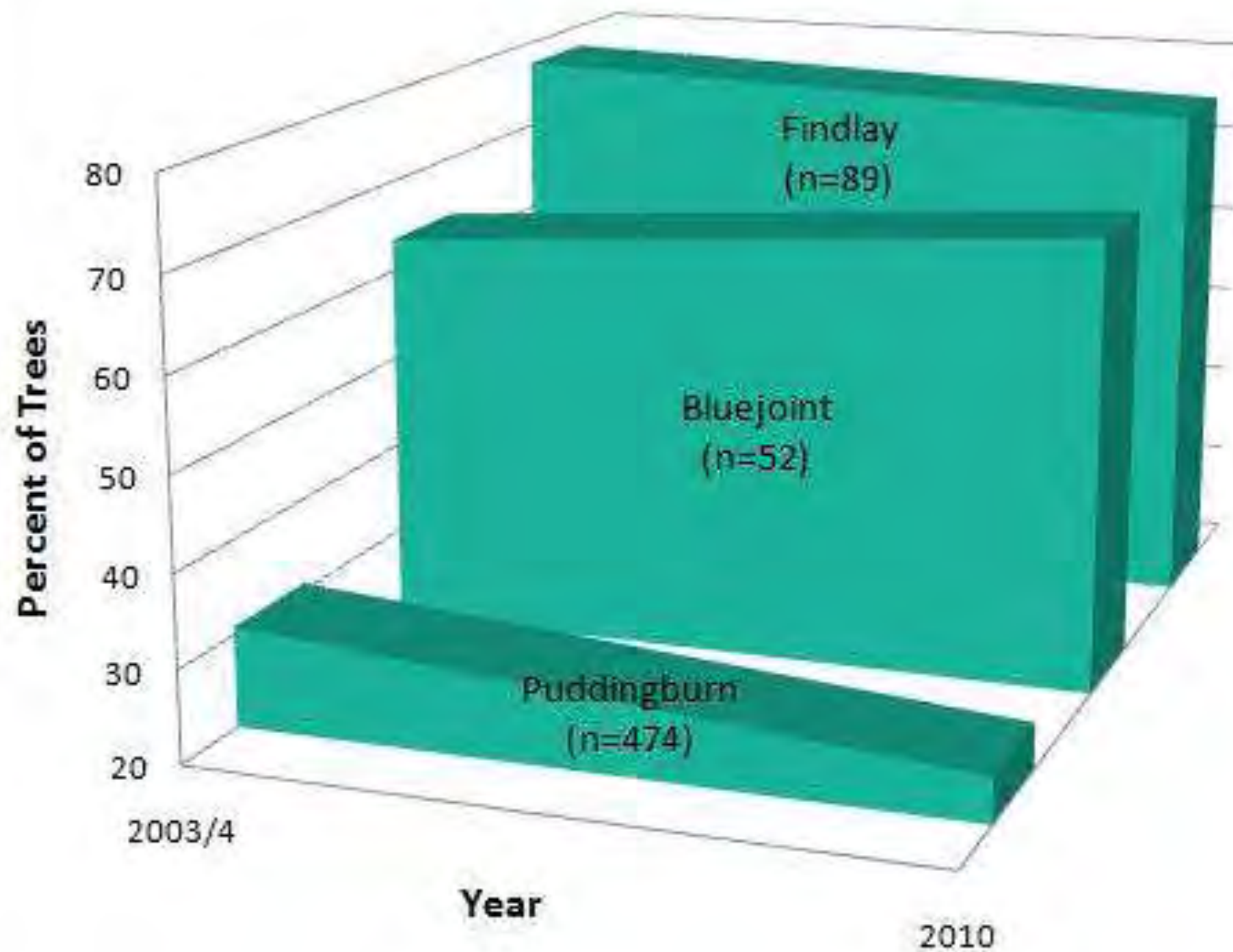




[Re-measurement of whitebark pine infection and mortality in the Canadian Rockies.](#) Smith, Cyndi M.; Shepherd, Brenda; Gillies, Cameron; Stuart-Smith, Jon. 2011. In: Keane, Robert E.; Tomback, Diana F.; Murray, Michael P.; and Smith, Cyndi M., eds. 2011. The future of high-elevation, five-needle white pines in Western North America: Proceedings of the High Five Symposium. 28-30 June 2010; Missoula, MT. Proceedings RMRS-P-63. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.



Healthy Whitebark Pine





Blister Rust

What Can We Do?

- Prune infected branches
- Currant (*Ribes*) eradication
- Chemical control
 - Triadimefon (foliar spray or fertilizer plug)
- Rust resistance screening & breeding

Adapted from: Hoff and others (2001)

Blister Rust Screening

Selection &
Collection

Propagation
& Rearing

Inoculation

Repeated
Observation

Disease
Resistant
Trees



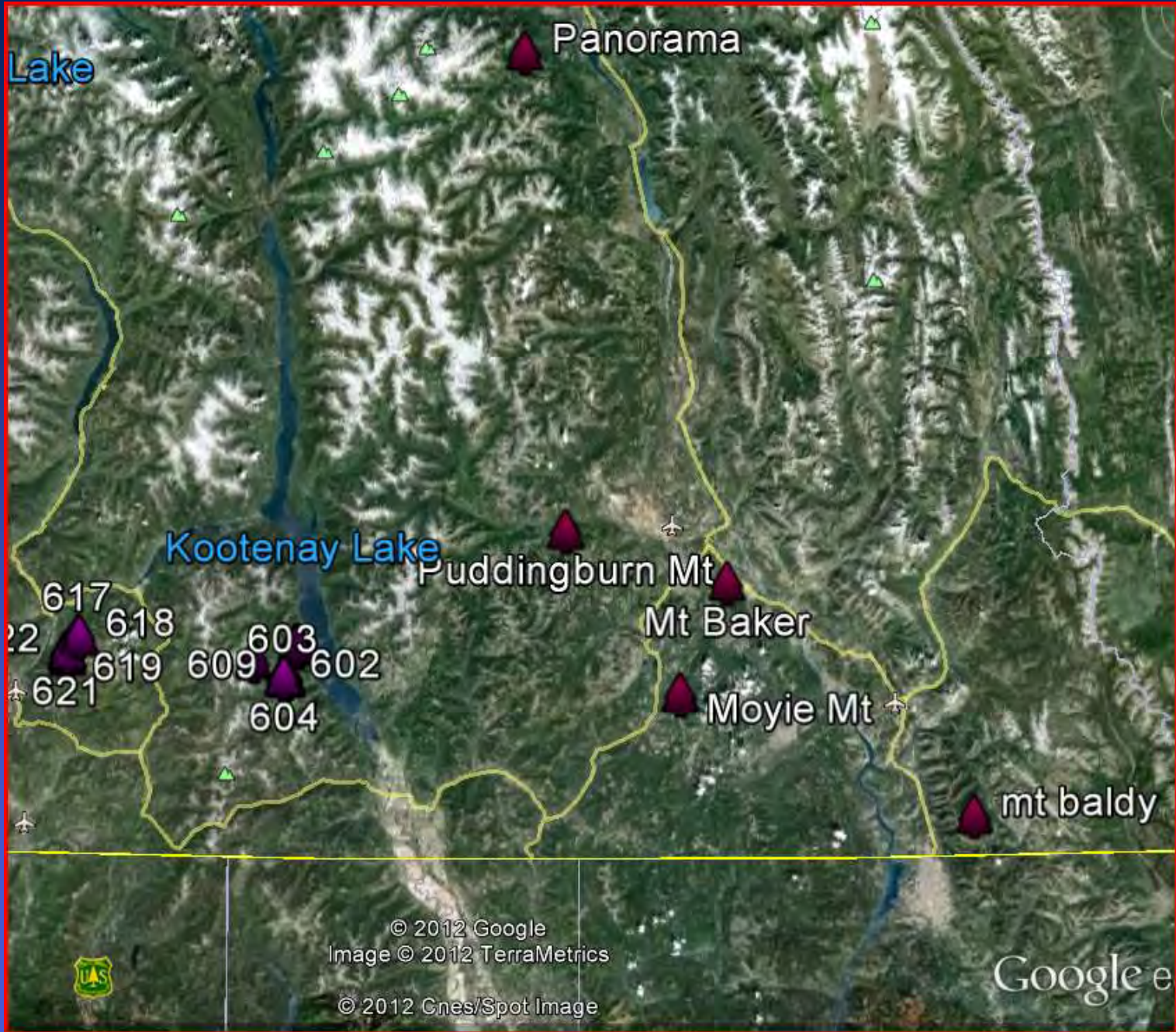
USA

60 Resistant Parent Trees

~2,000 acres Planted

~200,000 trees Planted





Lake

Panorama

Kootenay Lake

Puddingburn Mt

Mt Baker

Moyie Mt

mt baldy

617
618
619
609
603
602
604
621

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Puddingburn Mtn. July 2010



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