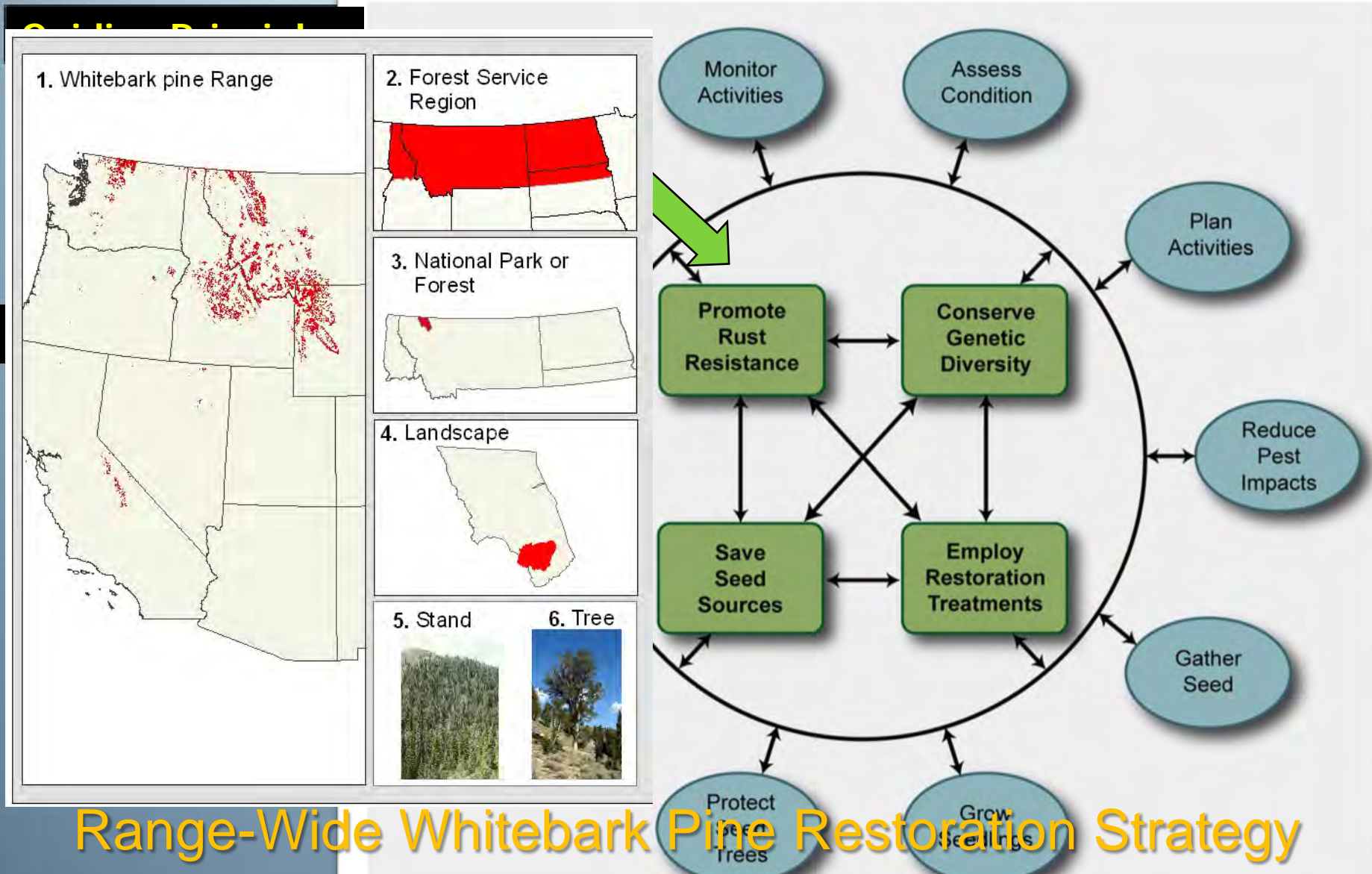




**Whitebark Pine Restoration on the
Flathead National Forest;
Implementing Principles of
*A Range-Wide Restoration Strategy for
Whitebark Pine, 2012***

**Melissa Jenkins, Forest Silviculturist
Flathead NF**

The Whitebark Pine Strategy:



Range-Wide Whitebark Pine Restoration Strategy

www.fs.fed.us/rm/pubs/rmrs_gtr279.html

The Flathead NF Loves WbP!!

Cone Caging



Transporting Cages



Monitoring



Scion Collection



Tree Planting- MCC Crew



Flathead NF Restoration Activities

- Mapping/Activity Prioritization
- Genetic rust resistance breeding work
- Protection of cone bearing trees
- Plant, plant, plant!
- Silvicultural treatments
- Prescribed burning
- Monitoring

High Rust Mortality Across Flathead NF



WBP Range/Restoration Mapping

LEGEND

- 
- A legend box with a grey background and a white border. It contains several entries, each with a colored symbol and a text label. A compass rose is located to the right of the first two entries. The entries are: a light green square for 'Whitebark Pine Potential Range'; a vertical color gradient from yellow to red for 'High Restoration Suitability' and 'Low'; a green outline for 'Forest Boundary'; a thick grey line for 'Highway'; a thin yellow line for 'Road: Light Duty: Paved'; a thin orange line for 'Road: Light Duty: Unspecified Composition'; a dashed brown line for 'Road: 4WD/Unimproved'; and a dotted black line for 'Trail'.
- Whitebark Pine Potential Range
 - High Restoration Suitability
 - Low
 - Forest Boundary
 - Highway
 - Road: Light Duty: Paved
 - Road: Light Duty: Unspecified Composition
 - Road: 4WD/Unimproved
 - Trail



RSAC-Ian Houseman

Rust Resistance Breeding Program

- Identify trees w/phenotypic resistance
- Collect seeds and grow seedlings
- Collect aeciospores- expose seedlings to rust
- Plant seedlings and monitor for 5 years
- Collect scion for grafting
- Plant grafts in seed orchard
- Collect pollen- mass pollination



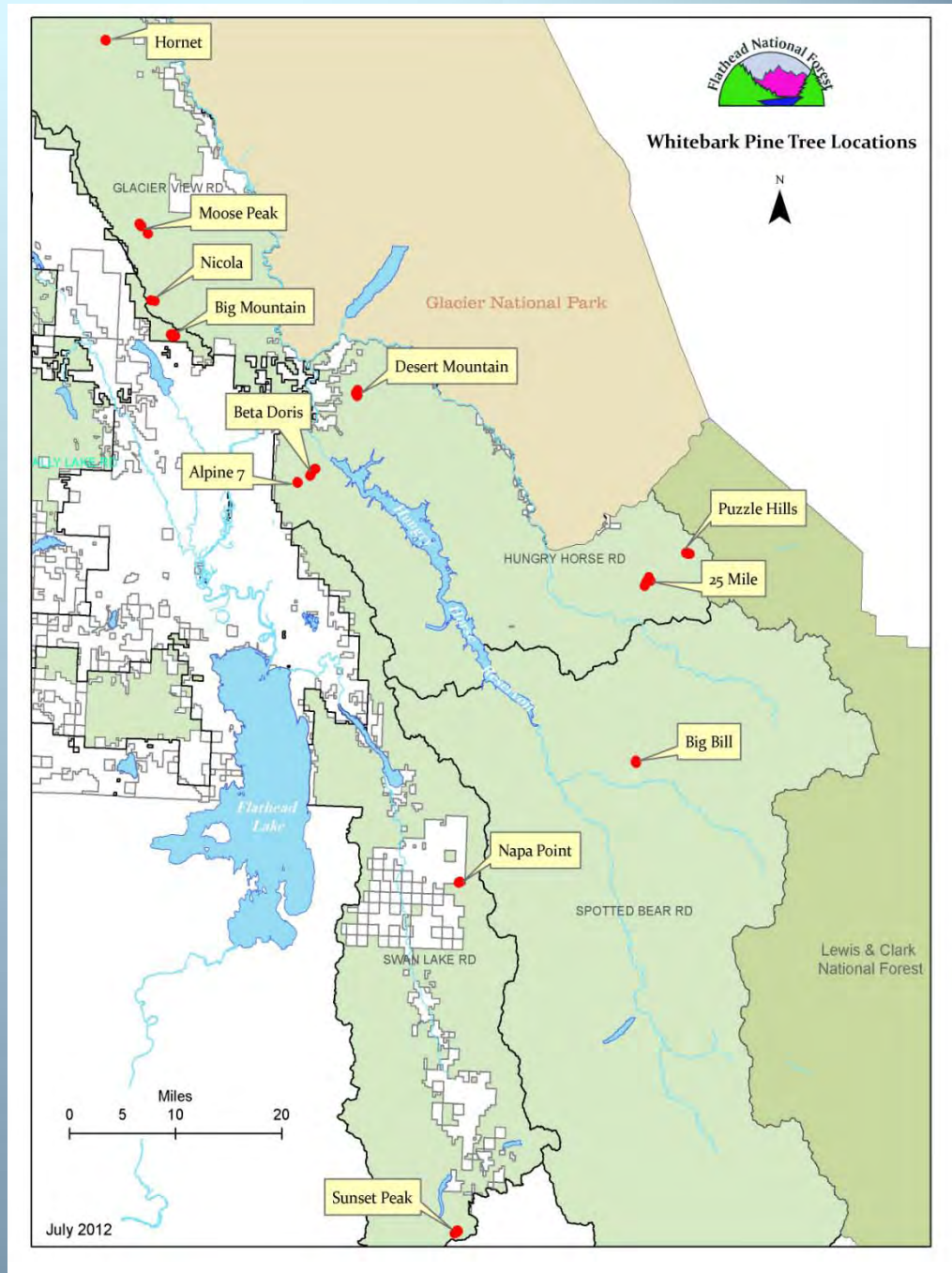
Identify “Plus” Trees

Easy to do with heavy rust mortality



Identify Plus Trees

- 59 trees identified through 2000-2011
- 6 trees lost to fire
- 3 trees lost to MPB
- 1 tree lost to rust
- 1 tree lost to unknown
- Currently 48 trees total survive on 12 sites across the Flathead Forest



Collect Cones

- **Grow seedlings for rust screening and operational outplanting**
- **Cage to protect cones from predation**
- **Collect when mature: mid-September**
- **Both contract and force account climbers = flexibility**
- **141 tree collection in 2011= 81 lbs seed**



Collect Aeciospores-Innoculate Ribes

Garden



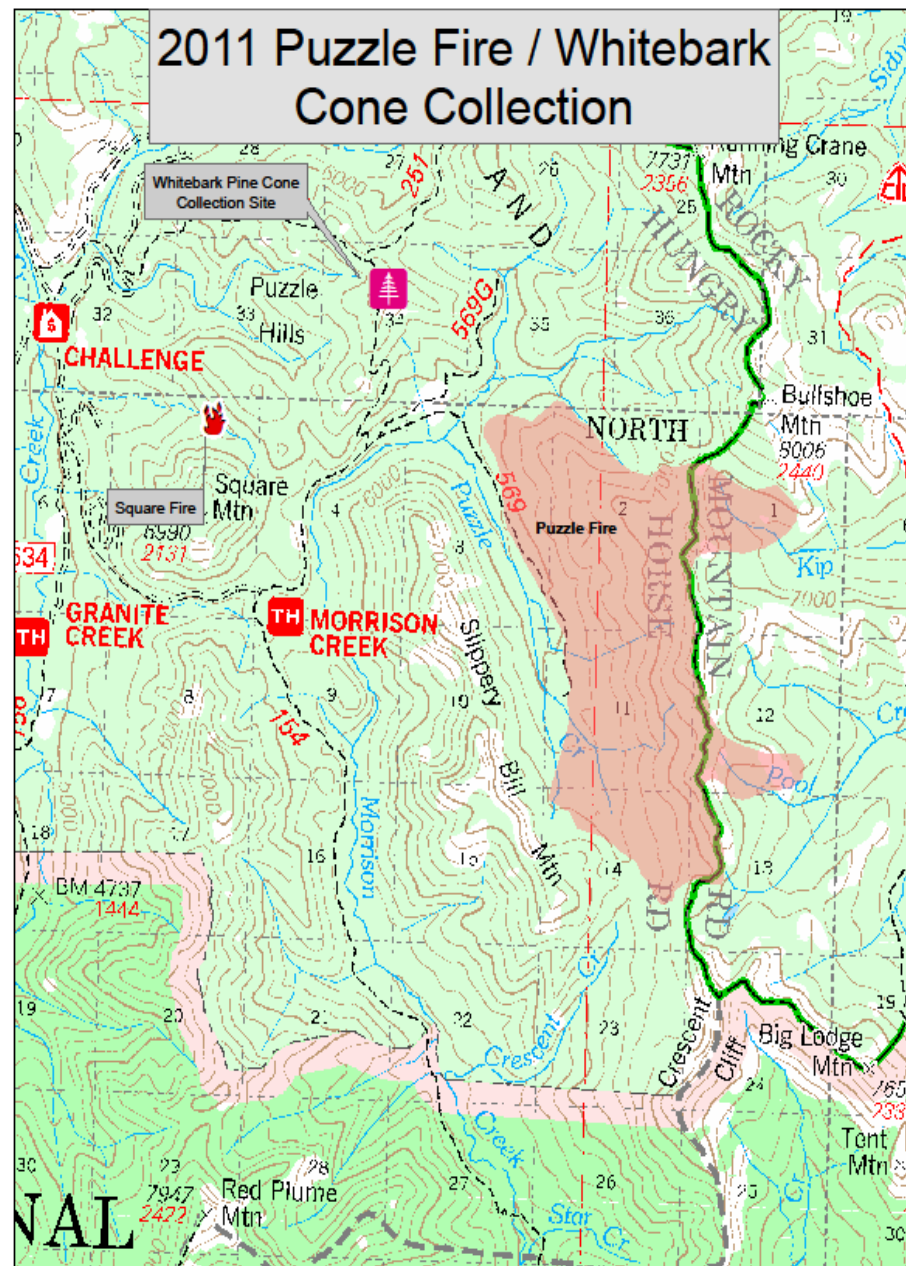
Collect Scion- Seed Orchard Grafts

- Scion collected from 10 plus trees since 2010



WBP Scion Collection 2011

- Six plus trees collected on 9/13/2011.
- 10 grafts made for each plus tree on 9/28/2011.
- Grafts relatively successful!



Conelet on graft at whitebark seed orchard- Hope for the future!!!!



Collect Pollen-Orchard Pollination



Plant Seedlings

1998 Challenge Fire



- Critical on the FNF because little seed available for caching
- Rx burns incorporate planting where possible
- Select historic whitebark sites with little competition



MICROSITE!!!!

2012 Condon Mt Fire



Planting Accessibility Issues

Burned areas of South Fork Lost Creek Fire 2011
Poor Accessibility (Helicopter in WBP seedlings)

Topography extremely steep (60-70% slope)

Stored WBP seedlings on site 6/21-Planted 6/25



Flathead WBP Planting

2000= 52 acres on two sites
14th year survival = 30% & 70%

2010-2013; 180 acres

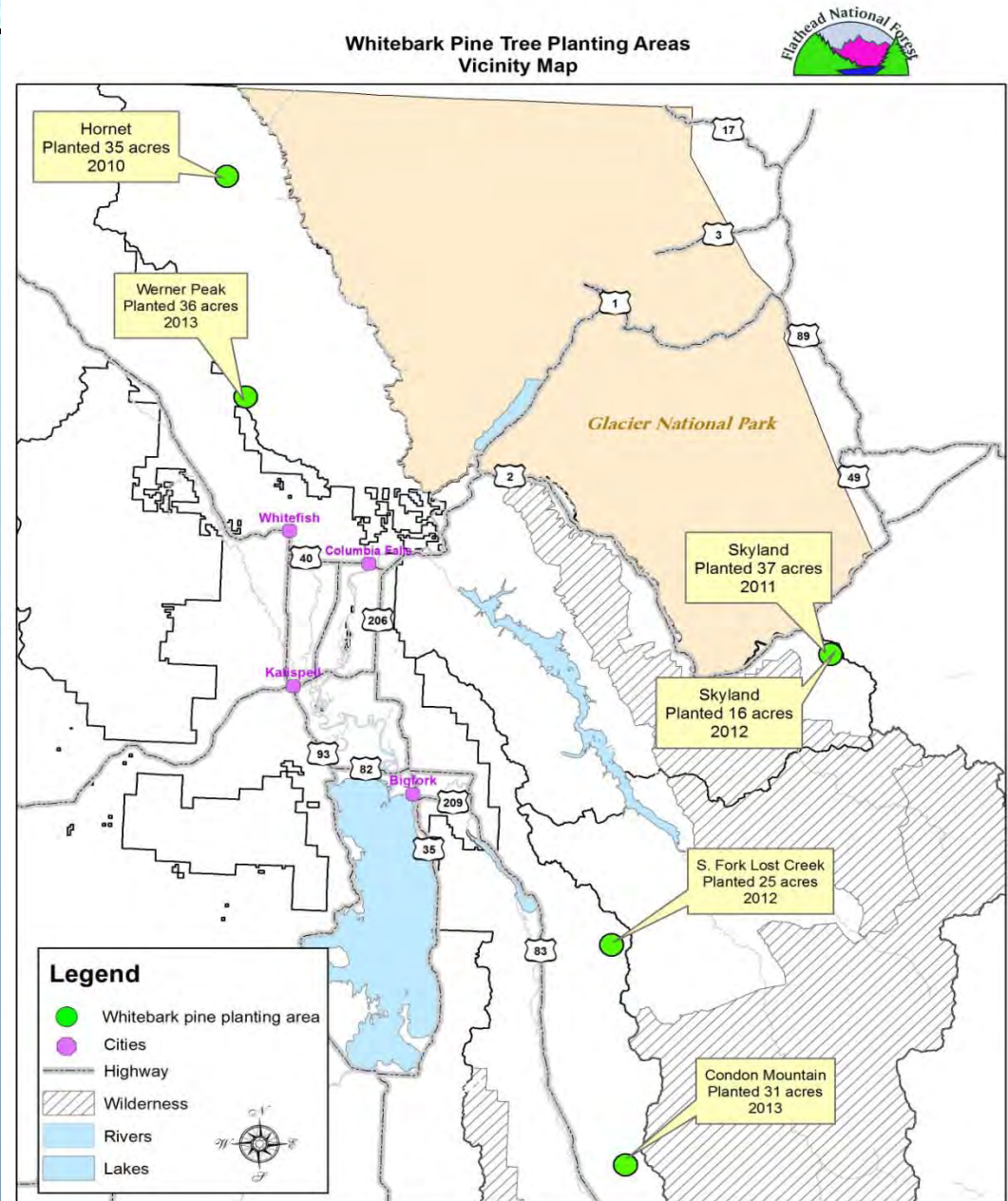
First year survival:

- 2010 - Hornet 96%
- 2011 - Skyland 98%
- 2012 - Skyland 92%
- 2013- Werner 98%

Third year survival:

- 2012 - Hornet 93%
- 2013 - Skyland 75%
(missing stakes)

75M (375 ac) sowed for
2014, 2015 & 2016

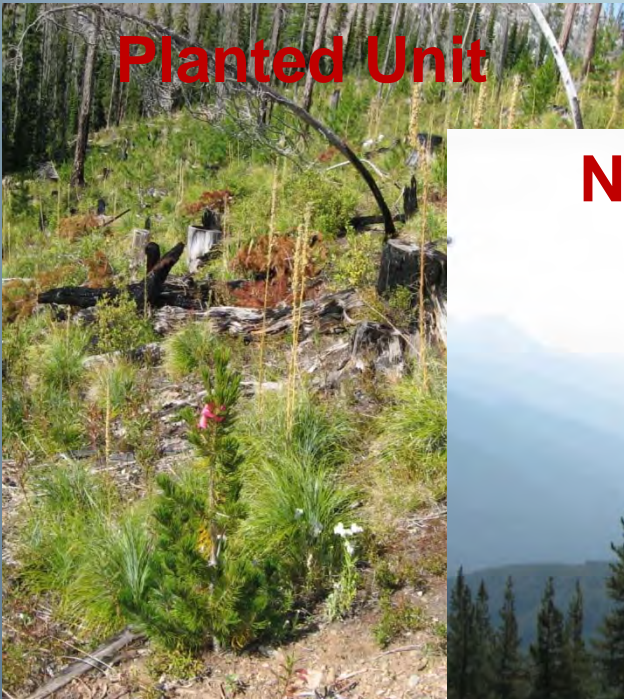


Silvicultural Treatments

Daylight Thinning

- 2009: 23 acres-MCC crew
- 2013: 60 acres- contract crew
- Lynx habitat requirements limit acres we can treat

Planted Unit



Natural Regeneration Units



Cone Bearing Tree Protection

- Daylight thin plus trees
- Important pops identified on map layer
- Anti aggregant pheromones
- Carbaryl application



Backcountry Mule Sprayer

- Developed with MTDC
- Go anywhere with a trail
- Application 40+ ft high
- Once on site-human transport between trees



Monitoring

**BMWF Volunteers Re-reading
Keane's 1994 plots**



**Monitoring Planted Seedling
Survival**



**Also: Monitoring for SW Crown of the Continent Collaborative
Forest Landscape Restoration Project- Cara Nelson, U of MT**

NCDE 5-Needle Working Group

2013 Meeting- Lolo NF WBP Seed Orchard



Questions???

