University of Idaho
College of Natural Resources

# ASSESSING POST-WILDFIRE REGENERATION

## NON-DESTRUCTIVE CONIFER SEEDLING AGING

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JOINT FIRE SCIENCE PROGRAM

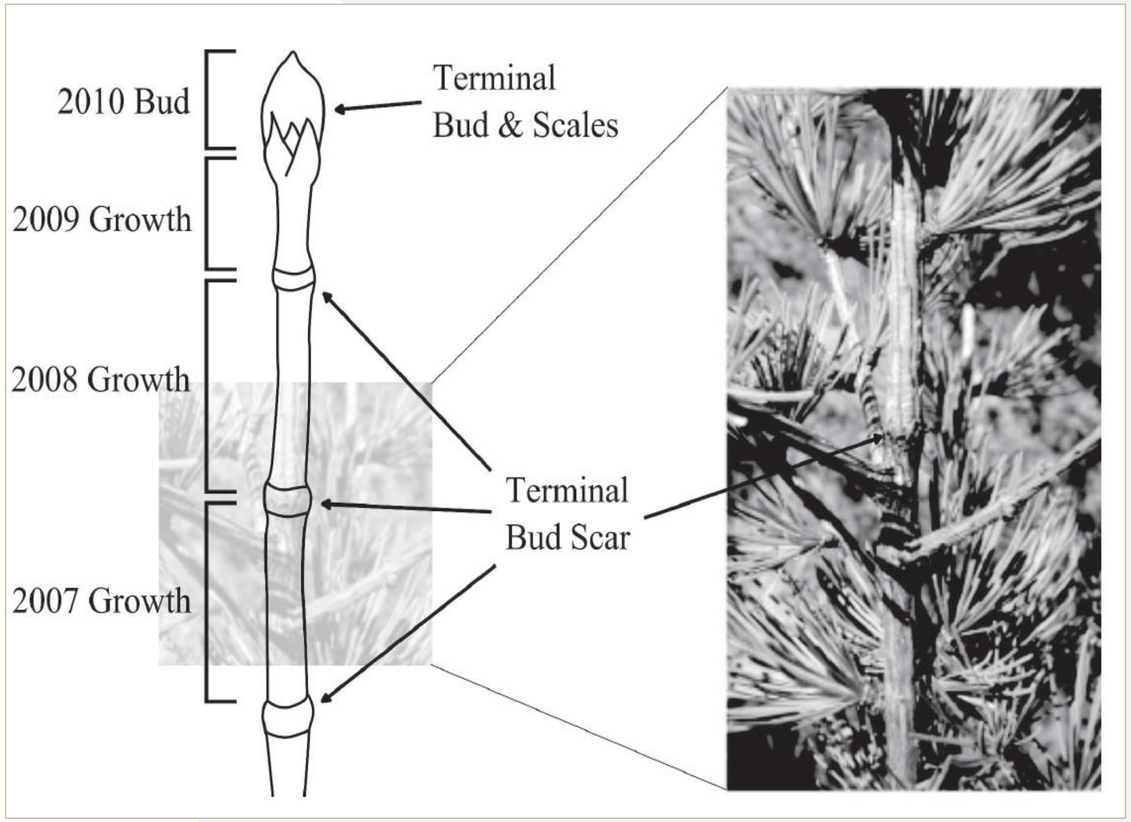
# POST-FIRE REGENERATION

- Measuring post-fire conifer establishment date and growth is an important part of monitoring ecosystem recovery and trajectory following fires

# SEEDLING AGING METHODS

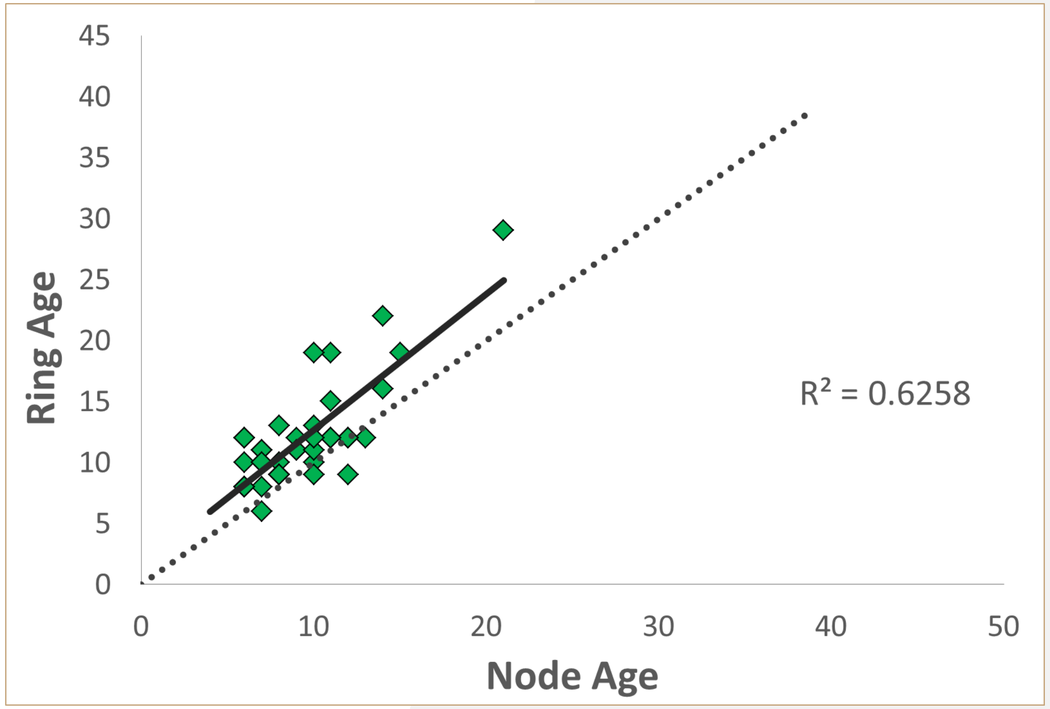
- Most methods are destructive
  - Counting rings
  - Coring
- Accuracy is generally better with destructive methods but not perfect
- Non-destructive methods are generally faster and require less processing

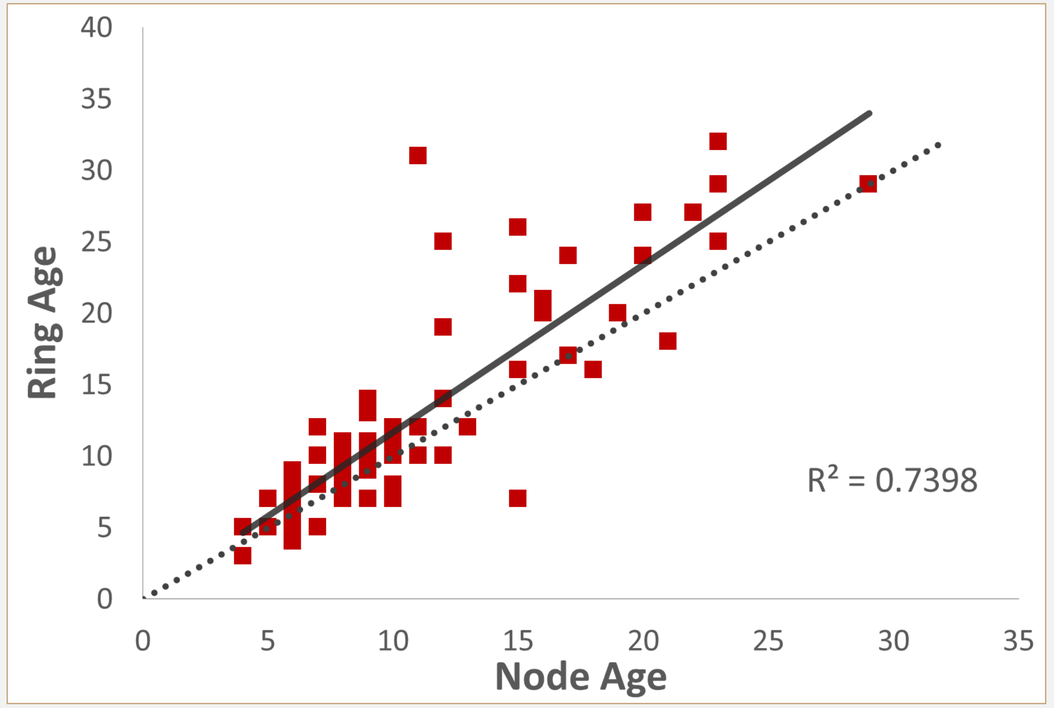
# NODE COUNT METHOD

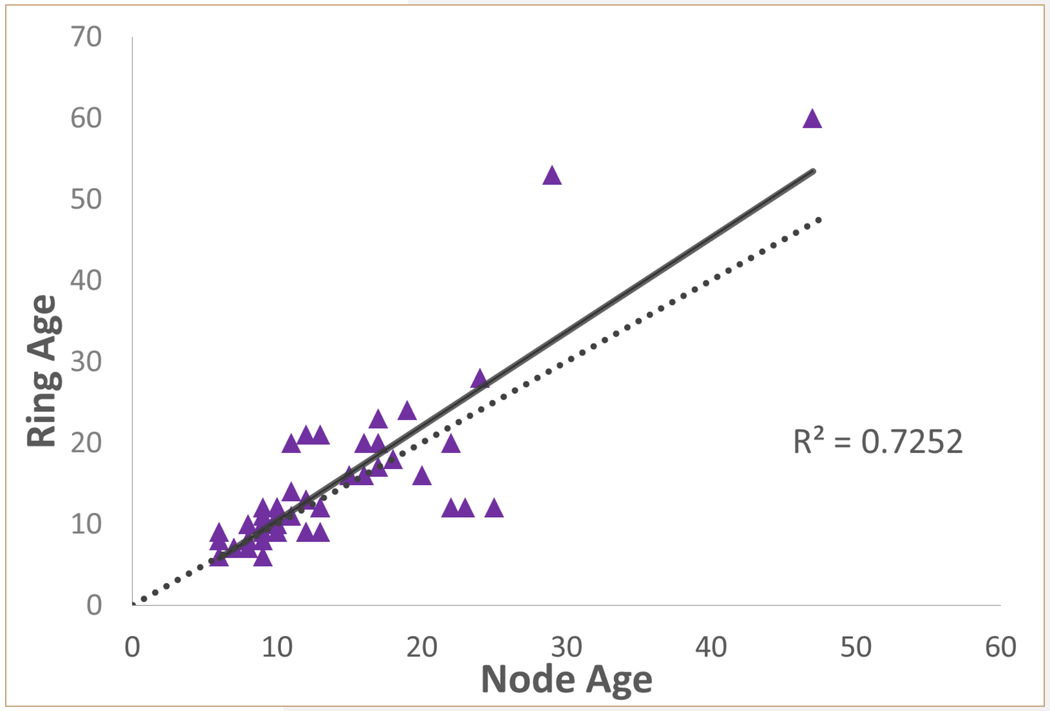


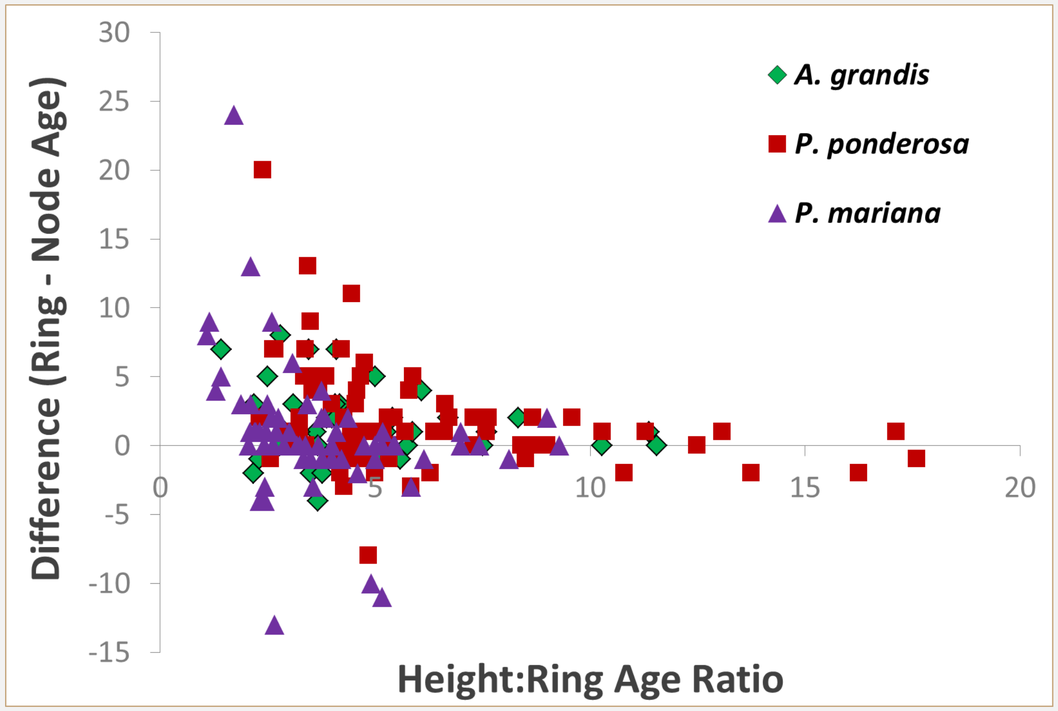

Urza & Sibold 2013

| Species | *P. ponderosa* | *P. mariana* | *A. grandis* |
|---|---|---|---|
| **RMSE** | 4.2 | 0.9 | 1.3 |
| **Mean Error** | 1.8 | 0.8 | 1.6 |
| **% Accuracy (0)** | 17% | 27% | 18% |
| **% Accuracy +/- 1** | 49% | 56% | 45% |


Ring Age
Node Age
R² = 0.6258


Ring Age
Node Age
R² = 0.7398


Ring Age
Node Age
R² = 0.7252


Difference (Ring - Node Age)
Height:Ring Age Ratio
A. grandis
P. ponderosa
P. mariana

# WHAT ABOUT OTHER SPECIES?

- Urza & Sibold 2013
  - Western larch – least accurate (45%), highest RMSE (2.7)
  - Lodgepole pine
  - Englemann spruce – most accurate (62%), lowest RMSE (0.98)
  - Douglas-fir

# NEXT STEP: FIELD GUIDE

- What should we add? What would be the most helpful?
- What we're planning to include
  - Accuracy estimates for our species and others from the literature
  - Best practices for using this method

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