



# WMNC

## Signature Lessons & Activities

### #6: Forest Health Matters, Too!

#### Enduring Understandings

1. We can't achieve effective management without considering individual tree health.
2. In arid Arizona, ponderosa pine trees compete for limited water, light, soil nutrients, and space.
3. Without sufficient resources, individual trees suffer the effects of **competition**-the more trees there are per acre the greater the competition.
4. Overstocked forests, or "dog-hair thickets," will face one of two avenues for eventual demise. Dense thickets will either burn quickly in a wildfire or face a slow decline in health due to competition with other trees.
5. As tree health declines and trees are starved of water, light, and nutrients, they become more susceptible to insects, such as pine bark beetles.
6. Thinning overstocked pines dramatically improves the health and longevity of both of the few remaining mature "yellow" pines, and releases once-stunted trees by reducing competition and improving growing conditions.

## Essential Questions

1. Why must we consider individual tree health to achieve effective management of Arizona's forest?
2. How do forest managers determine the health of a forest?
3. How does thinning treatments improve the health and longevity of both of the few remaining mature "yellow " pines by reducing competition

### By Participating in this WMNC lesson:

*Participants will.....*

- Understand that Arizona's forests compete for limited water, light , soil nutrients, and space. Without sufficient resources, individual trees suffer the effects of completion
  - Examine and observe overstacked forests, or dog-haired thickets, and understand why competition of water, light, soil nutrients, and space impact the health of the individual tree and overall health of the forest
  - Review the thinning treatments and prescribed burn policies to understand and why they improve the health of a forest
- Examine the effects of competition on tree health and there susceptibility to insects, such as the pine bark beetle

## Evidence of Achievement

*Participants will.....*

- Draw conclusions about general forest health
- Capture a personal reflection on the effects of competition of resources on the Ponderosa pines of Arizona
- In discussion understand the tools used to make determinations of treatments for specific plots of forests
- Develop an outline of a classroom presentation appropriate for their professional application, including suggestions on how to accommodate diverse learners.