# Citizen Science Forestry Fieldtrip Lesson Plan: Falls Creek

## Program Objectives

* Empower citizens to research and engage with their local ecosystems
* Deepen the local understanding of the connections between forest health and water, drought, fire, insects, diseases and human activities
* Promote curiosity and the use of scientific methods to answer questions and share results across the region
* Collect baseline measurements of forest and watershed conditions

## Talking points *(depending on experience):*

#### Beetles:

* Beetle life cycles, carrying capacity, and movement across the landscape (maps, diagrams)
* Beetles are native species, but climate change and human management impact their abundance
* Signs of beetles: boring dust, pitch tubes, pitch steamers, galleries, yellowing needles

#### Fire Ecology & Mitigation:

* Before Anglo-American settlement, Ponderosa forests burned about every 5-30 years, but we have suppressed fires for about 100
* Cool, moist, higher elevation forests (spruce-fir) burn about every 200-400 years in intense, stand-replacing events
* Fire thins the understory and removes ladder fuels, preventing hotter & more intense fires
* High severity fires, however, do create a mosaic of diverse habitats (food, shelter, light, moisture)
* Fire severity is determined by the heat impacts in the soil (root death, hydrophobic soil layer severity)
* Manual thinning of trees can help reduce tree density and fire risk on private property, but does not play the same role in the ecosystem as fire (leaves buildup of fine fuels- needles etc.)

## Supplies & Resources:

* Project Learning Tree forest inventory activities (printed for group breakup)
* Forest health citizen science monitoring datasheet
* Downloaded Survey123 form
* Camera (for plot photos and action shots)
* Blindfolds (Meet a Tree), poker chips (Every Tree)
* Ph kits, shovel, cups, DI water, eyedropper (soil quality lesson)
* Beetle Identification Guide; Beetle impact map, CSFS
* Spruce Budworm Quick Guide, Douglas-Fir Beetle Quick Guide, CSFS
* Fire return interval graphic
* Tree Cookies
* Helpful forestry supplies: transect tapes (x4) for plot and measuring trees, reference staff, chaining pins (x4), DBH tapes (x2)
* Optional forestry supplies: hypsometer, hatchet, increment borer

## Draft Schedule:

8:15-8:30 Leave School

9:00 Arrive at Falls Creek

9:10 Overview of fire ecology with Laurel

9:25 Fire mitigation and restoration with Paulette Church, Falls Creek HOA

9:45 Walk to first site (burned)

10:00 Start plot research in four groups

11:45 Break for lunch

12:30 Start second plot (not burned)

2:00 Wrap up Discussion

2:15 Load up and return to Escalante

3:00 Arrive at Escalante

## **Burn Plot Group Tasks** (First site)

Everyone: Survey123 Soil Test in groups

#### Group 1

Survey123 on SW quadrant

Soil Condition

#### Group 2

Survey123 form on NE quadrant

 Forest Diversity

Wildlife in whole area

#### Group 3

Survey123 on NW quadrant

Snags & Debris

#### Group 4

Survey123 on SE quadrant

Tree & Crown Conditions

 Regeneration

## **Unburned Plot Group Tasks** (Second site)

Everyone: Survey123 Soil Test together

#### Group 1

Survey123 on SW quadrant

Tree & Crown Conditions

 Regeneration

#### Group 2

Survey123 on NE quadrant

Soil Condition

#### Group 3

Survey123 form on NW quadrant

 Forest Diversity

Wildlife in whole area

#### Group 4

 Survey123 on SE quadrant

Snags & Debris

#### All when finished (if time allows)

* Begin to fill in Forest Health Summary Sheet.
* Pick 5 trees outside of plot and measure with Survey123 form. Mark tree ID as 000 in survey.

## Discussion Questions

 What is something that you learned today?

What roles does fire play in the forest?

How does fire affect soil and runoff?

What do you think will happen to the burned areas in future years?

How can people protect themselves and their homes from fire?