

Introduction (5 minutes)

- Introduce myself and PINEMAP
- Discuss what I did this summer to tie in the lesson

Introduce American chestnut (*Castanea dentata*) (10 minutes)

- Give history : hearty tree, made up a lot of the hardwood in the forest (show chestnut husks and seeds)
- Blight coming into play and taking out many of the large, mature trees, the environmental pressures that occurred from this and that caused this (show them a piece of chestnut bark with the blight)
 - How the blight attacks the trees and causes them to resprout only to have the new sprout die after it was mature enough for the blight to enter and destroy the above ground growth
 - How the loss of this major food source and habitat affected the wildlife
- Backcrossing process and creating the hybrids to get enough genes from the Chinese chestnut to make the trees blight resistant while still keeping as many of the A. chestnut characteristics as possible since it is the native tree.
 - We want to try to restore the natural habitat that was here previously, native species help the current animals prosper. They are also important for the balance in the ecosystem. A nonnative species could completely wipe out another, causing loss of habitat, food, and more for the surviving wildlife species.
 - They exposed them to the blight, seedlings that showed most resistance with the most A. chestnut traits were moved onto the next level. Currently, 1/16th C. chestnut

Planting the A. Chestnut trees (10 minutes)

- Discuss how human activities impact ecosystems and how we are trying to restore some of the habitats
 - Mining, industry, recreation, houses are disrupting wildlife and destroying some ecosystems by wiping out the forests.
- Discuss how many are being planted on the mine sites due to the abundance of abandoned mines and the dry, acidic soil (chestnuts can do well in this environment) and what needs to happen for the seedlings to be successful
 - Mine needs to be contoured well enough to make the soil loose for the roots to be able to spread and the area to drain well.
 - The trees do better if the competition from forbs and *Rubus spp.* is controlled.
- How the trees help bring the soil back to where other species can prosper
 - “Empty Bucket” – the mine sites have no carbon in their soil, the trees are able to pull the carbon in from the atmosphere and help add it back to the soil.
 - Helps make the soil easier for more plant life to live

Actual planting of the seedling (If we cannot get seedlings, I want to try to make a fake one, and I will just do everything inside without planting a tree) (15 minutes)

- Describe the importance of monitoring the trees
 - High survival rate allows for a higher chance of them growing to maturity, bringing back the important hardwood to the forest
 - Rebuilds wildlife habitat
- Describe how I measured the trees to see the survival rate
 - Measured diameter, height, vigor, and browse of every tree located
- Have students measure the newly planted seedling (3 students – 1 to measure the height, 1 to measure the stem diameter, 1 to give a vigor description)
- Ask if they think the seedling will do well and why

Answer questions and ask questions (10 minutes)

- Recap of the talk and ask how they can help, what we could do to help the process be more productive, and what the biggest obstacles are.