Trees through Time: Historical to Present-Day Forest Management

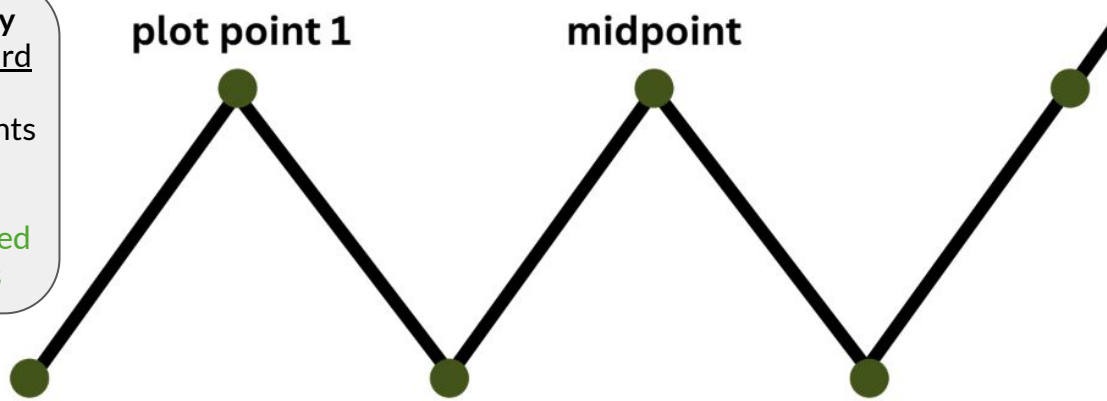
Note: This story is designed to be used within dry, lower elevation forest types in Colorado, such as ponderosa pine and dry mixed-conifer.

7-point story structure

Historical to Present-Day Forest Management

Speaker Cards Key
Location where card should be shown

- Talking points
- *Additional suggestions*
- Values-based statements



hook
Intro: Garden metaphor

plot point 1
Indigenous peoples' use of fire

pinch point 1
European settlers' perception of fire

midpoint
Changing the landscape with fire suppression

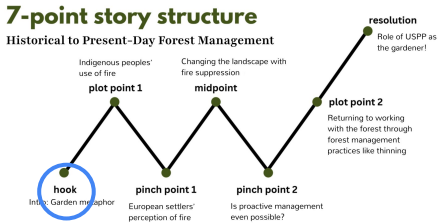
pinch point 2
Is proactive management even possible?

plot point 2
Returning to working with the forest through forest management practices like thinning

resolution
Role of USPP as the gardener!

developed by Dan Wells (2013)

Gardening is a Form of Land Management

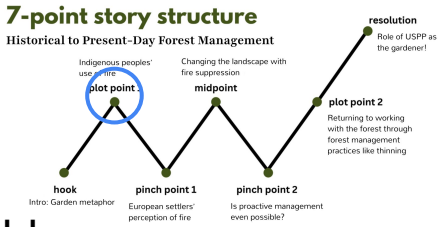


BACK1

<u>When: To be done before the start of the walk/field trip/tour.</u>

- We'll start talking about trees in a minute, but to start, who here has a garden?
  - *For those that do:* What do you like the most about gardening?
- Gardening is one of the most common ways that we connect with nature.
- When you envision a healthy garden, what do you see? What actions do you take to make sure your garden grows well? *Discuss responses.*
  - *Try to get to some of the following points:*
  - Where, what and when you plant matters
  - Plants need space, light, water, and nutrients to grow
  - Weeding helps select for the strongest individual plants
  - Diversity can make a garden more resilient
- Humans and nature are interconnected systems, not separate. Both can benefit from thoughtful management.

Indigenous Peoples Have Used Fire to Manage Forests

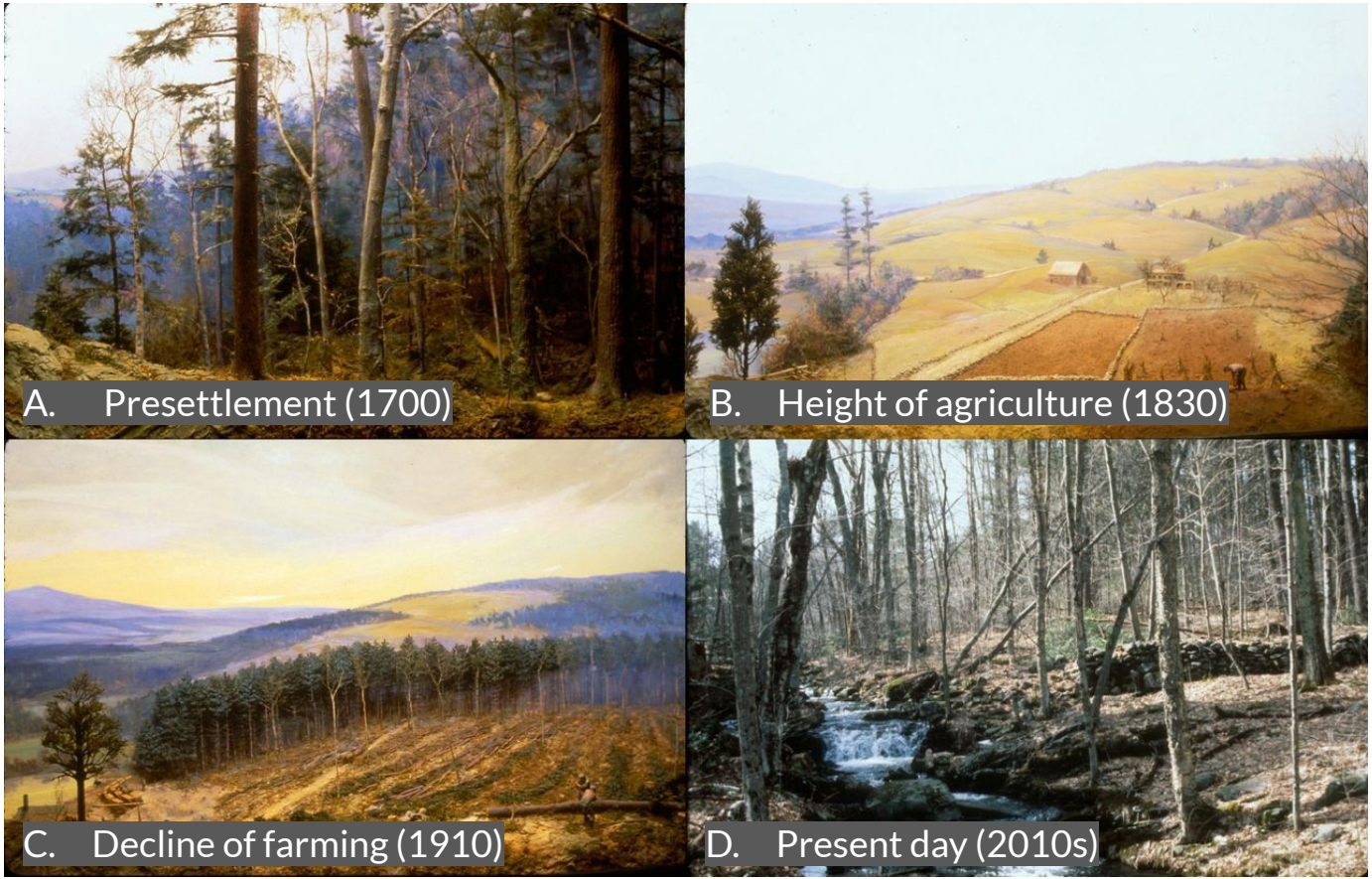


BACK2

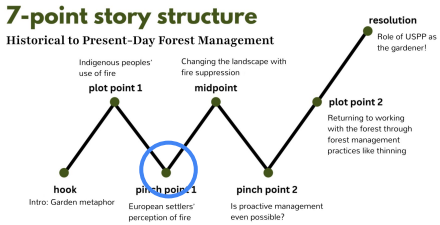
<u>When: A few minutes into the walk. Near actively managed area if possible.</u>

- Caring for a forest is in many ways similar to caring for a garden, and people have been doing this for thousands of years. *Reference additional slide for list of Front Range Tribes.*
- One common strategy is the use of fire. Fire naturally occurs in cycles, periodically "weeding" out the underbrush and allowing new growth to form.
- Why do you think so many Indigenous peoples in the West have used fire?
    - *Listen and respond. Make sure you get to this point:* Native peoples would use fire to enhance food sources, cultural resources, medicinal resources, etc.
- With this frequent use of fire—combined with natural, lightning-caused ignitions— the landscape became a patchwork, with different areas at different stages of growth. Lots of diversity! This provides diverse habitat for wildlife and protects the watershed.
- As a result, severe fires happened less often in our dry forests *(ponderosa pine and dry mixed-conifer)* because there wasn't as much fuel on the landscape.
- Fire was very common on these landscapes before European settlement, and it benefited both people and the ecosystem.

American Settlers Saw Lands in Need of Taming



Zhu, Song & Qin 2019

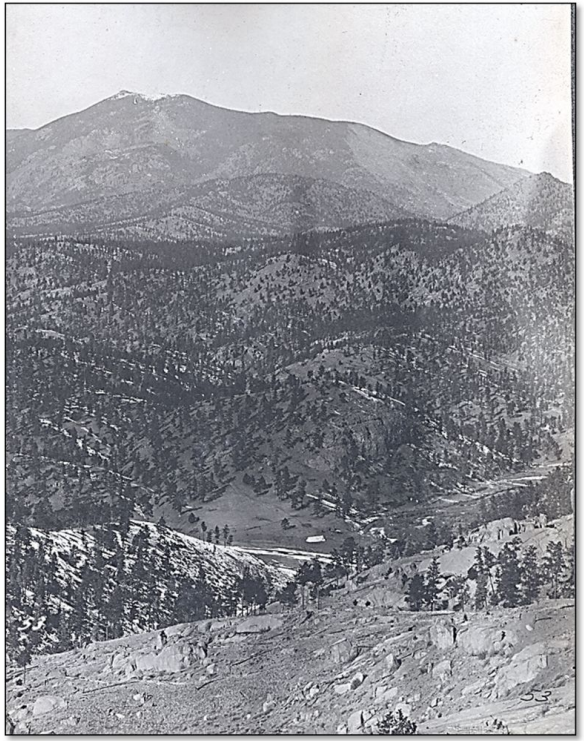


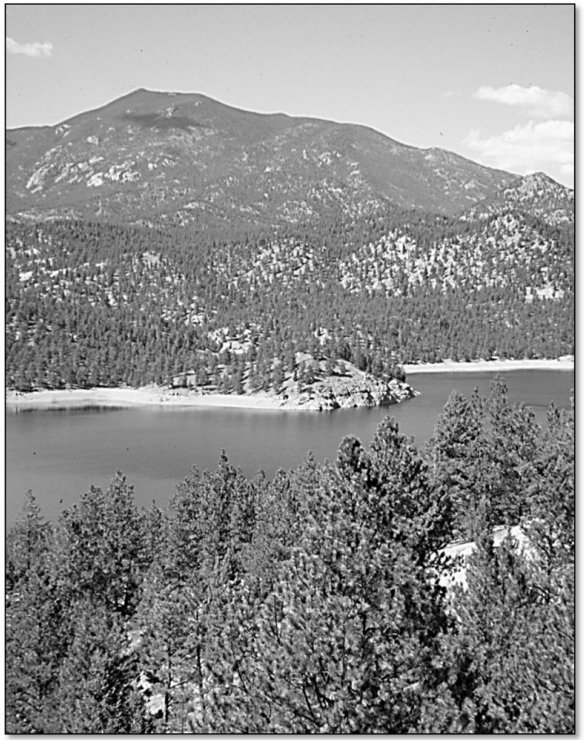
BACK3

<u>When: Near a patch of unmanaged or overgrown forest, or a scenic overlook.</u>

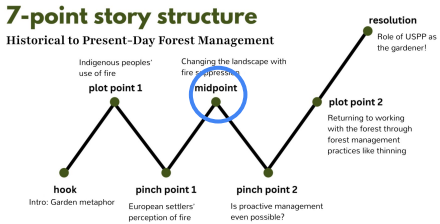
- Let's now imagine the mid-1800s. It's the era of manifest destiny, of the US expanding westward to claim new lands and resources.
- Some of the first American settlers in Colorado were fur trappers and traders, members of the military, and gold prospectors, all seeking a new life out west[1,2].
- These photos show the history of changing forests in New England, one of the earliest settled areas in the US[3]. What do you notice? How is this different from or similar to historical changes in Colorado? *Discuss.*
    - New England's forests were dominated by conifers and broadleaf trees[4].
    - Forests were cut and burned to clear land for agriculture or settlements[4].
    - Early Coloradans likewise wanted to tame and prosper from the landscape.
- Historical and cultural contexts shape peoples' relationship with land. Early American settlers wanted to extract value and resources from the land and water.

Fire Suppression Changed the Forested Landscape





Cheesman Reservoir in 1896 (left) and 2000 (right)

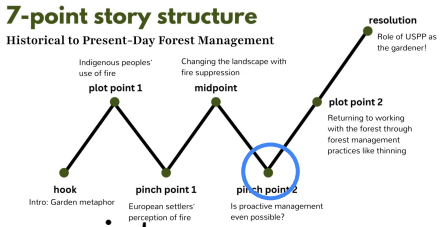


BACK4

When: Near or in a burn scar, if possible. Otherwise, wherever is a good stopping point.

- In the early 1900s, fire suppression became the dominant policy across forests of the US. The Forest Service and The National Park Service wanted complete fire suppression across their lands[5].
- The photo on the right shows the Cheesman Reservoir before and after the fire suppression era. What do you notice?
- What sentiments or messages come to mind when looking at this historical poster?
    - *Listen and engage with the discussion. Likely will get to these points:* Prevent forest fires helps protect forests, communities, and natural resources. It is our individual and collective responsibility to fight these fires.
- In effect, people came to see the forest as requiring our protection from fires, even though many forests actually need to experience periodic fire. *Can expand on historical fire regimes in ponderosa pine and dry mixed-conifer forests here, if desired.*
- Cultural norms can be powerful determinants of land management policy.

But, it is Impossible and Dangerous to Prevent Fire Forever

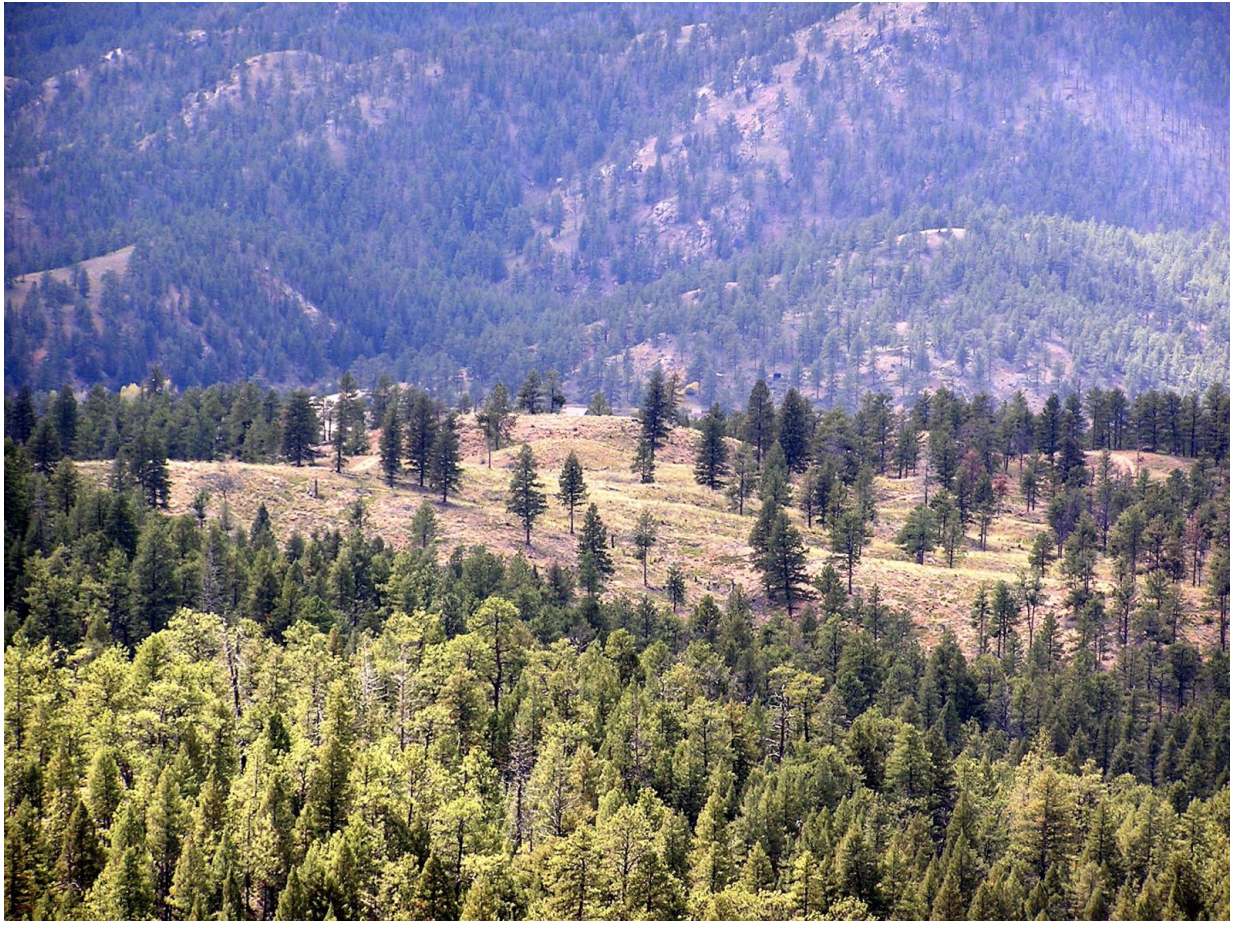


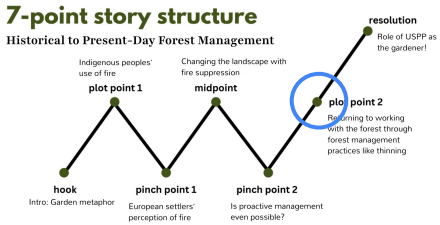
BACK5

<u>When: Near or in a burn scar, if possible. Otherwise, wherever is a good stopping point.</u>

- Now imagine a forest, accustomed to burning, that for decades and decades has had all fires suppressed and put out. What would it look like? *Listen and discuss.*
  - A lot of overgrowth can occur, creating a dense and crowded forest
  - On average, we have about 4x as many trees on the landscape today than we did in the 1800s![6] *Referring to lower montane ponderosa pine forests specifically*
- Fire suppression isn't perfect. At some point a fire WILL happen and likely be stronger than normal.
- So, the long-term effects of fire suppression are these severe and destructive wildfires.
  - This photo shows the aftermath of the 2012 High Park Fire
  - It was started by lightning, ~15 miles west of Fort Collins[7]
  - It burned 87,000+ acres, destroyed 250+ homes, and killed one person[7]
  - About 48% of the fire's area suffered moderate to high severity burning[7]
  - Erosion control to protect Fort Collins' water supply was extremely important[7]
- Can we break this cycle, and be more proactive in our management strategies?
- Trying to fight the natural cycles of nature will likely end in catastrophe. It is important to work with nature, not in opposition to it.

Treatment Helps Restore the Forest's Ecological Balance





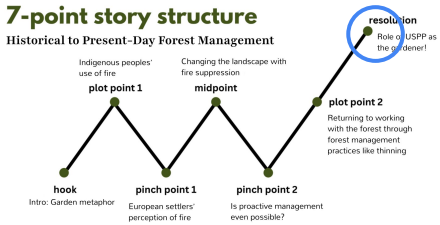
BACK6

<u>When: Near a treatment area or thinned area if possible.</u>

- This photo shows a treatment area in Pike National Forest. What do you notice? *Point out spatial heterogeneity and the contrast with the more dense foreground.*
- We need to actively manage these forests to prevent severe fires.
- One option, forest thinning, removes some trees to promote the health of those remaining. Does that remind you of anything? Ex: weeding/thinning a garden
- Extra wood / underbrush can be burned, decomposed, or composted.
- *People may believe that thinning is done to harvest and sell timber. Address these misconceptions by talking about the following points:*
    - Timber markets are not the driver for treatments in this area.
    - Treatments are expensive! They often require cross-entity collab, and shared resources (e.g., Forests to Faucets partnership w/ USFS and Denver Water).
    - We use thinning to protect what we value: our communities, our local wildlife, our water resources, and the forest as a whole.
- Thinning can restore forest health and ecological balance.

The USPP Helps Coordinate Landscape-Scale Restoration

BACK7



<u>When: Wrapping up the tour. Can be any spot you want to show the group.</u>

- This photo shows the North Fork of the South Platte River as it passes by Buffalo Creek outside of Pine, CO in Jefferson County.
- The USPP coordinates these forest management efforts across the watershed.
- In essence, we manage to create a "patchwork" of conditions across the landscape, to serve different purposes (reduce fire risk, protect sensitive wildlife, protect clean water supplies, etc.)
- What are your priorities for the forest? What do you want to see happen?
    - *Discuss shared values and goals for the forests.*
    - *Can talk about examples of priority vs non-priority areas for treatment.*
- So, in a way, the USPP is a "gardener" of the forest, making (sometimes hard) decisions at the small scale to create a safer, more resilient landscape overall.
- What goals for the forest are shared across the group? What do people value most? We are all connected by our love of these forests. Focus on similarities.

Image Sources

Front 1: Creative Commons

Front 2: GTR-373, Figure 27. Photo credit: Steve Alton

Front 3: K. Zhu, Y. Song, & C. Qin, Forest age improves understanding of the global carbon sink, *Proc. Natl. Acad. Sci.* U.S.A. 116 (10) 3962-3964, https://doi.org/10.1073/pnas.1900797116 (2019).

Front 4: (Left) Creative Commons (https://picryl.com/media/forest-defense-is-national-defense-nara-513638-02249e) & (Right) GTR-373, Figure 6. Photo Credit: Denver Water and Merrill Kaufmann

Front 5: GTR-373, Figure 7. Photo credit: Ben Wudtke

Front 6: GTR-373, Figure 29. Photo credit: Paula Fornwalt

Front 7: Creative Commons https://en.wikipedia.org/wiki/North_Fork_South_Platte_River

Information Sources

1. Euro-American Explorations: Fort Collins History connection. (n.d.). https://history.fcgov.com/contexts/euroexplorations
2. HISTORY.com Editors. (2025, May 28). Colorado - State, Map & Cities | HISTORY. HISTORY. https://www.history.com/articles/colorado
3. K. Zhu, Y. Song, & C. Qin, Forest age improves understanding of the global carbon sink, Proc. Natl. Acad. Sci. U.S.A. 116 (10) 3962-3964, https://doi.org/10.1073/pnas.1900797116 (2019).
4. Nowacki, G. J., & Abrams, M. D. (2008). The demise of fire and "Mesophication" of forests in the eastern United States. BioScience, 58(2), 123–138. https://doi.org/10.1641/b580207
5. Van Wagtendonk, J. W. (2007). The history and evolution of wildland fire use. Fire Ecology, 3(2), 3–17. https://doi.org/10.4996/fireecology.0302003
6. Battaglia, M. A., Gannon, B., Brown, P. M., Fornwalt, P. J., Cheng, A. S., & Huckaby, L. S. (2018). Changes in forest structure since 1860 in ponderosa pine dominated forests in the Colorado and Wyoming Front Range, USA. Forest Ecology and Management, 422, 147–160. https://doi.org/10.1016/j.foreco.2018.04.010
7. High Park Fire | Colorado Encyclopedia. (n.d.). https://coloradoencyclopedia.org/article/high-park-fire