ESS500 - Forest Carbon Post Fire

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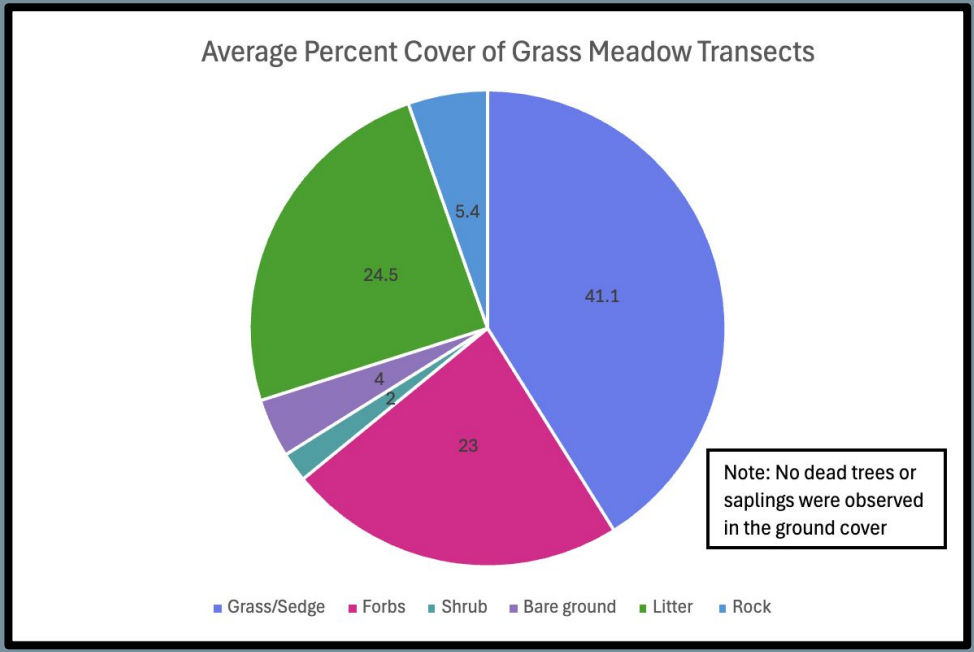
Assessing data collected on trees and ground cover from August 2025, as well as comparatively to historical trends of the CSU Mountain Campus.

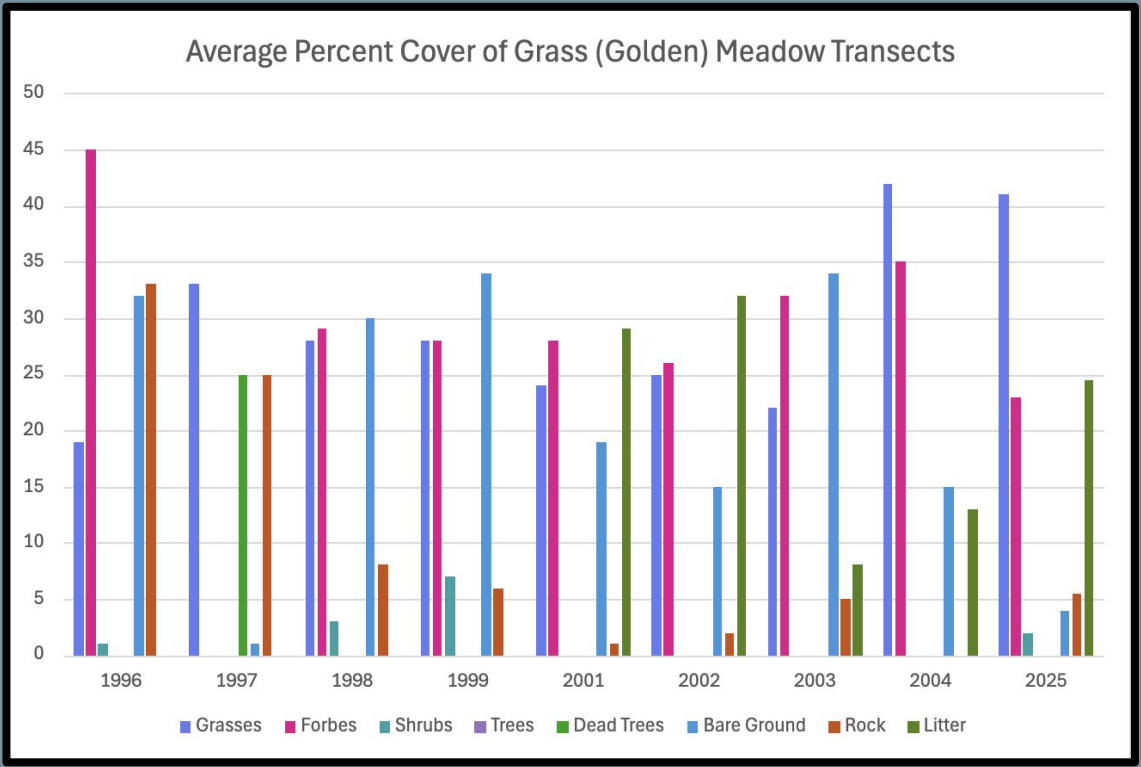
Grass Meadow Transect - 2025



Findings:

- Majority grass/sedge, as expected from grass meadow
- Small percentages of rock, shrubs, and bare ground
- No dead trees nor saplings were observed, and no trees were measured as none exist in the grass meadow transect

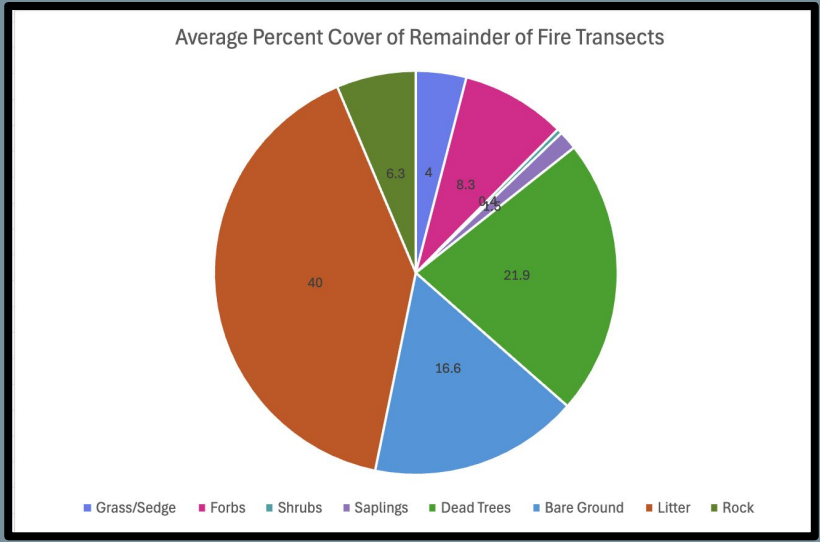
Grass (Golden) Meadow Transect - Historical Trends

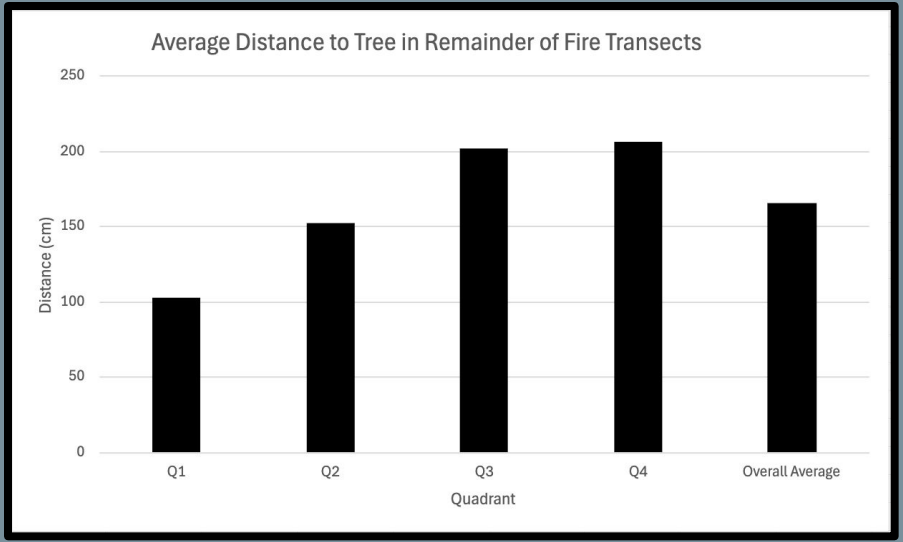


Findings:

- Grass meadow is very variable in ground cover
- Bare ground cover percentage used to be higher, seemingly replaced by an increase of grasses
- Trees, shrubs, and rock remain continuously low in percentages

Remainder of Fire Transect - 2025

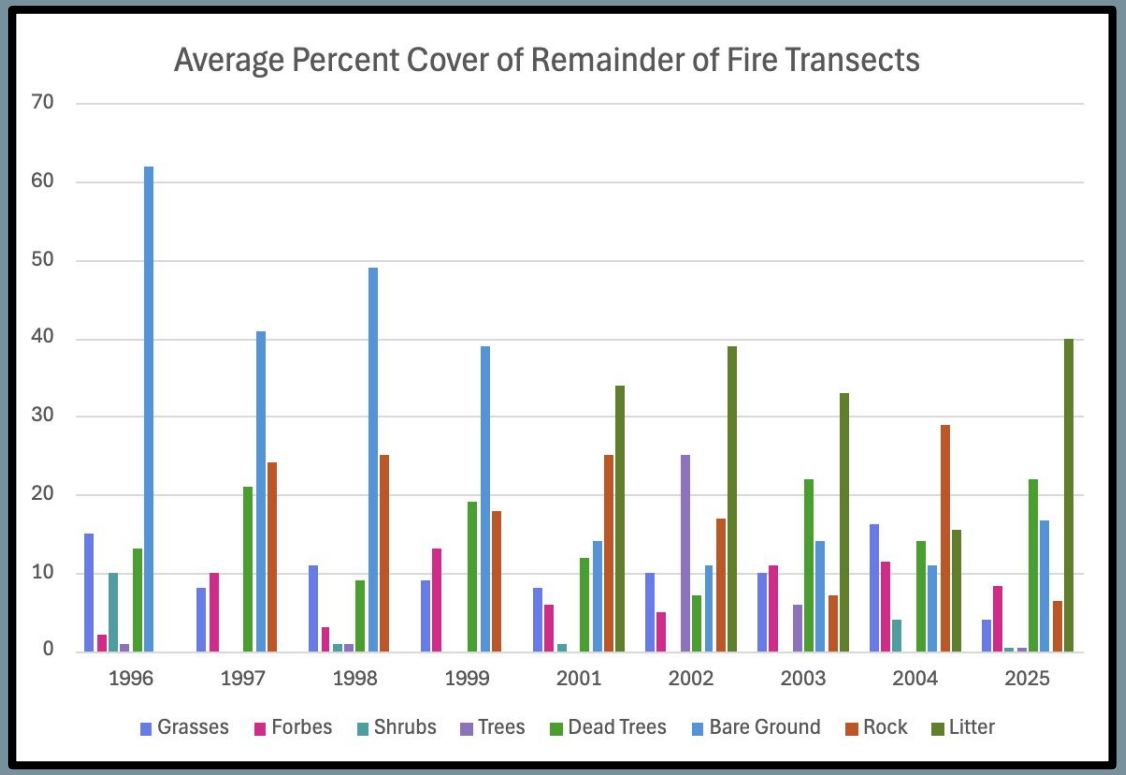




Findings:

- Litter dominates the landscape of the transect, followed by dead trees and bare ground
- Trees present are small and (relatively) evenly dispersed

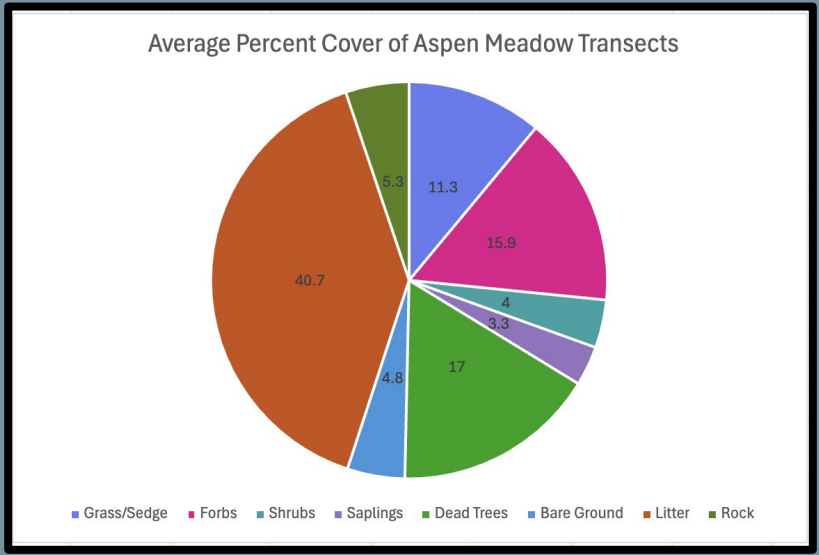
Remainder of Fire Transect - Historical Trends

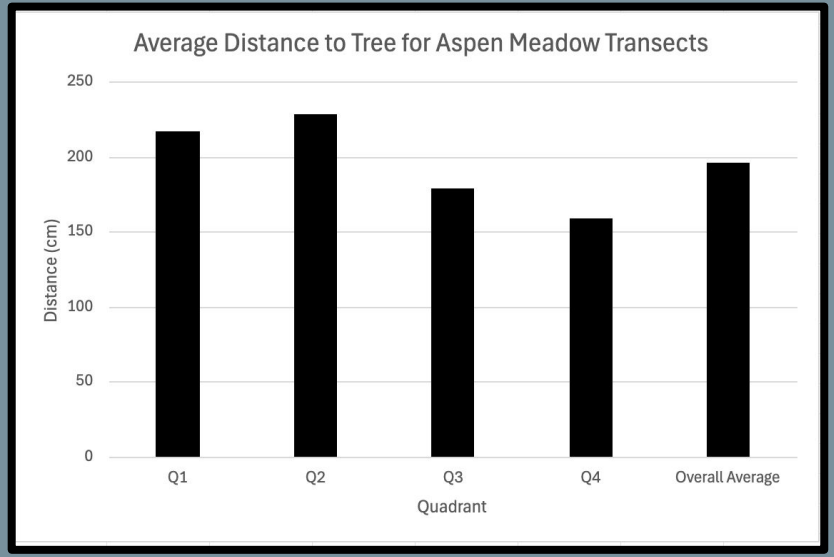


Findings:

- Bare ground cover has decreased over time
- Litter is associated with the greatest variability in ground cover
- Grasses, rock, dead trees, forbes, and shrubs remain at near constant levels throughout recorded data

Aspen Meadow Transect - 2025

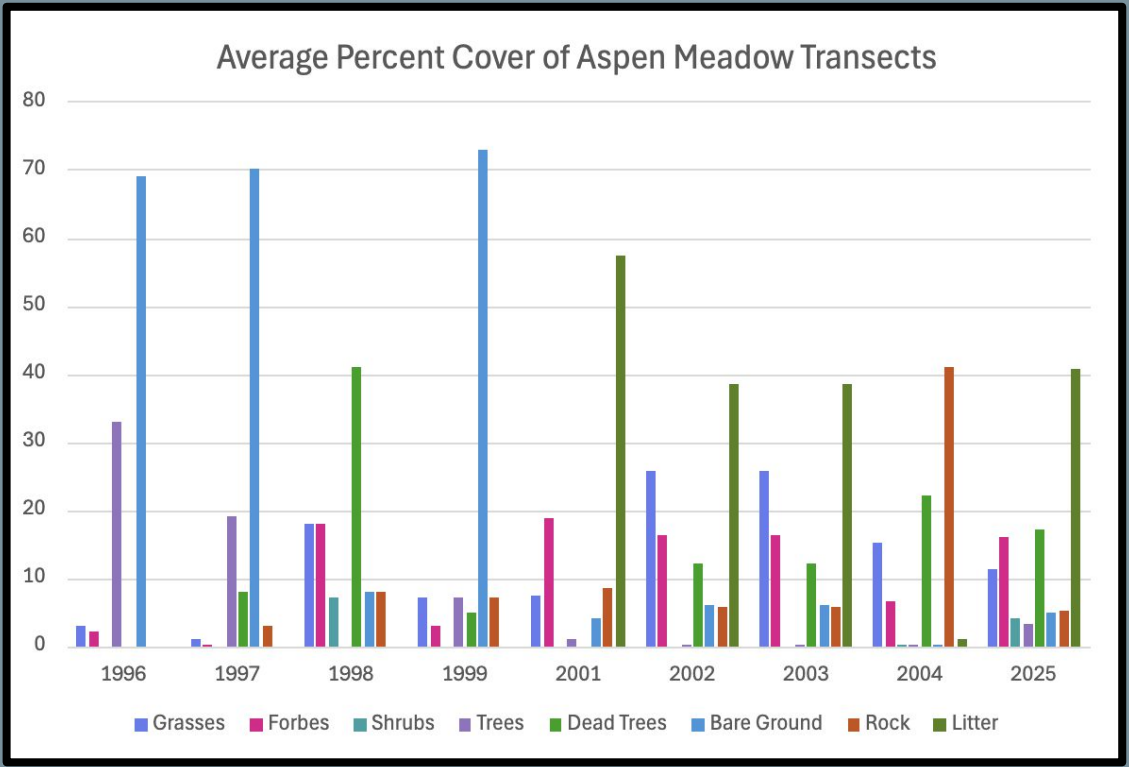




Findings:

- Despite its name, the largest portion of Aspen Meadow is litter
- Trees are small, as expected from aspen, and at a median density (~6ft)
- Dead trees, grass/sedge, and forbes contribute considerable amounts to ground cover

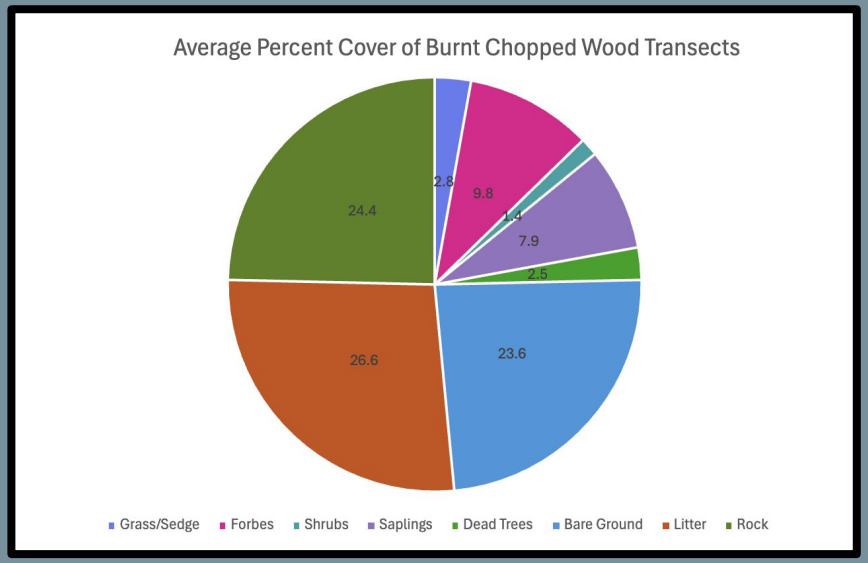
Aspen Meadow Transect - Historical Trends

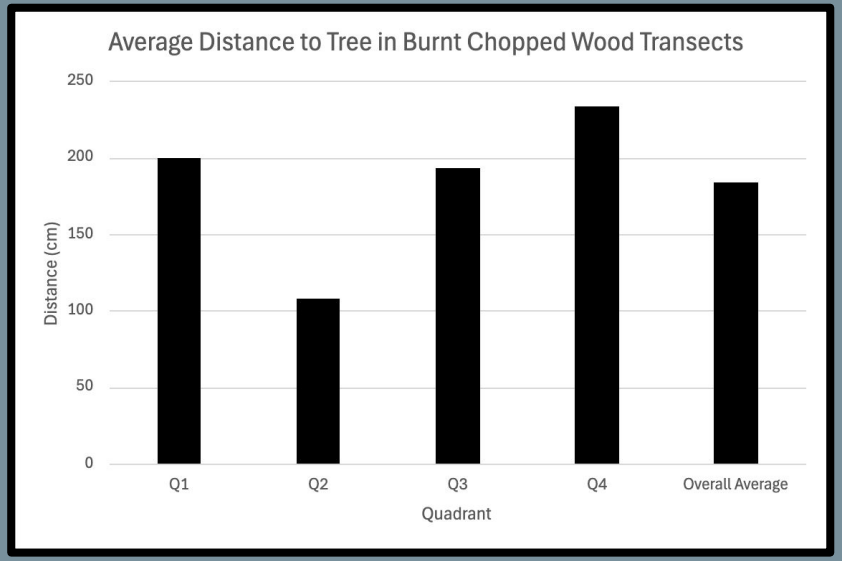


Findings:

- Bare ground has significantly decreased over time, remaining at low percentages since 2001
- Overall ground cover has evened out in dispersal between types
- Litter has increased over time, and remains prominent from 2001 on

Burnt Chopped Wood Transect - 2025

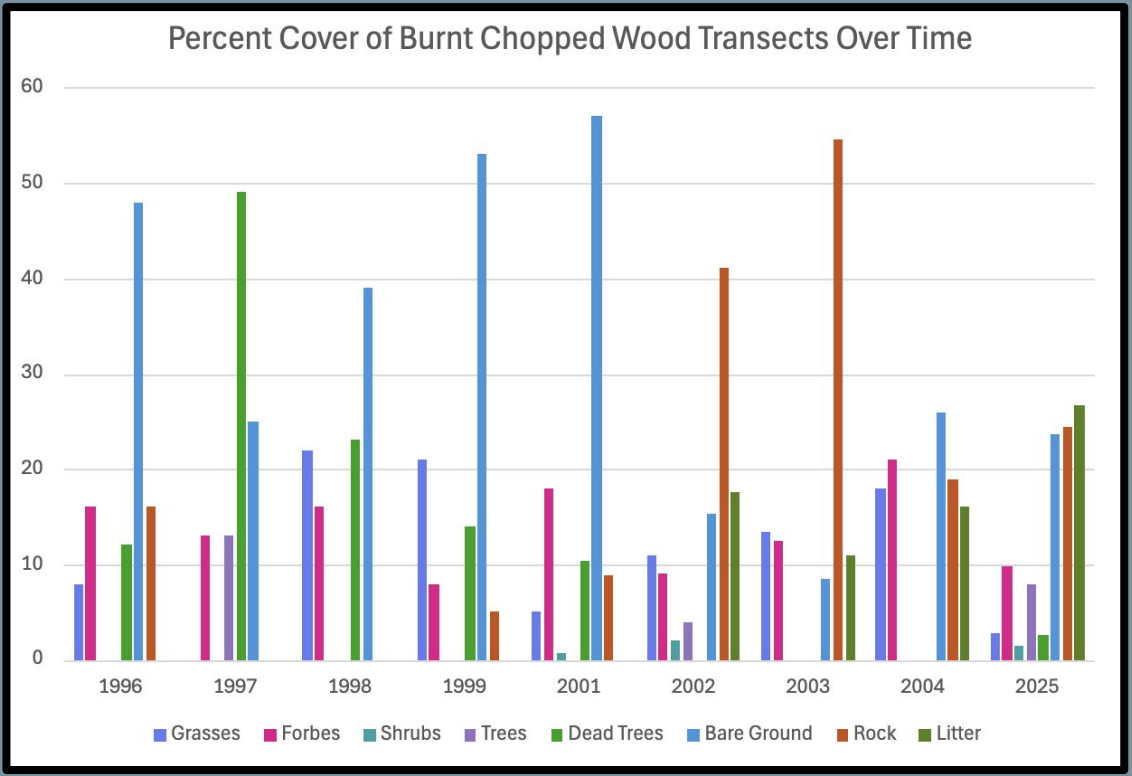




Findings:

- Litter, rock, and bare ground account for nearly 75% of ground cover assessed
- Forbes account for the majority of vegetation, followed by saplings.
- Trees are relatively small in diameter, and are further than other transect sites

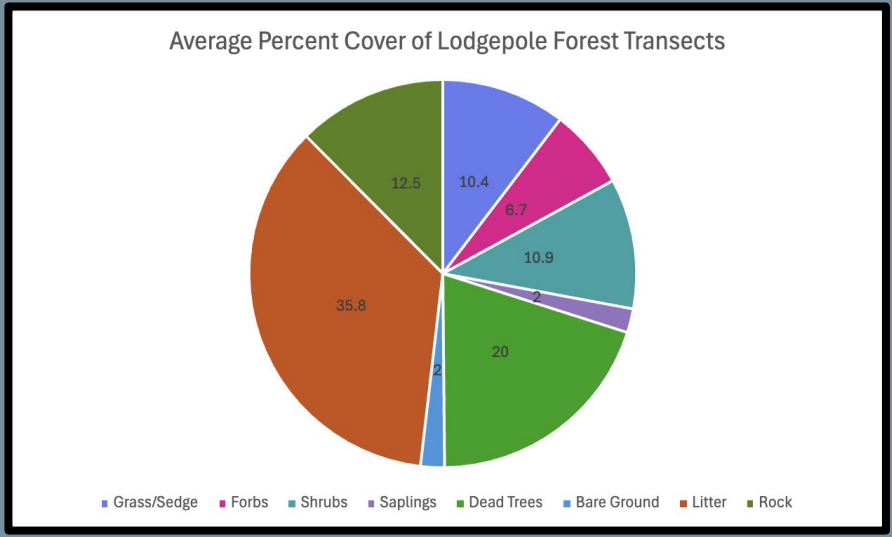
Burnt Chopped Wood Transect - Historical Trends

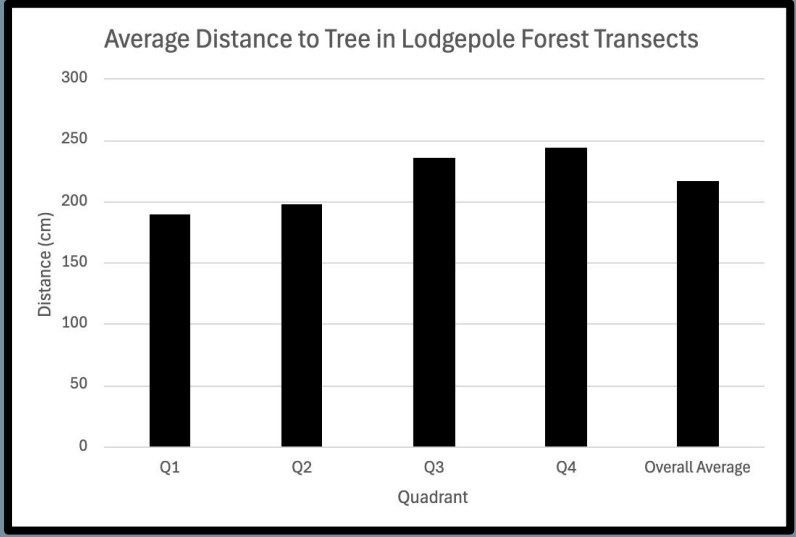


Findings:

- Bare ground percentages have significantly decreased, along with dead trees at a smaller rate
- Grasses, forbes, shrubs, and trees encompass small percentages of cover throughout the entire recorded time period

Lodgepole Forest Transect - 2025

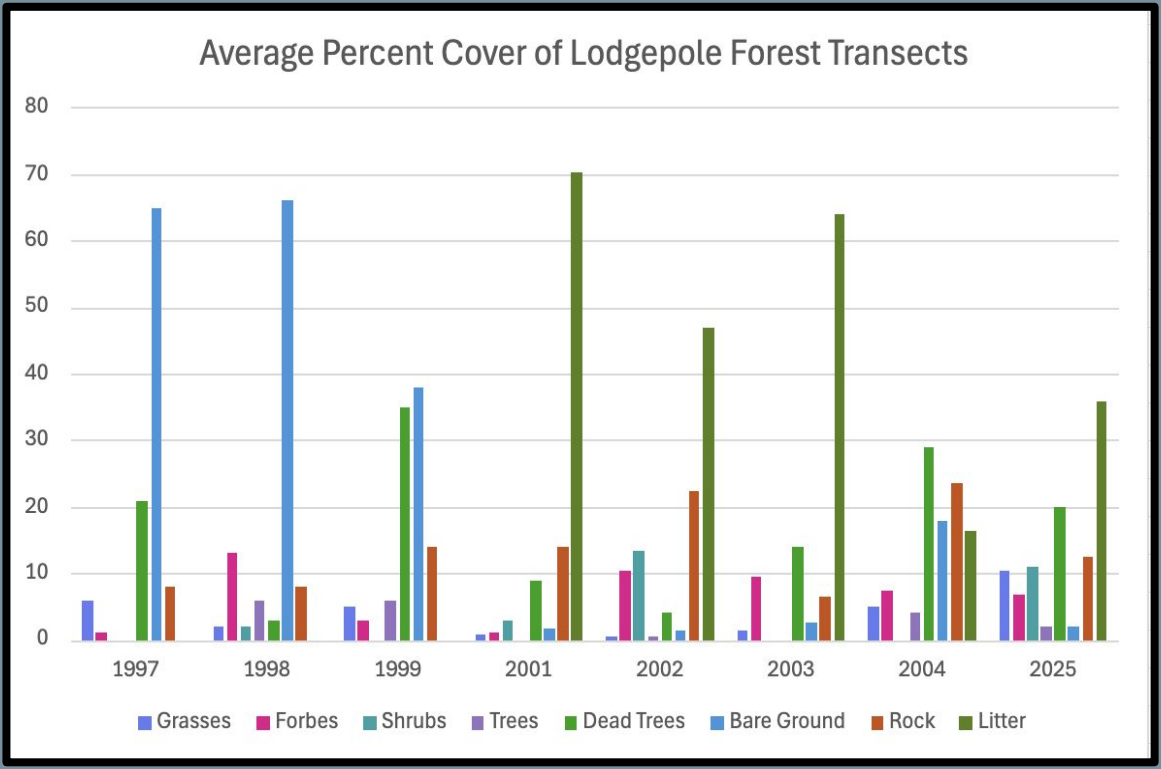




Findings:

- Large areas of Lodgepole Forest are covered with litter, with smaller amounts of dead trees and rock
- Ground cover is dispersed at much more even rates than other observed transects
- Trees have larger diameters than other sites (not pictured) but are similarly dispersed

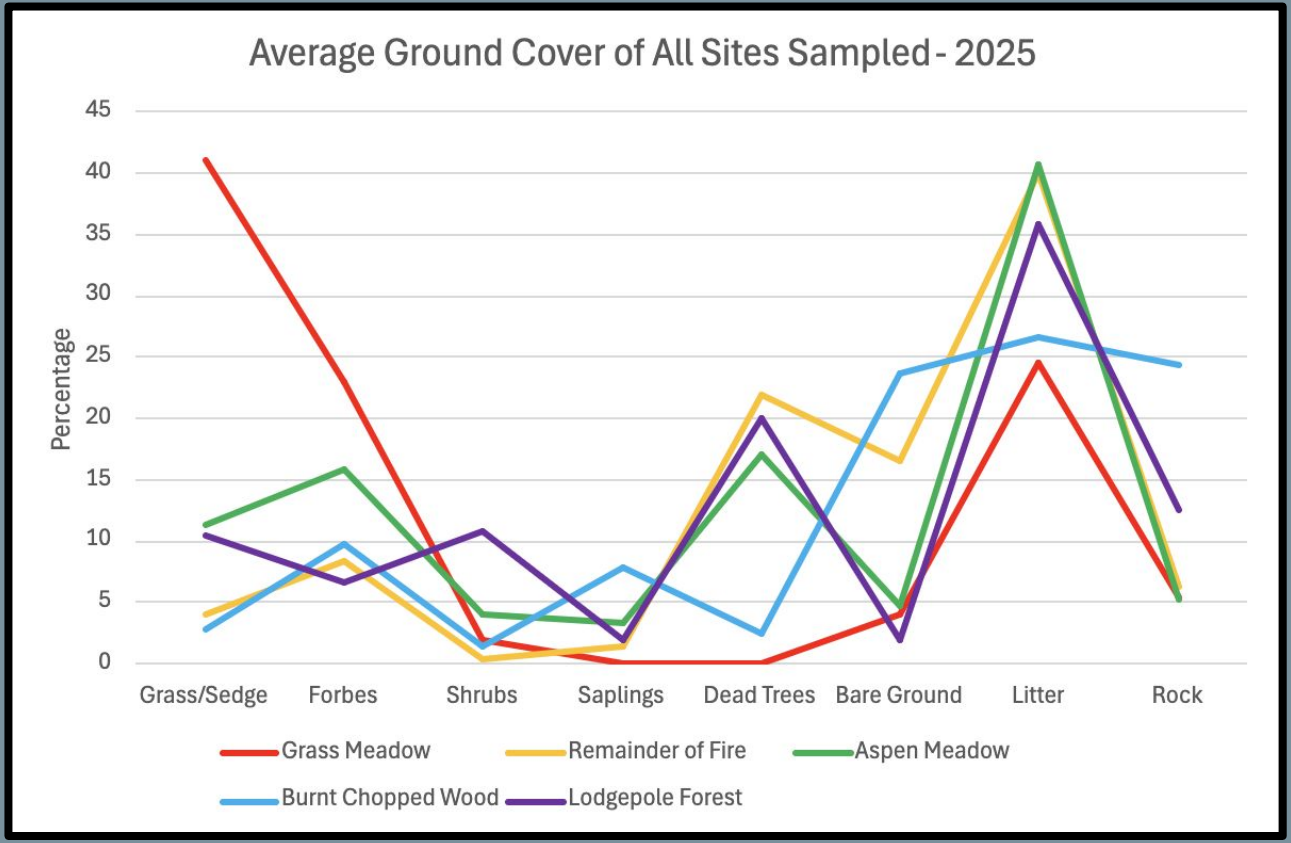
Lodgepole Forest Transect - Historical Trends



Findings:

- Litter accounted for high percentages of cover, once it was begun to be assessed in 2001
- Bare ground has significantly decreased
- Other types of described ground cover have remained relatively consistent over time

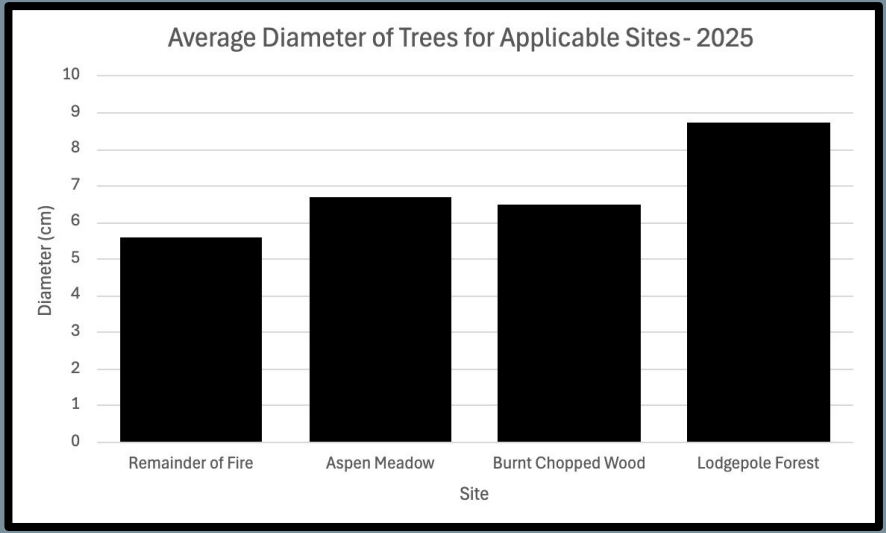
2025 Samples Summary - Ground Cover

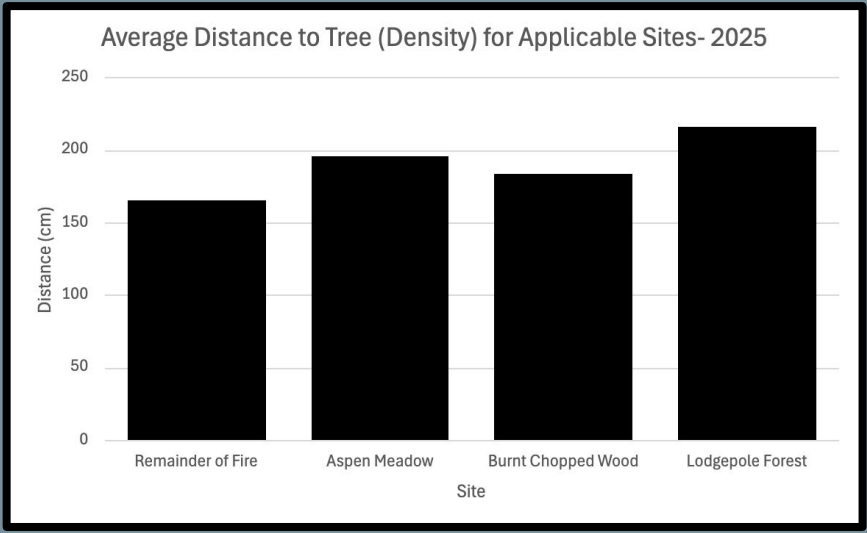


Findings:

- Litter was significant at all sites
- Shrubs and saplings accounted for low percentages
- Grass/sedge, dead trees, and bare ground were much more variable for sites

2025 Samples Summary - Trees

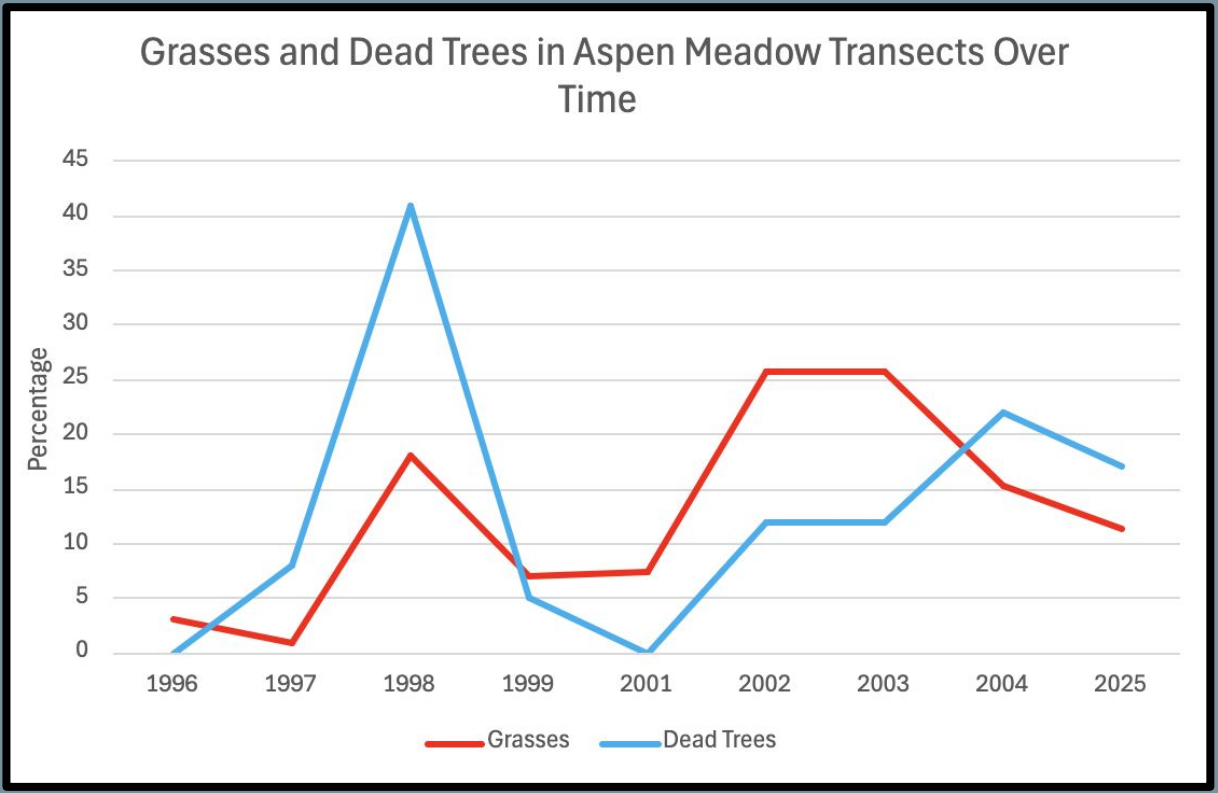




Findings:

- The Lodgepole Forest site had the largest (diameter) trees.
- Lodgepole Forest also had the lowest density of trees from assessed sites, with Remainder of Fire having both the smallest (diameter) trees but highest density

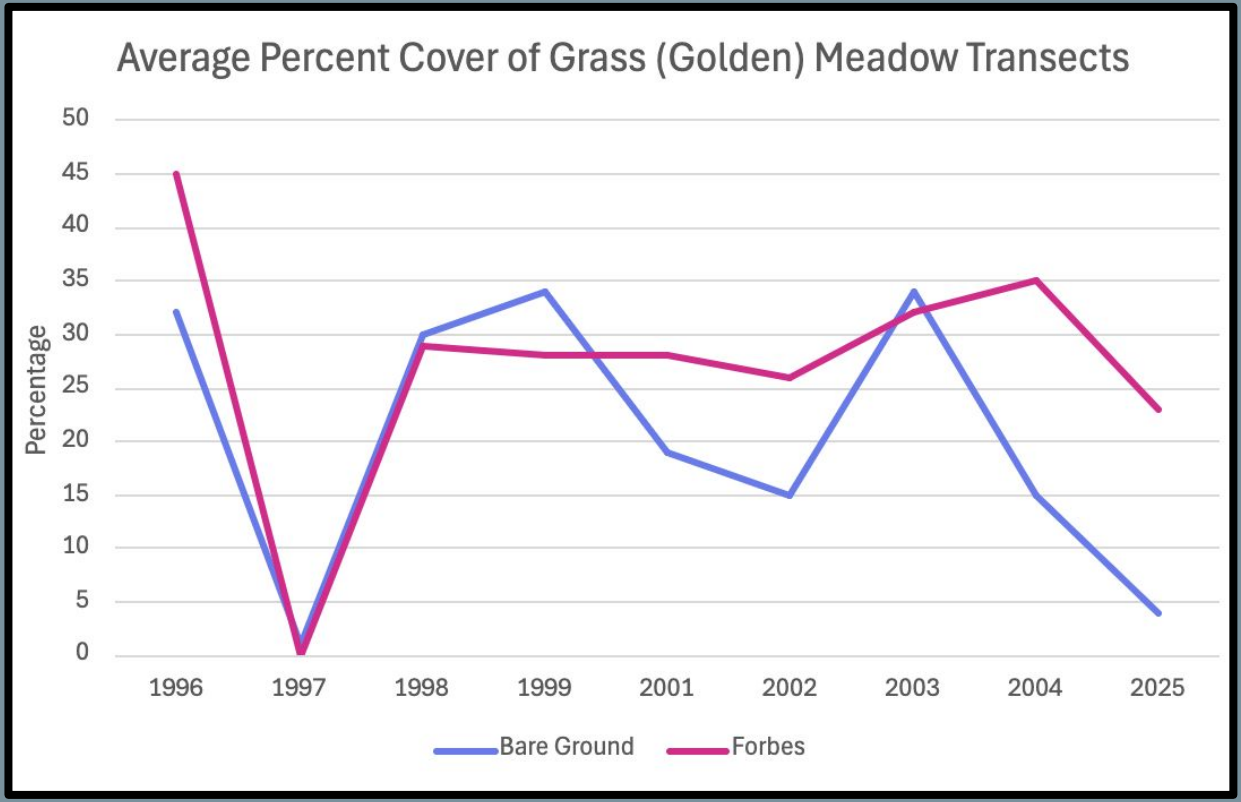
Phase Plot - Aspen Meadow Transect



Findings:

- This plot shows how the abundance rates of grasses and dead trees respond to each other, increasing and decreasing as the other does
- This pattern is emphasized by 1998 spike, and 2002-2003 plateau

Phase Plot - Grass (Golden) Meadow Transect



Findings:

- This plot shows how bare ground and forbes persistence responds to the other over time in the transect
- There is some variability in rates for 1999 through 2003, yet their increases and decreases still mimic the others