

Woody Species Encroachment and Infill

Threats



Sagebrush Encroachment in Grasslands

Climate and heavy grazing have shifted cover from grass to woody shrubs and trees.



Conifer Encroachment in an Aspen Stand

Conifers have filled in aspen stands. Formerly open stands have become dense as more young trees survive.



Piñon-Juniper Expansion and Infill

Piñon-juniper woodlands have become more dense, and have expanded into former grasslands during the past century.



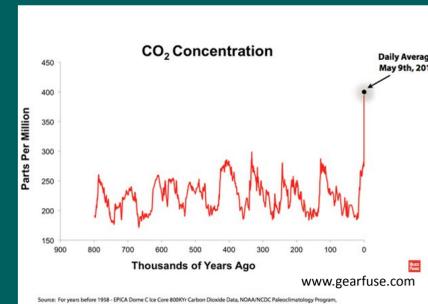
Thinning Treatment

Thinning overgrown forests can reduce fire danger, increase water availability, improve tree health, help resist insect and disease outbreaks, and restore wildlife habitat.



Historic Grazing

Heavy grazing in the late 19th and early 20th centuries reduced competition from grass and removed fine fuels to carry fire, and contributed to tree and shrub establishment in meadows and infill in forests and woodlands.



Atmospheric Factors

High levels of carbon dioxide have been shown to favor woody species growth. Atmospheric carbon dioxide levels are higher now than at any time in the last 3 million years. Warmer, wetter conditions during the mid-1900s also contributed to a pulse of woody species establishment.



Sagebrush Mowing and Reseeding

The forest is removing sagebrush and seeding with grass to restore grassland which protects soils, reduces sedimentation, increases water infiltration, and improve forage for wildlife and livestock.

Desired Conditions



Adequate Forage

Forest openings provide forage for livestock and wildlife



Restored Natural Fire Regime

Fires in open, frequent fire systems remove surface fuels and small trees, leaving large trees and discouraging high intensity fires.



Water

Open forests allow more water to infiltrate and runoff to streams. Improved soils capture more water and reduce sedimentation.

Management Considerations

Potential Solutions

- 1) There is a need for limiting and reversing woody species encroachment and infill (shrubs and trees into grasslands, and trees into shrublands).
- 2) There is a need for promoting natural and prescribed fire in all ecosystems while addressing public safety and health concerns.
- 3) There is a need for defining desired conditions regarding structure, composition, snags, and downed woody debris, as well as objectives, standards, and guidelines that will promote achievement of those desired conditions, support sustainability, and minimize risks to ecosystem integrity.