Herbivory, Early Seral Habitat, and Management Implications

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Primary succession
Secondary succession

Fire: 0 years
Annual plants: 1-2 years
Grasses and perennials: 3-4 years
Grasses, shrubs, pines, young oak and hickory: 5-150 years
Mature oak and hickory forest: 150+ years
Causes of plant succession

- **Autogenic succession** - brought by changes in the soil or vegetation
  - Changes in soil pH due to plants growing there
  - Changes in light penetration to forest floor

- **Allogenic succession** - caused by external environmental influences and not by the vegetation
  - Changes in soil due to erosion
  - Animals
    - Pollinators
    - Seed dispersers
    - Herbivores
Herbivory - the state or condition of feeding on plants.
When does herbivory occur in forest succession?

**Forest Succession**

Succession is a natural pattern of change that takes place over time in a forest. When trees are removed – whether by natural causes such as fire or wind, or by human intervention – the forest regenerates in a predictable order. First come annual weeds, then perennial weeds and grasses. In later years, shrubs appear, then young pines followed by hardwood trees that mature over time.
Pocket gopher clipping
Pocket gopher burrows
Pocket gopher root damage
Vole peeling
Mountain beaver clipping
Tree girdling by mountain beaver
Root damage by mountain beaver
Black bears
Peeling by bears
Peeling by Bears
Porcupines
Porcupine damage
Ungulate use during stand initiation
Ungulate use during stand initiation
Heavy terminal and lateral browse
Seedling pulled by elk
Bird diversity

- Red-tailed hawks
- Swifts
- Swallows
- Fly catchers
- Pileated woodpeckers
- Sapsuckers
- Pygmy owls
- Brown creepers
- Nuthatches
- Thrushes
- Towhees
- Winter wrens

Overstory canopy

Understory canopy

Shrub layer

Ground vegetation
Forest succession

[Graphs showing forest succession and biomass accumulation over time]
Does forest equilibrium exist?
Effects of overabundance
Effects of overabundance
Effects of overabundance
Relative elk abundance in clearcuts

Number of Scat Clusters

- Hoppers Elk
- SH023 Elk
- SH4770 Elk
- SH521 Elk
- Vail Elk

United States Department of Agriculture
Animal and Plant Health Inspection Service
Biological vs. Social Carrying Capacity
General categories for reducing wildlife damage

- Physical barriers
- Repellents
- Toxicants
- Hunting/trapping
- Habitat manipulation
Food web interactions
Questions?