Integrating Forest and Wildlife Management

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Management of Succession

- Any forest practice that removes vegetation or alters vegetative structure will alter the stage, rate, or path of succession.

Regenerate or Alter Existing Stands

- Identify your objectives:
  - *Wildlife*
  - *Timber production*
  - *Stand Improvement*
  - *Aesthetics*
  - *Others*
- Customize your management plan based upon the most viable options to achieve the objectives.

Forest Characteristics

- Site descriptors such as aspect, elevation, and soil types
- Site Index – a way of describing the productivity of the site
- Successional status may drive your management

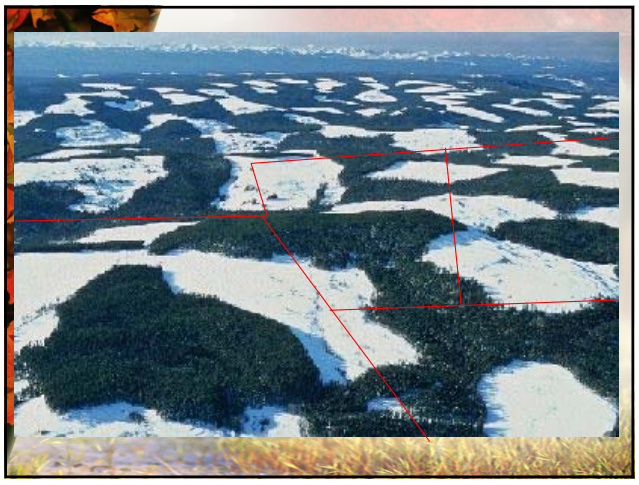
Effects of Silvicultural Practices

- Applied to improve the condition and value of a forest in timber or economic or ecological terms
- These practices are an important catalyst for either positive or negative effects on wildlife habitat

Management Options

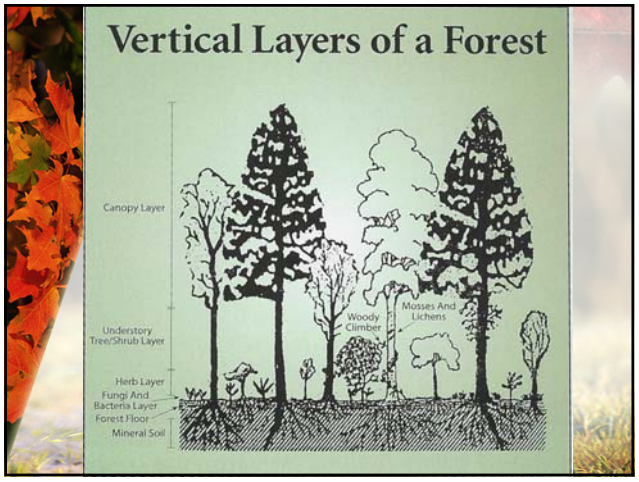
Even-Aged Management

- Provides various successional stages
- Horizontal habitat diversity
- Less expensive
- Favors shade intolerant trees



Even-Aged Management

- Lacks vertical diversity
- Mature trees and snags not prevalent
- Reduces diversity in several areas
- Increases fragmentation
- Less eye appealing

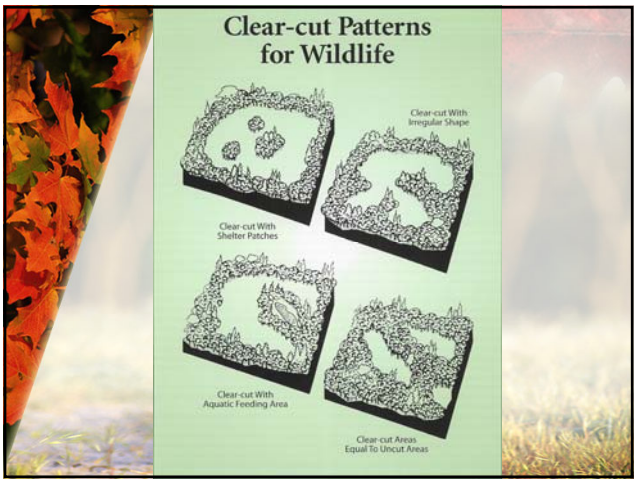


Even-Aged Techniques

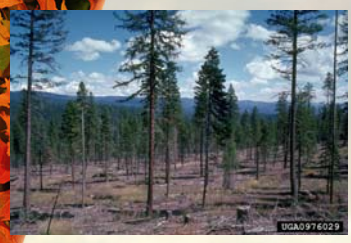
- **Clearcutting**
  - ***Increase edge habitat***
  - ***Increase openings***
  - ***Uneven edges and patterns are good***
  - ***Looks "bad"***
  - ***Potential for soil problems***
- **Favors:**
  - ***Early successional species***
  - ***Edge species***

Improving habitat through clearcuts

- The smaller the size, the better
  - *Sizes of 1 to 50 acres are desirable*
- Irregular shape increases benefit
  - *Increases edge habitat*
- For large (~50 acre) clearcuts
  - *Corridors of 100 ft wide or more left for wildlife movement*
- Riparian Zones should always be protected



Seed-Tree



- All but a few seed-bearing trees harvested.
- Generally 10-15 seed trees per acre left.
- Timing of seed fall and viability a concern

Shelterwood Cuts

- Trees removed in two or three cuts over time.
- Keep shade on the site
- Increase herbaceous production
- Encourage regeneration of species that require some light, but not full sun

Wildlife and Shelterwoods

- Provide vertical and horizontal diversity
- Typically have less soil disturbance than clearcuts
- Less early successional habitat
- Do provide short-term multilevel canopies
- Provide structure for canopy dwelling species while providing light for regeneration

Wildlife and Shelterwoods

- Can ensure successful regeneration of mast producing species
- Especially successful when combined with prescribed fire

What about plantations?

- Type of Site Prep is important
- Regeneration type?
- Spacing of Plantings is where the most impact for wildlife is found

Site Preparation

- Typically used in a pine plantation setting
- Can cause significant soil disturbance
- Can create habitat (windrows)

Natural Regeneration

- Advantages
  - *Low cost*
  - *Site adapted species*
  - *Less soil disturbance*
  - *"Natural diversity"*
- Disadvantages
  - *Less control over spacing and stocking*
  - *Longer rotations*
  - *Increased maintenance over the life of the stand*

Artificial Regeneration

- Advantages
  - *Control spacing and stocking of seedlings*
  - *Can introduce new, improved genetics to the seed bank*
- Disadvantages
  - *High cost*
  - *Increased site disturbance depending upon level of site prep*

Spacing (ft)	Trees/Acre	Effects
20 X 20	109	Lots of herbaceous plant cover, no crown closure. Great for wildlife, poor for timber.
15 X 15	194	
12 X 12	303	Lots of herbaceous plant cover, delayed and reduced crown closure. Great for wildlife, poor to fair for timber.
10 X 12	363	
8 X 12	454	Good herbaceous plant production, delayed crown closure. A good compromise between timber and wildlife.
8 X 10	545	
6 X 8	908	Short herbaceous growth period, rapid crown closure. Poor for wildlife, good for timber.
6 X 6	1210	

Uneven-Aged Management

- Vertical diversity
- Diversity of tree species, ages, and sizes
- Less intense stand disturbances
- More mature trees and snags
- More contiguous canopy
- Favors shade tolerant trees

Uneven-Aged Management

- Less early successional habitat
- Higher timber management and harvest costs

Group Selection

- Used most in mixed hardwood stands
- Works best to utilize advanced regeneration
- Involves removing tree group of less than 2 acres.

Group Selection

- Provides a mixture of intolerant and tolerant species
- Promotes understory herbaceous growth
- Increases stand structure and species diversity

Group Selection

- Aesthetically pleasing
- Provides landowners with a steady stream of income
- More practical on small ownerships

Single-tree Selection

- Removal of individual trees
- Can be used to harvest marketable trees or to remove undesirables
- Good in sensitive site areas, such as riparian zones
- Provides consistent forest habitat with little canopy disruption

Single-tree Selection

- Does not regenerate shade intolerant species
- Can easily lead to high-grading
- Can be used to improve species mix for mast production

Other Forest Operations

Intermediate thinnings

- **Used to:**
  - *Improve tree growth and quality*
  - *Reduce tree mortality*
  - *Obtain periodic income*
  - *Protect stand from damage*
  - *Improve wildlife habitat*

Pre-commercial thinning

- Reduce stocking
- Provide openings for wildlife and herbaceous plant growth
- Can be used to "fix" spacing problems

Commercial thinning

- Provides income to landowner from closed canopy forest
- Reduce crown cover to encourage herbaceous vegetation

Commercial Thinning

- Create structural diversity in the stand by creating patch thinnings
- Promotes herb, shrub, and midstory structure that many species need.

Wildlife Retention Cuts

- Use herbicides to inject and kill undesirable trees
- Allows more light to the forest floor to encourage understory growth

Wildlife Retention Cuts

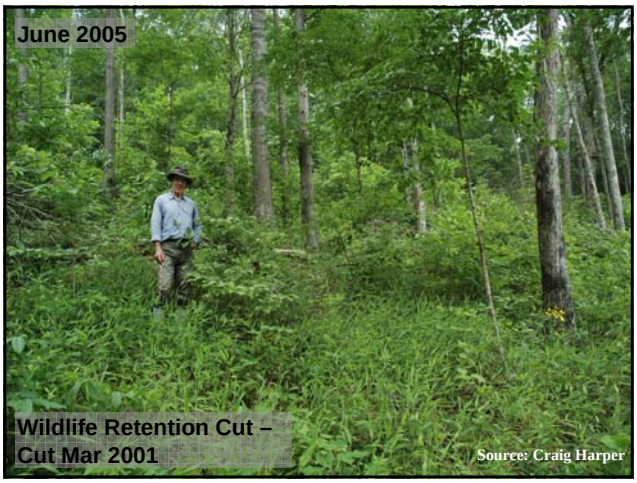
- No site disturbance
- Lots of snags created
- Can be used in conjunction with TSI

Herbicides

- 1 qt Garlon 3A
- 6 oz Arsenal AC
- 3 qts Water

Working with Herbicides

- **Timing is important**
  - *Late summer applications tend to have the best results*
  - *Spring and summer applications will also work*
    - **Be sure to use a surfactant with these applications.**
  - *Know the herbicide you a working with to prevent problems*



Prescribed Burning

Fire and Wildlife

Growing-season fire (Apr)
- reduces litter and woody understory
- stimulates herbaceous cover
- enhances visibility / brood habitat
- best adapted to drier sites
- longer rotation (4 – 5 years**?**)

Dormant-season fire (Jan – Mar)
- reduces litter
- high intensity kills woody under- / midstory
- if hot enough, thinning may not be necessary
- adapted to dry or relatively moist sites
- shorter rotation (3 years**?**)

Source: Craig Harper

Fire in hardwood stands

- Used to encourage oak regeneration by reducing competition.
- Increases herb growth but can decrease vertical diversity in the short term.

Prescribed fire

- Timing is important
  - *Late winter ad early spring are best for wildlife*
  - *Should be conducted with another forest harvest practice for best effect*

Potential Problems

Use relatively low-intensity fire
- backfire
- short strip-headfire

Move slash from around trunk

Source: Craig Harper

Combining Practices

- Add fire to various regeneration cuts to stimulate vegetative growth
- Combine wildlife thinnings with fire to enhance their effects.

Shelterwood-Burn

- Cut, wait 3-5 years, then burn (Shelterwood-burn technique, Brose et al. 1999)
- Favors herbaceous plants and reduces oak competition

Shelterwood-Burn

Shelterwood-Burn

Wildlife Retention Cut and Burning

Snags

Brush Piles

Riparian Zone

- Herbicides or single-tree selection can be used to improve stand quality
- Maintain appropriate width to protect areas

Roads and Fire Breaks

- Plant native grass species in these ready-made food plots
- Provides a new level of habitat diversity

Don't Do Fescue or Orchard Grass!

What to Plant on Old Logging Roads

- Clovers such as crimson, white, and subterranean (Ladino in some places
- Annual cool season grasses (oats, wheat, annual ryegrass)
- NSWG not really suited for forest roads

Remember....

- Know the objectives!
- Know the species or group of species!
- Know the habitat resources in place!

Remember.....

- Know your options!
- Do your research!
- Hit the ground running and provide good forest management for wildlife!


• Alabama Wildlife Federation
– http://www.alabamawildlife.org
• Growing and Managing Successful Food Plots for Wildlife in the Mid-South
– http://www.utextension.utk.edu/publications/pbfiles/PB1743.pdf