WOODLOT MANAGEMENT OPPORTUNITIES

Pennsylvania's Forests Web Seminar Center

September 11, 2012

David R. Jackson
Forest Resources Educator
Penn State Extension

Penn State **Extension**

What We'll Cover

- Ecological Principles
- Forestry Principles
- Forestry Practices
- Wildlife Habitat Relationships
- Wildlife Management Practices
- Getting Started

Ecological Principles

Forest Ecology – the study of the forest environment

- Natural communities and how they function and interact

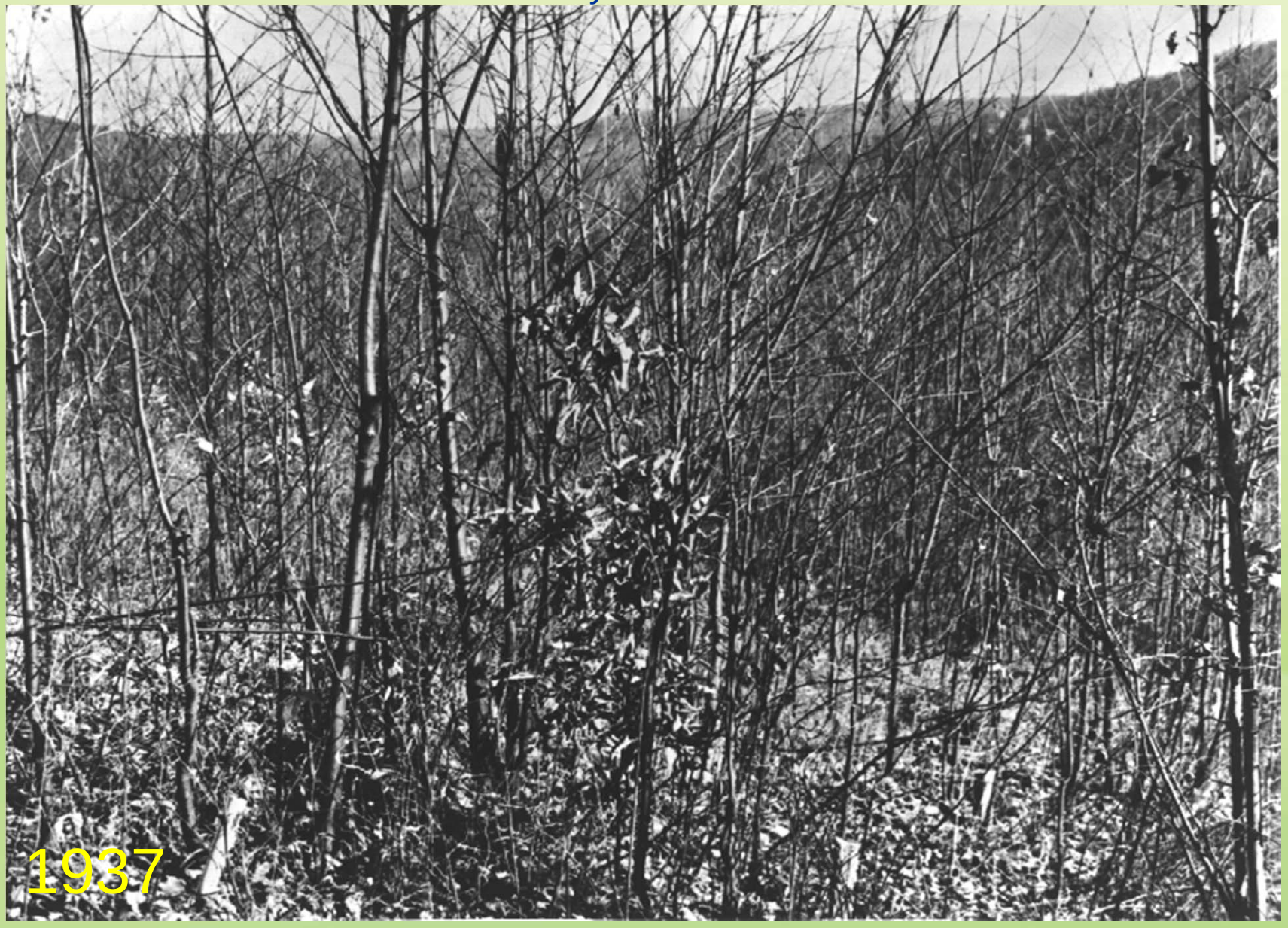
Principles of Ecology

Principle #1

All natural areas change over time, whether or not you do anything to them


1928

10 years



30 years

50 years

70 Years

80 Years

Principles of Ecology

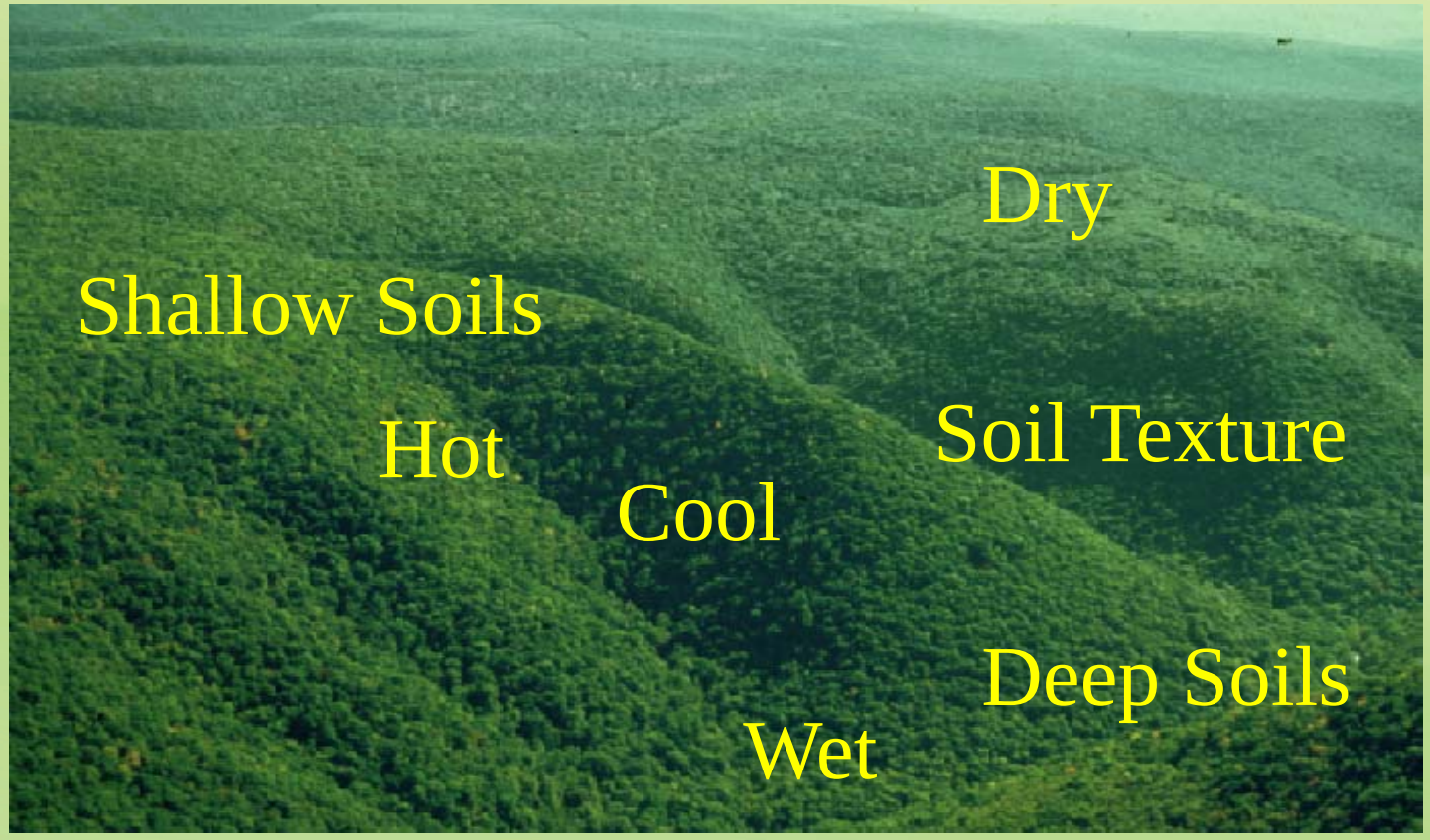
Principle #2

Succession can be accelerated or set back by various land management activities

Principles of Ecology

Principle #3

Tree species require different conditions to thrive

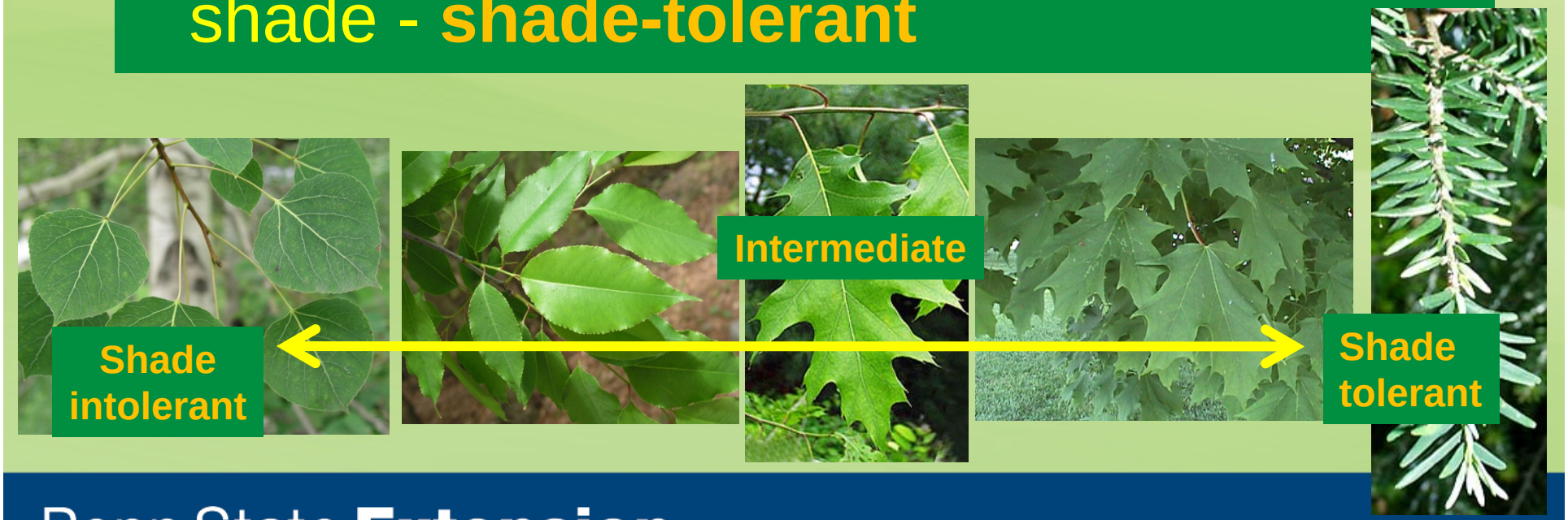


Principles of Ecology

Principle #4

Some plants need full sunlight to grow - **shade-intolerant**

Other plants can grow very well in heavy shade - **shade-tolerant**



Forestry

Forestry – The science and art of taking care of and managing trees and forests.

Forest - An area at least 1 acre in size (120 feet wide) not maintained as lawn and 10% stocked with trees. US Forest Service

Forestry

"Sustainable Forestry"

Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Principles of Forestry

Principle #1

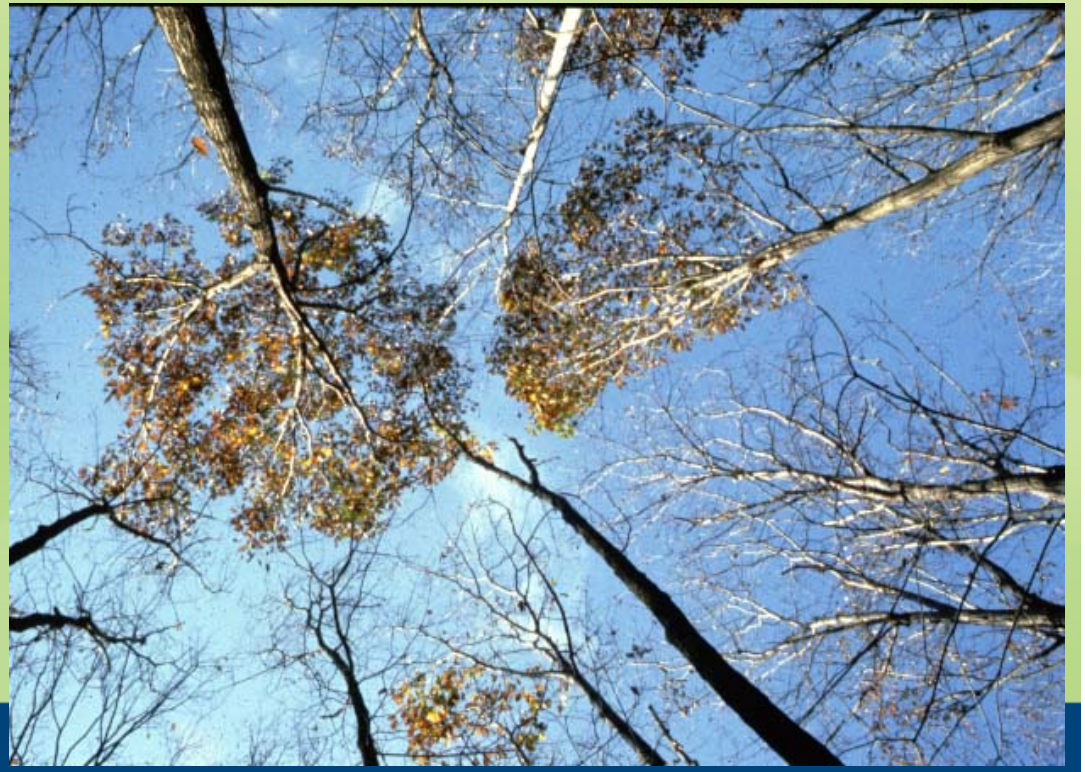
Tree size is **NOT** directly related to age

Principles of Forestry

Principle #2

Trees grow at different rates due to species and site quality differences

Competition for light, nutrients, and water will slow growth rates.



Principles of Forestry

Principle #3

Trees reproduce from seeds and/or sprouts

Principles of Forestry

Principle #4

Focus harvests and management on live trees

Principles of Forestry

Principle #5

No matter how you manage your land, exotic invasive species will "invade" it

Forest Management

“Silviculture”

The theory (science) and practice (art) of controlling forest establishment, composition, structure, and growth

Forest Management Practices

Harvesting Timber

2 Types of Harvests

Intermediate Harvests

Regeneration Harvests

Intermediate harvests

Timber Stand Improvement

Removing inferior trees to make space for well formed, desirable trees

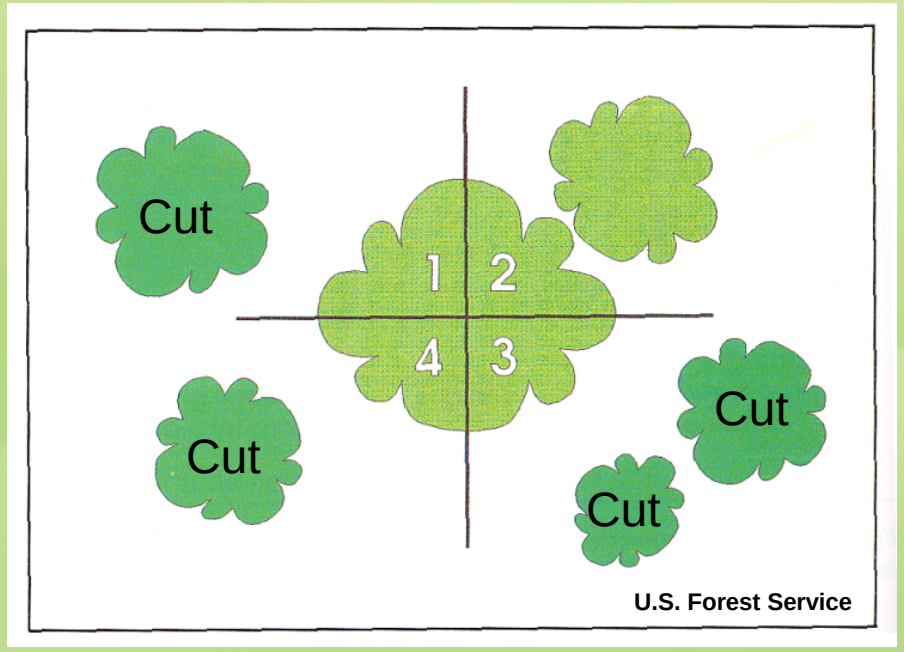
Focus on Retention: Growing Quality

- **Species**
  - Site
  - Diversity
  - Markets
- **Condition**
  - Quality
  - Crown
- **Reduce Competition**

Commercial Thinning

Pre-Commercial Thinning

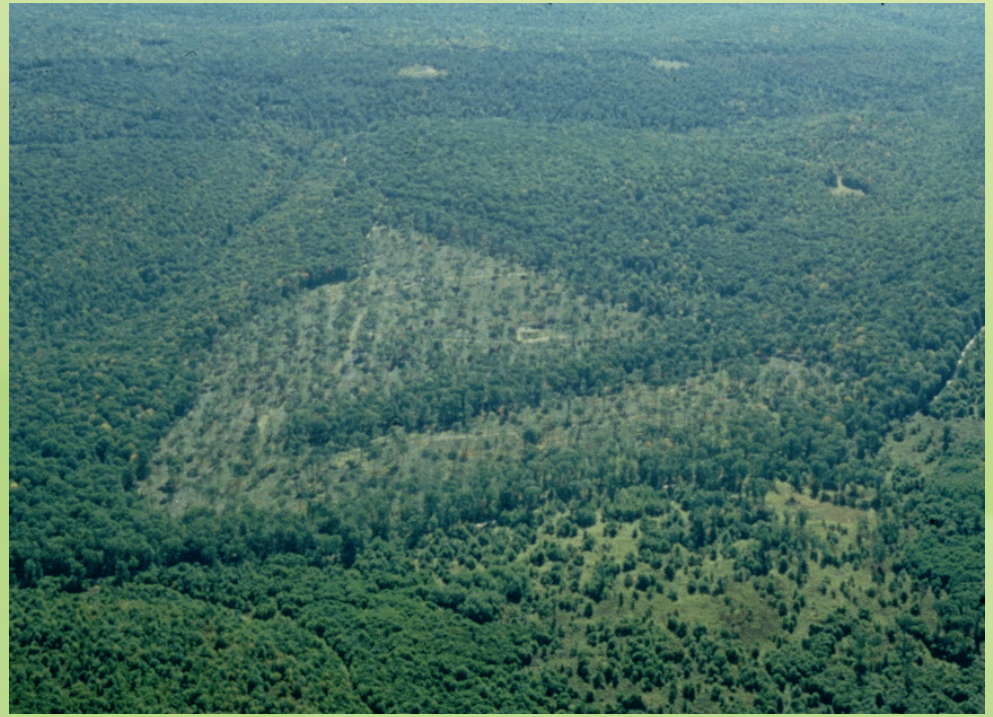
Crown Thinning



Crop Tree Release

Regeneration harvests

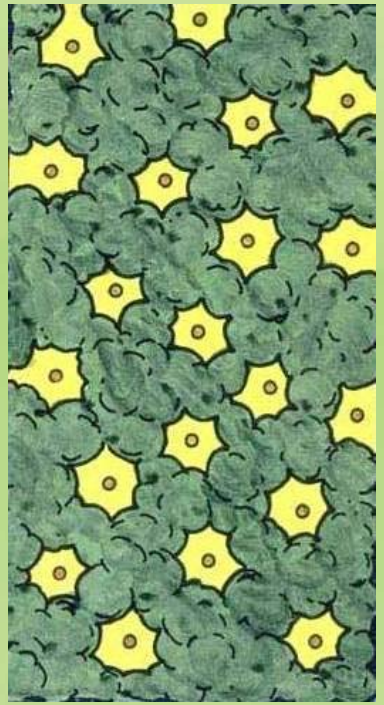
Mimic the creation of openings made by natural disturbances



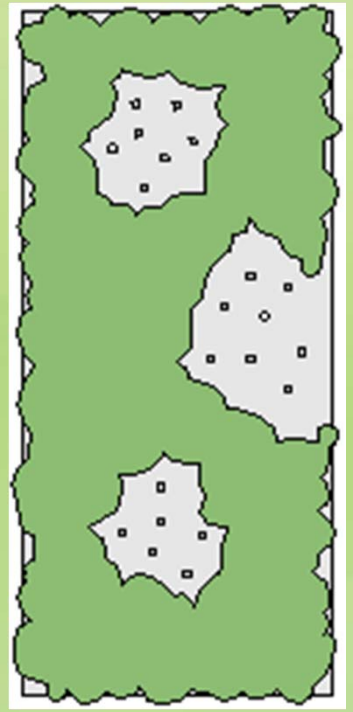
Goal - regenerate a healthy, diverse forest

Regeneration Harvesting Systems

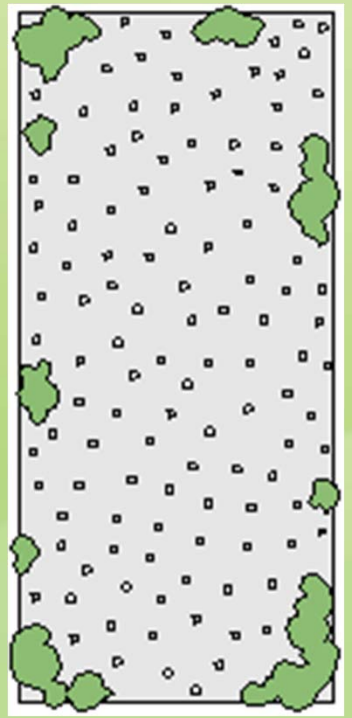
Single Tree Selection



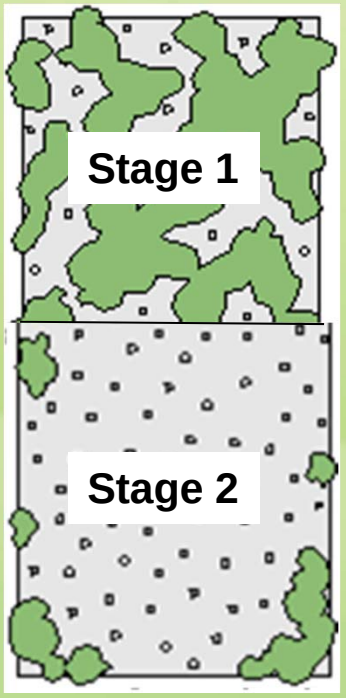
Group Selection



Clear-cut



2 Stage Shelterwood



Assessing Tree Reproduction

Advanced Regeneration

Assessing Deer Browse Impact

Indicators of High Deer Impact

Avoid
High Grading

“Taking the best and leaving the rest.”

Also known as:

- Select cut
- Selective cut
- Selectively cut
- Diameter cut

Penn State **Extension**

High-Grading

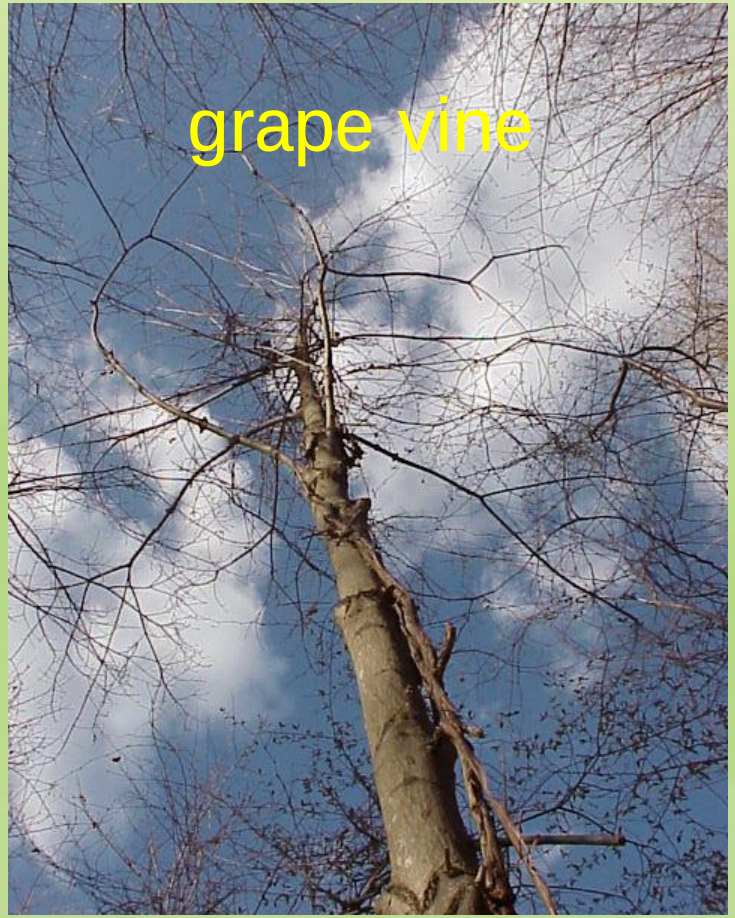
Reduces Options:

- Removes important seed sources
- Decreases long term income
- No consideration for:
  - Species
  - Density
  - Spacing
  - Quality


When Harvesting
Retain Options

Control competing and invasive plants

Some native plants can become problems



Plant Trees

- Species, time of year, site preparation, spacing, protection, and maintenance
  - Convert open land
  - Buffer streams
  - Create travel corridors
  - Provide field borders
  - Introduce or re-introduce desirable tree species

Prune for Quality

Wildlife Management

Involves manipulating components of habitat to favor particular species or group of species.

Wildlife Habitat Components

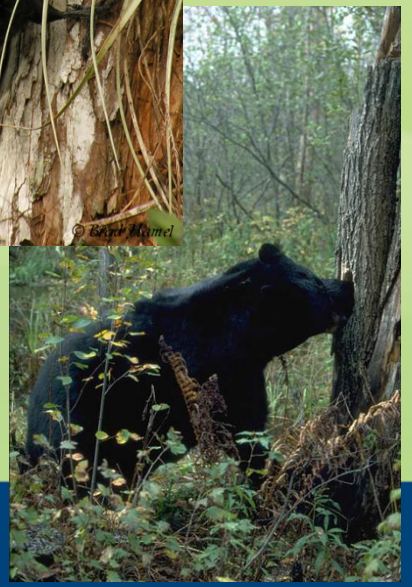
- **Food** – sources include insects, plants, seeds, or other animals
- **Cover** – Nesting, resting, protection from weather, and escaping predators
- **Water** – sources may be a few drops or a large lake
- **Space** – "Home Range" the area which an animal travels to meet its needs for food, water, and cover

Which Species of Wildlife?

- Learn habitat needs of various species
- Determine properties ability to provide needs
- Examine the surrounding landscape





Wildlife Habitat Relationships

Relationship #1

Different stages of succession provide different kinds of wildlife habitat and meet different aesthetic, recreational, and timber management needs

Wildlife Habitat Relationships

Relationship #2

Vertical Structure: Forests are 3 dimensional

Wildlife Habitat Relationships

Relationship #3

Arrangement and interspersion of habitat types

Wildlife Habitat Relationships

Relationship #4

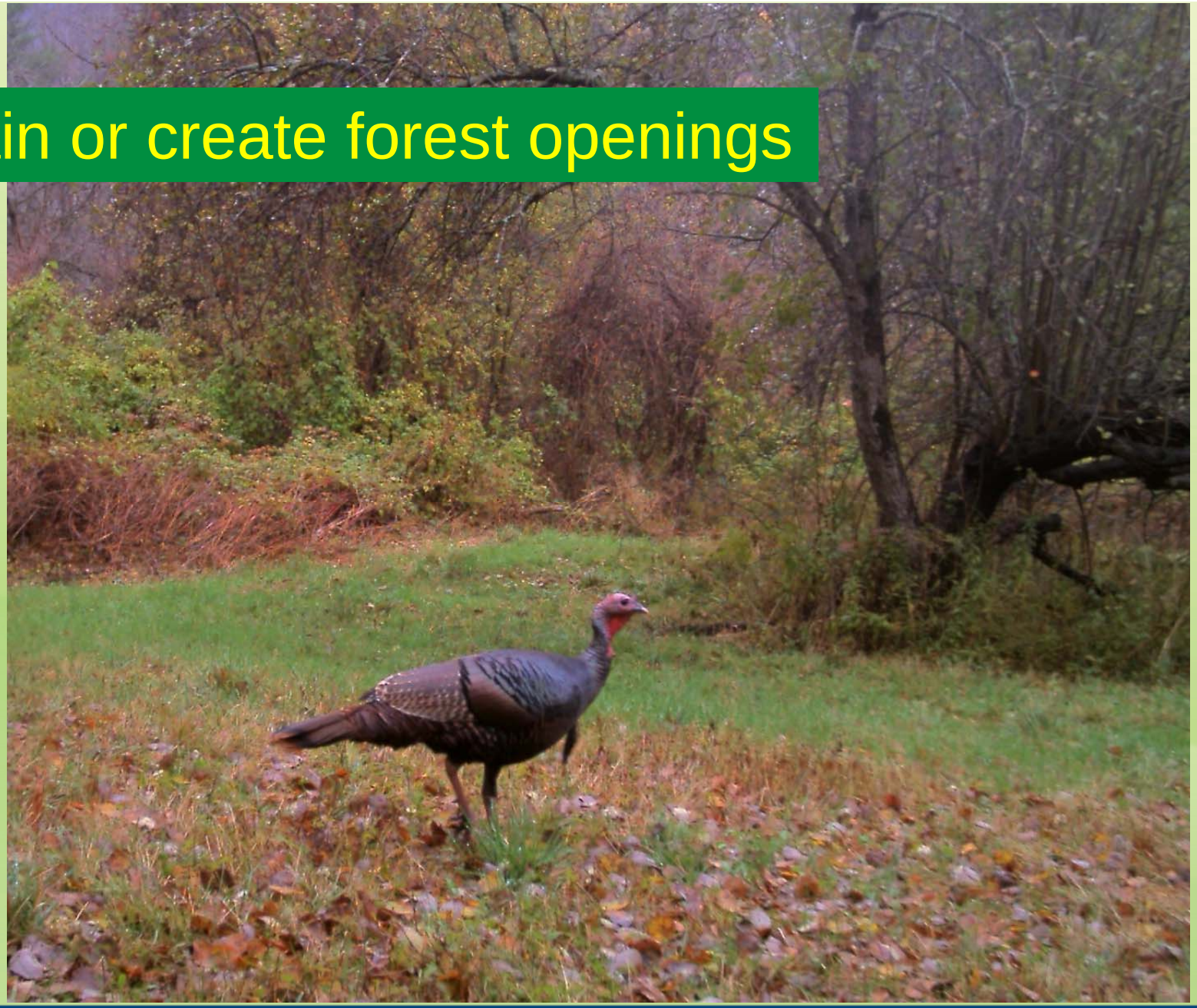
Size of Area

Wildlife Management Practices


Forest Service

Provide cover

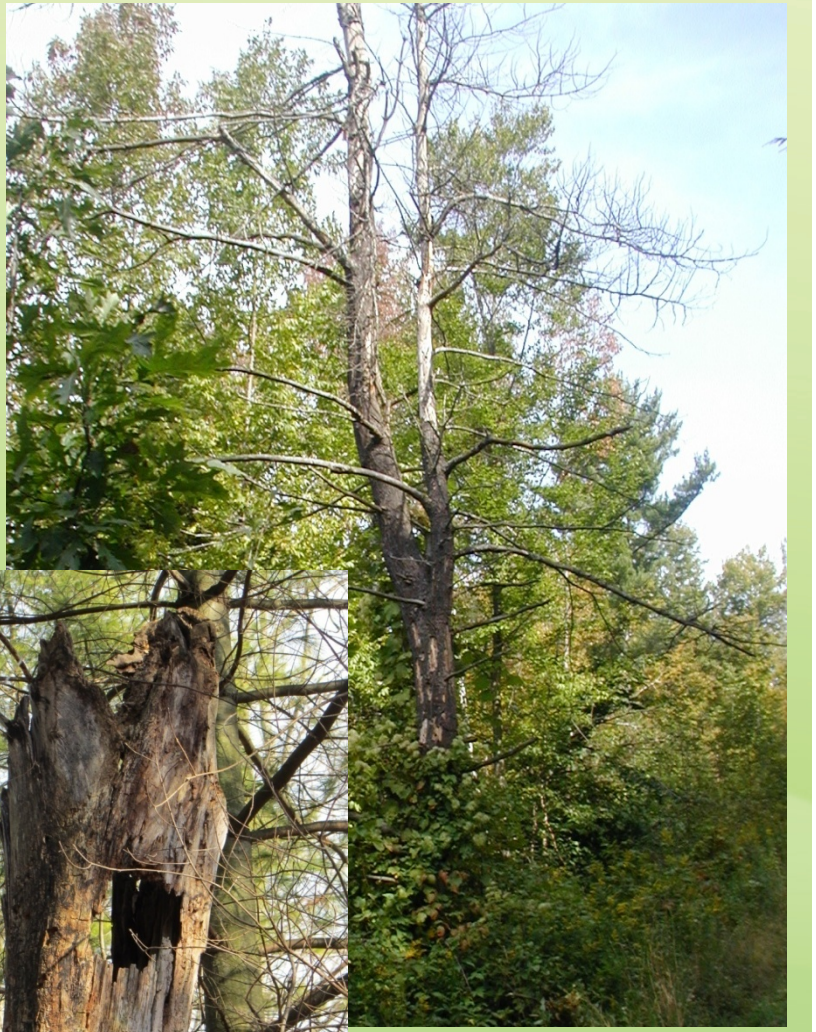
Maintain or create forest openings



Provide a wide variety of food sources

Leave dead and downed wood

Snags &
Cavity
Trees



Widen the transition zone between fields and forests

Convert mowed areas to forest or un-mowed meadows

Active management can increase your lands value

- More productive for timber
- More enticing to wildlife
- More efficient at producing clean water
- Greater recreational opportunities

Defining Your Objectives

- What are you going to do with your land?
- What are your interests?
- Why manage your land?
  - Wildlife habitat
  - Income generation
  - Recreation
  - Aesthetics
  - Speculation
  - Inheritance
  - Preservation
  - Exercise/hobby

How to Get Started

- Consult a professional
- Decide what you want
- Spell out the details
- Determine what you have
- Develop a plan
- Make a timetable
- Execute the plan
- Keep records

Questions??

PENNSTATE

Dave Jackson
Penn State Extension
814-355-4897
drj11@psu.edu