

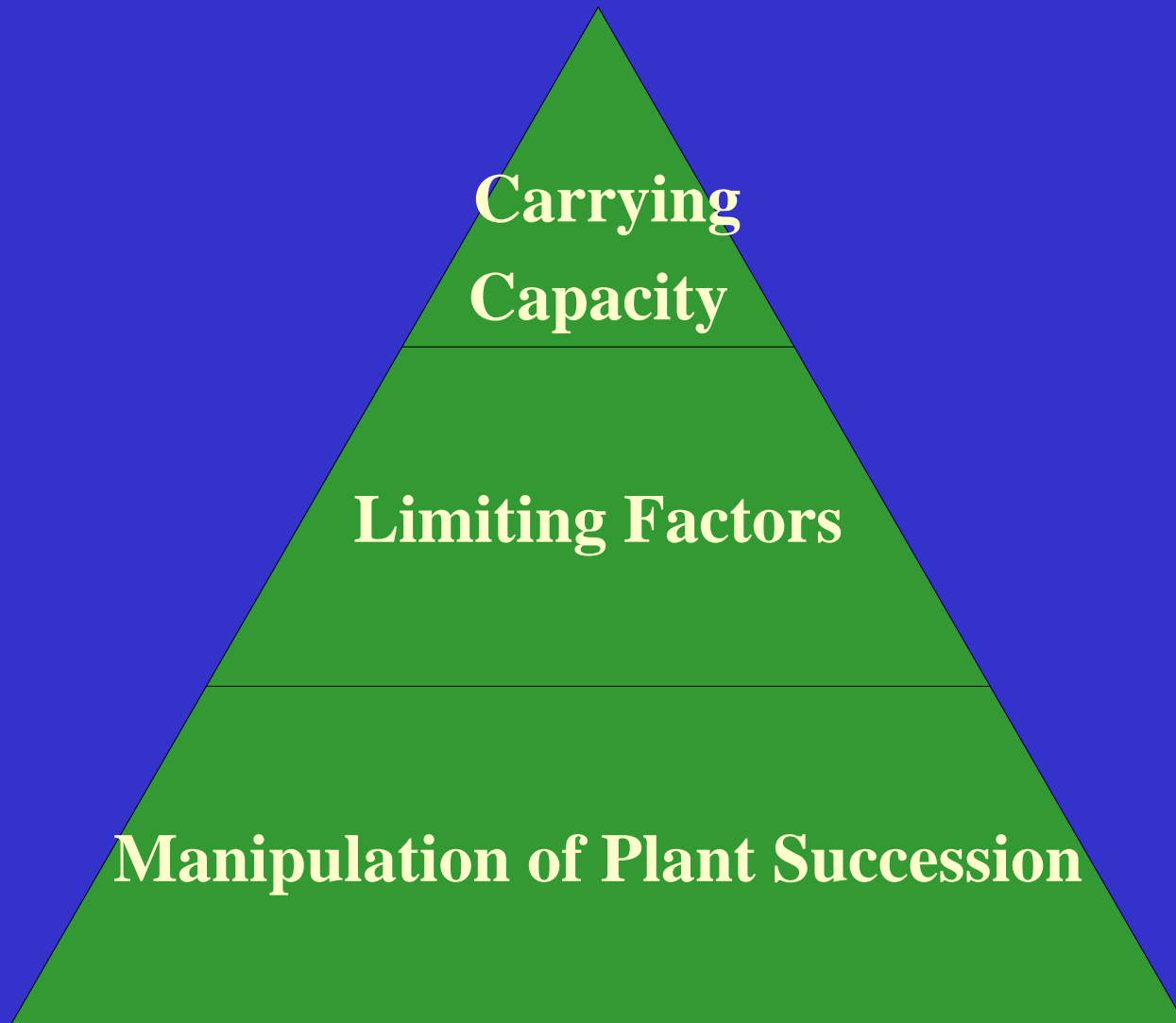
AgroForestry

**Wildlife Habitat Enhancement
on Farms and in Agricultural
Landscapes**

Lesson Objectives

- 1. Appreciate the complexity of wildlife habitats.**
- 2. Recognize how agroforestry can create or enhance on-farm wildlife habitat.**

Wildlife Management Concepts



Carrying Capacity

- **Underlying theme behind the management of wildlife populations**
- **Refers to the maximum number of animals an environment can support under certain conditions without causing destruction of the habitat**
- **Wildlife populations respond to the spatial arrangement and quality of habitats on a given tract of land**

Limiting Factors

- Refers to a basic habitat requirement that is in short supply and prevents a particular wildlife population in an area from growing
- To enhance the habitat for an animal it is important to identify the most restricting habitat factor (food, cover, water, space) – or the factor which is in shortest supply
- **WILDLIFE MANAGEMENT IS LINKED TO HABITAT MANAGEMENT**

Managing Plant Succession

- **A self-directed, orderly, and predictable natural process in which the plant community changes over a period of time**
- **As plant communities change through succession, animal communities also change**

Habitat Requirements

- **Food**



- **Cover**



- **Water**





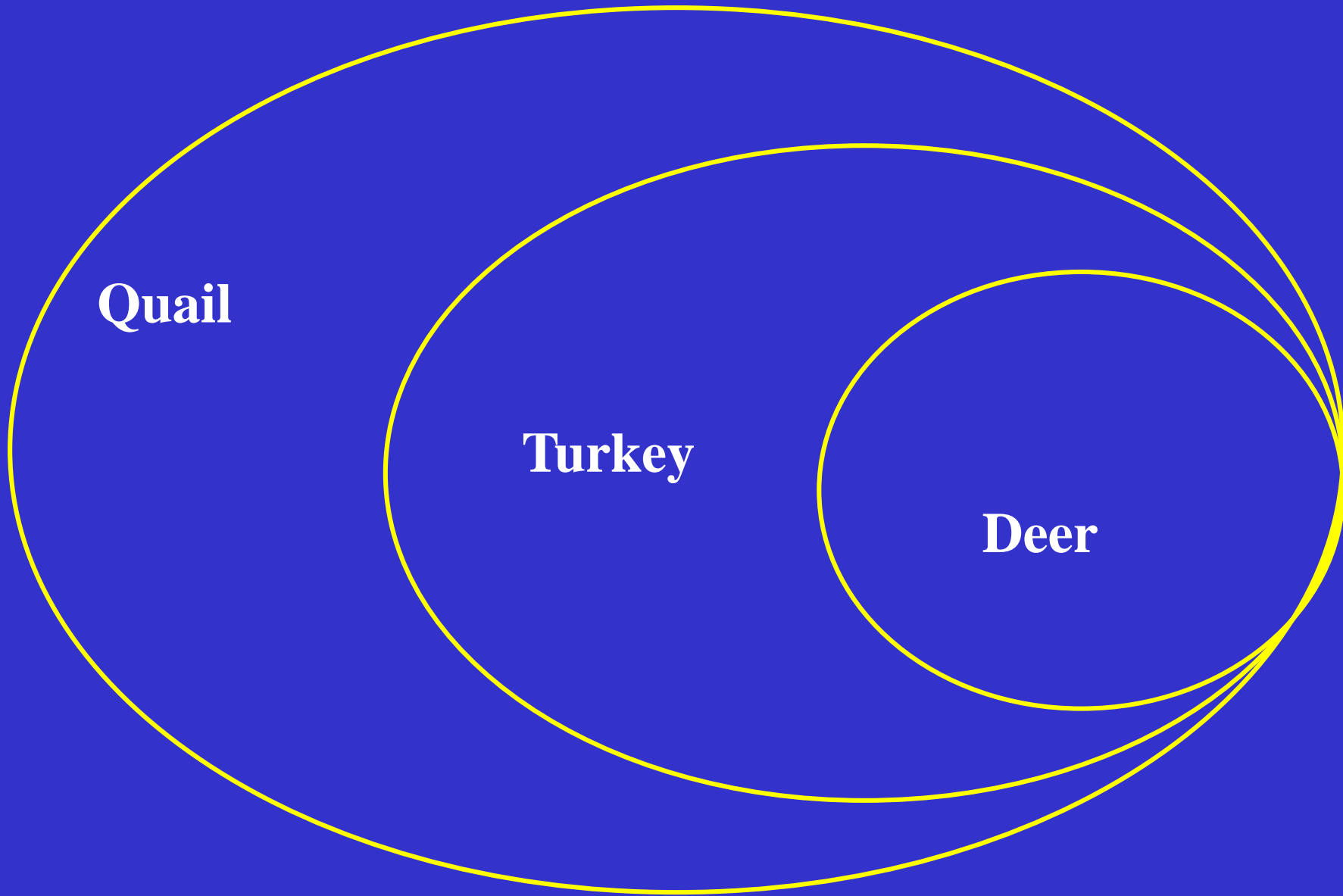
Identify the species!











Manage for the Least Common Denominator

Design Principles

- **Develop reliable food sources**

Maximize variety of foods available

Focus on native plant species



Design Principles

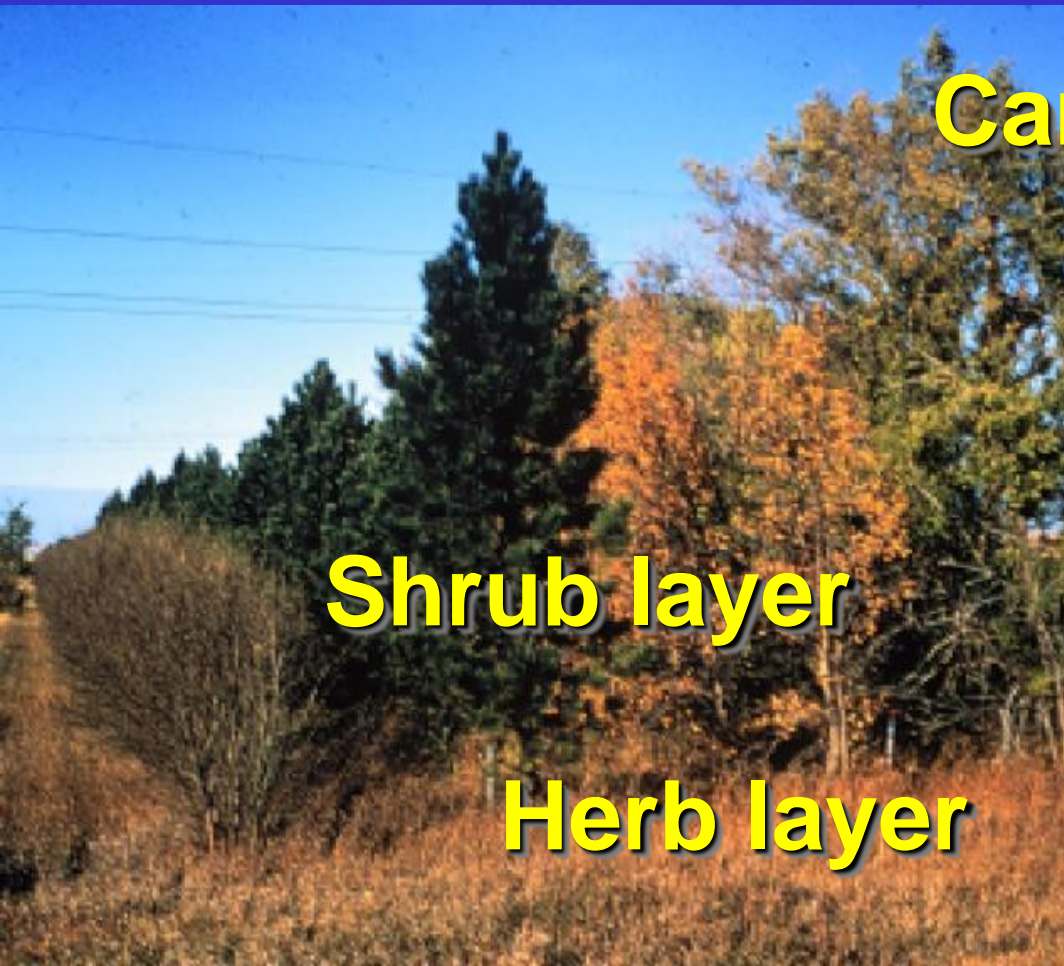
- **Optimize vegetation diversity**

Consider year-round food and cover needs



Design Principles

- **Develop vertical structure**



Design Principles

- Create buffer width



Design Principles

An aerial photograph of a rural landscape featuring rolling hills, agricultural fields, and a stream. The terrain is a mix of green fields and brownish soil, with a dense line of trees running through the center. The overall scene is a typical agricultural landscape.

**Establish multiple travel corridors
where possible**

Design Principles

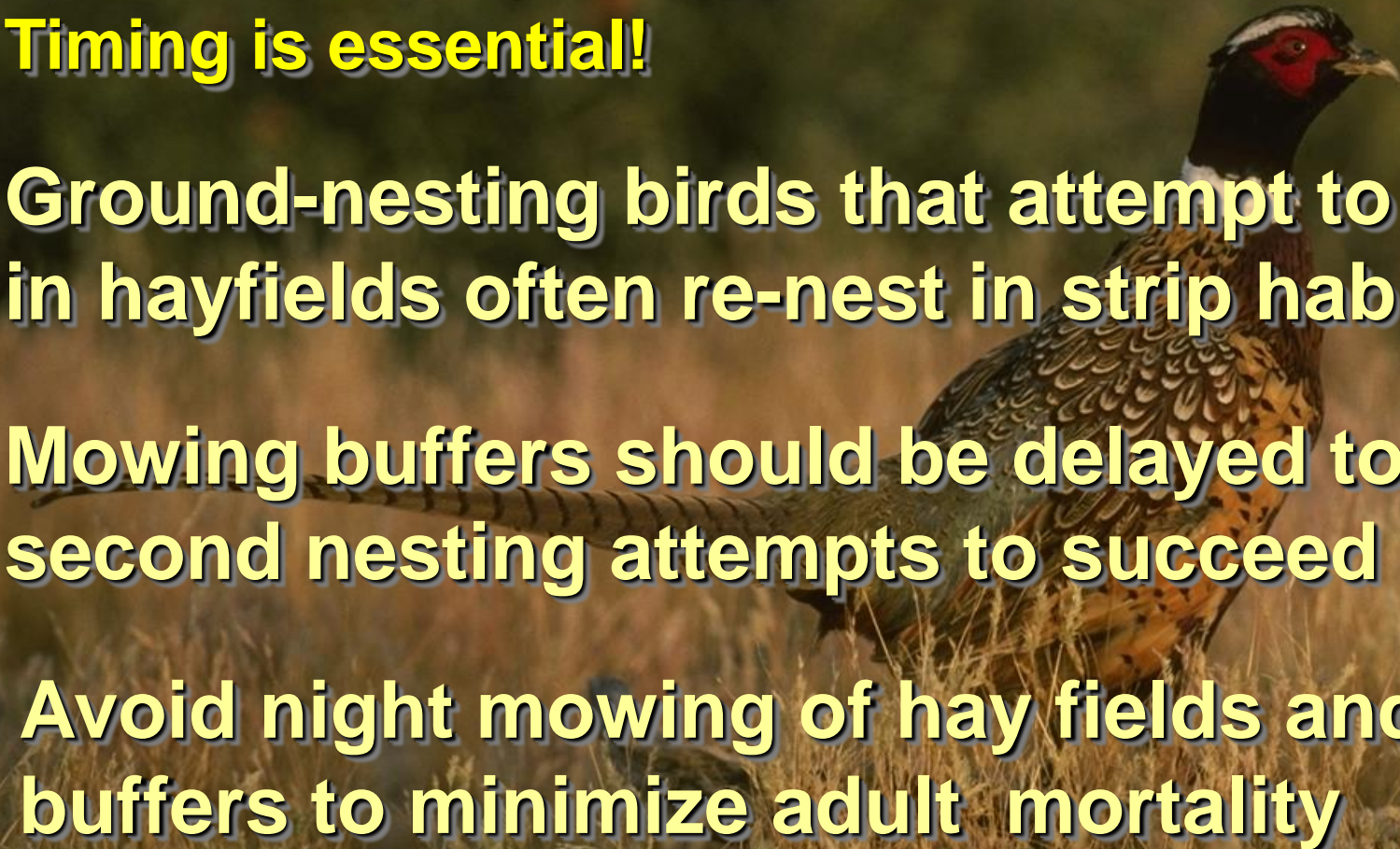
- Management and maintenance

Timing is essential!

Ground-nesting birds that attempt to nest in hayfields often re-nest in strip habitats

Mowing buffers should be delayed to allow second nesting attempts to succeed

Avoid night mowing of hay fields and buffers to minimize adult mortality



Design Principles

- **Management and maintenance**

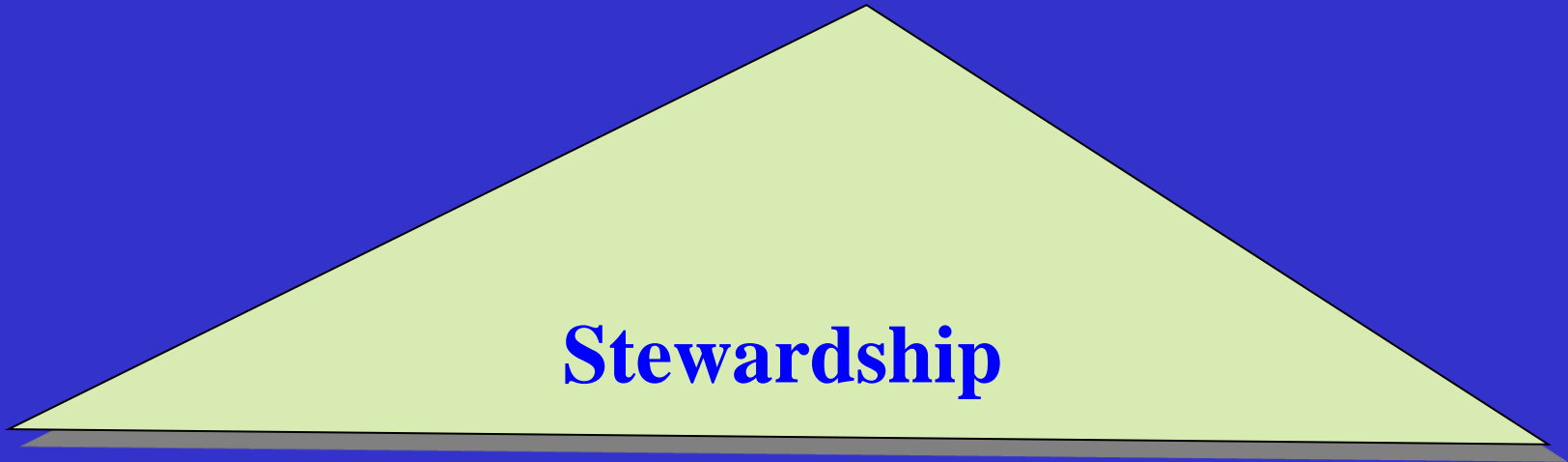
Consider landowner objectives

Time disturbance to local climate

**Consider how disturbance affects
other resource objectives**

Production

Conservation



AGROFORESTRY

Agroforestry:

set of stewardship practices that combines trees and/or shrubs with crops and/or livestock

- **Alley cropping** – Growing crops between widely spaced rows of trees
- **Silvopasture** – combines trees, forage production and livestock
- **Windbreaks** - using trees and shrubs to slow problem winds
- **Riparian forest buffers** – combinations of trees, shrubs and grasses to protect streams and adjacent lands
- **Forest farming** – Co-management of forest for both: Timber and other forest grown products

Agroforestry

MAXIMIZING

MANAGED

EDGES

And

IMPROVING FORESTS

Alley Cropping

Alley cropping is farming alleys created between rows of trees. Crops can be agronomic, horticultural, or forages harvested as hay.

The crop or product produced may also be wildlife.

Alley Cropping

**Better than mono-crop,
BUT**



Alley Cropping or Windbreak ?



Windbreak / Shelterbelt



Plantings of single or multiple rows of trees or shrubs that are established for one or more environmental purposes.

Windbreaks that benefit wildlife will incorporate

SHRUBS

- Hazelnut
- Wild plum
- Aromatic sumac
- Shrub lespedeza
- Roughleaf dogwood

Rows of shrubs can provide cover and travel corridors



Windbreak Design - Wildlife



Consider:

> Connecting habitats
cover

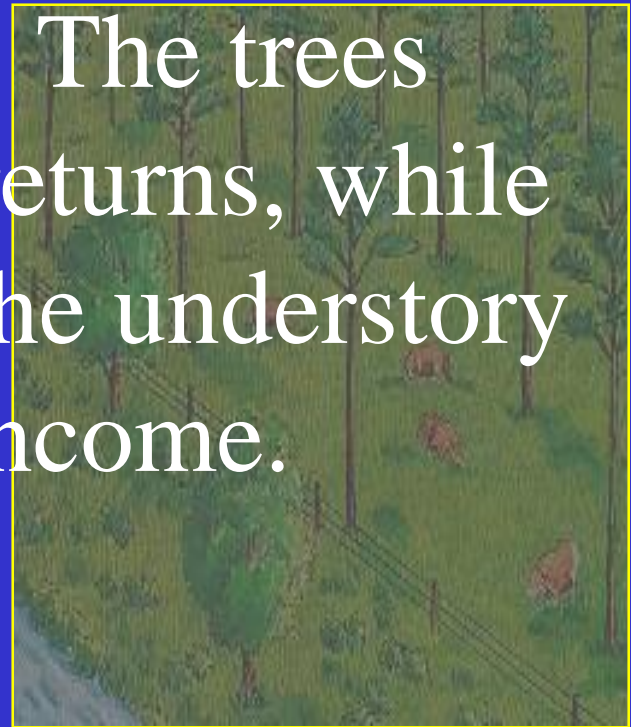
> Winter cover needs

> Herbaceous

> Food needs

Silvopasture

Silvopasture practices combine the growing of timber with forage and livestock production. The trees provide longer-term returns, while livestock grazing of the understory generates an annual income.



Silvopasture or Food Plot?



NATIVE GRASS

NESTING

- Little bluestem
- Sideoats grama
- Broomsedge

ROOSTING

- Indiangrass
- Big bluestem
- Switchgrass

LEGUMES

- Ladino clover
- Red clover
- Annual lespedeza
- Alfalfa
- Native legumes

Forested Riparian Buffer



Riparian Forest Buffers

- Connect upland and aquatic ecosystems
- Transition zones between upland and aquatic habitat
- Areas of trees, shrubs, grasses and other vegetation adjacent to water bodies
- One of the most effective tools for coping with nonpoint source pollution
- Ideally, buffers are managed



Riparian Forest Buffers



Young buffer, recently planted.

Several zones—trees, shrubs, grasses

FORESTED WETLAND



Seasonally flooded Green Tree Reservoirs

GENERAL PLANT RESPONSE

**EARLY DRAWDOWN
SMARTWEEDS**

**MID-SEASON DRAWDOWN
MILLETS**

**LATE SEASON DRAWDOWN
SPRANGLETOP**

FALL MIGRANT WATERFOWL



Forest Farming

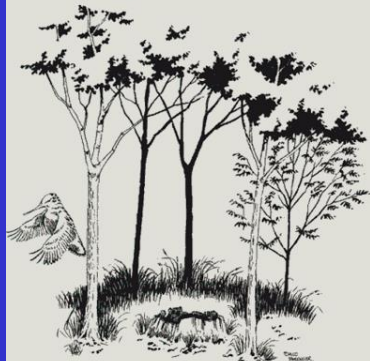
**Development of suitable microenvironments
in natural forest stands for growing high
value specialty crops.**



Just harvested up to 10 years



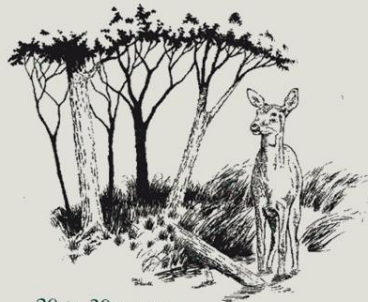
80 years or more
Ready for harvesting



10 to 20 years
Ready for thinning



60 to 70 years



20 to 30 years



40 to 50 years



Wildlife and Forest Succession

The variety of cover conditions—from areas recently opened up by logging to stands of mature timber—provides different types of food and shelter required by many species of game birds and animals. New openings are sources of insects, berries and buds required by birds, such as grouse. Openings also yield heavy growths of browse for deer. As the trees mature, they produce the nuts and fruits preferred by turkey, squirrel and bear. Many birds and animals use the forest edge, the dense growth that fills in along the borders of new openings.

Group Opening



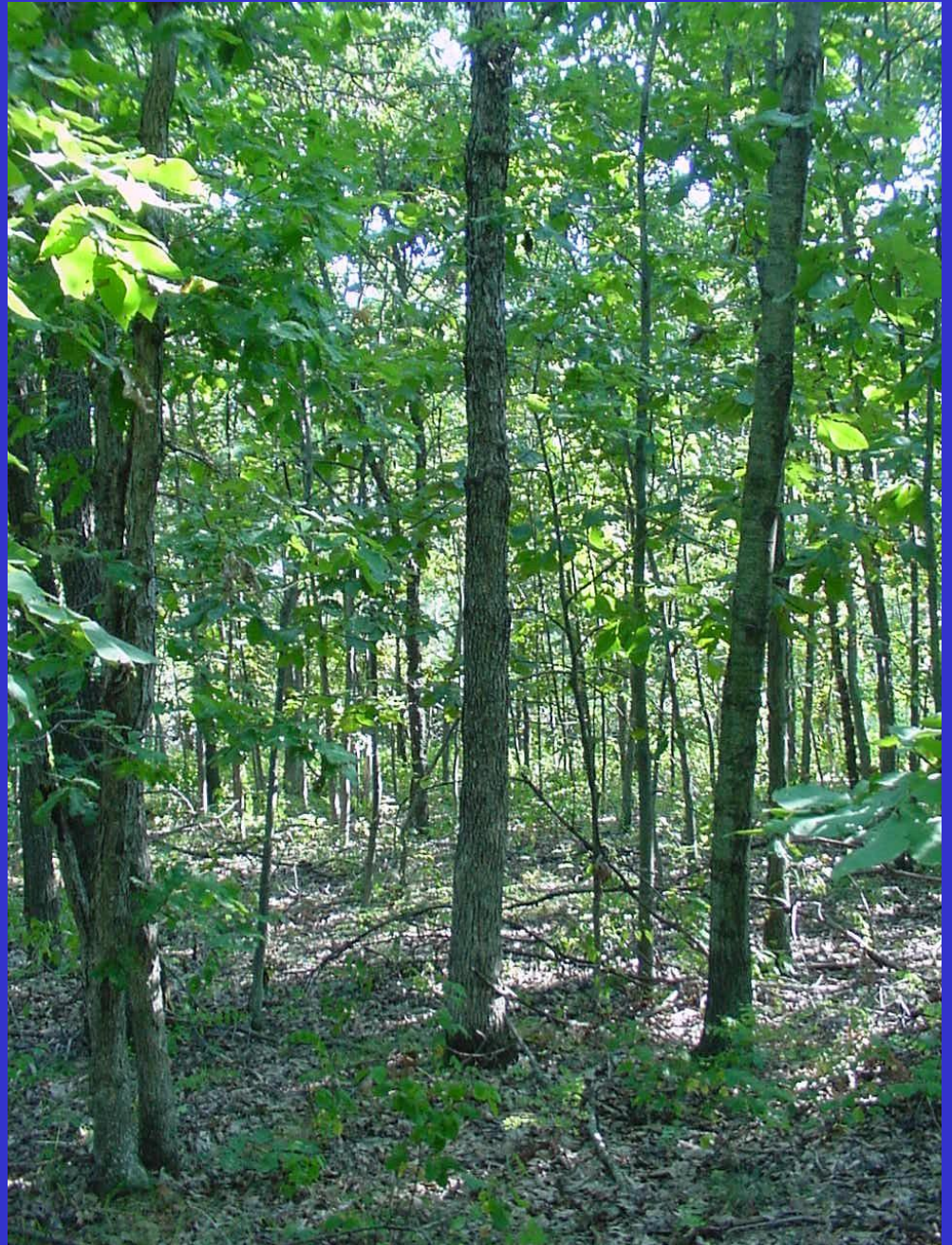
FOOD PLOTS

- 1/4 to 5 acres in size
- Minimum 25' wide
- Plant only 1/2 of plot each year
- May relocate each year



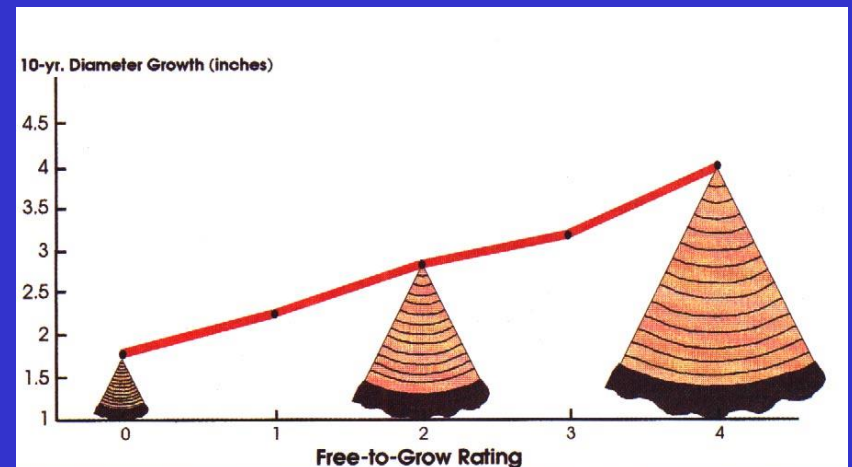
Thin to release
the nice pole
sized white oak
and northern red
oak.

Notice the
sparse ground
cover



Benefits of Thinning

- Increases ground cover
- Better conditions for mast production
- Increases growth of released trees
- Increases health and vigor of trees



Edge Development and Management

- Woodland to woodland

Created as a result of regeneration cuts or group openings

- Woodland to open land

Transition zone from woodland to other land use.

Using Agroforestry to Enhance Wildlife Habitat

1. Identify the wildlife species of interest
2. Can you pick a species representing the
-- “Least Common Denominator” -- ?
3. What habitat limiting factors are common?
4. Manipulate the habitat to maximize benefits!



Questions?