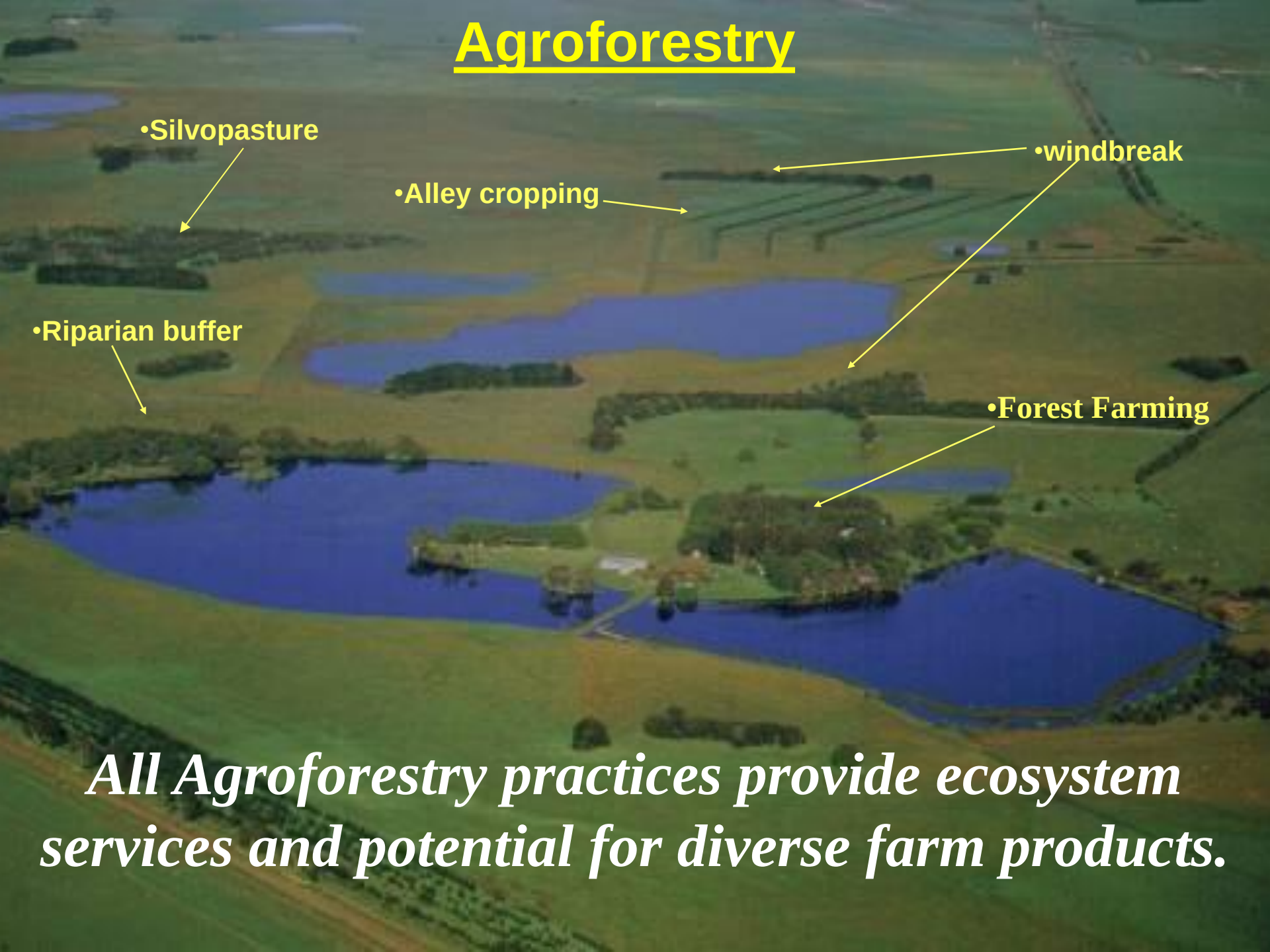
AgroForestry

Wildlife Habitat Enhancement on Farms and in Agricultural Landscapes

Agroforestry

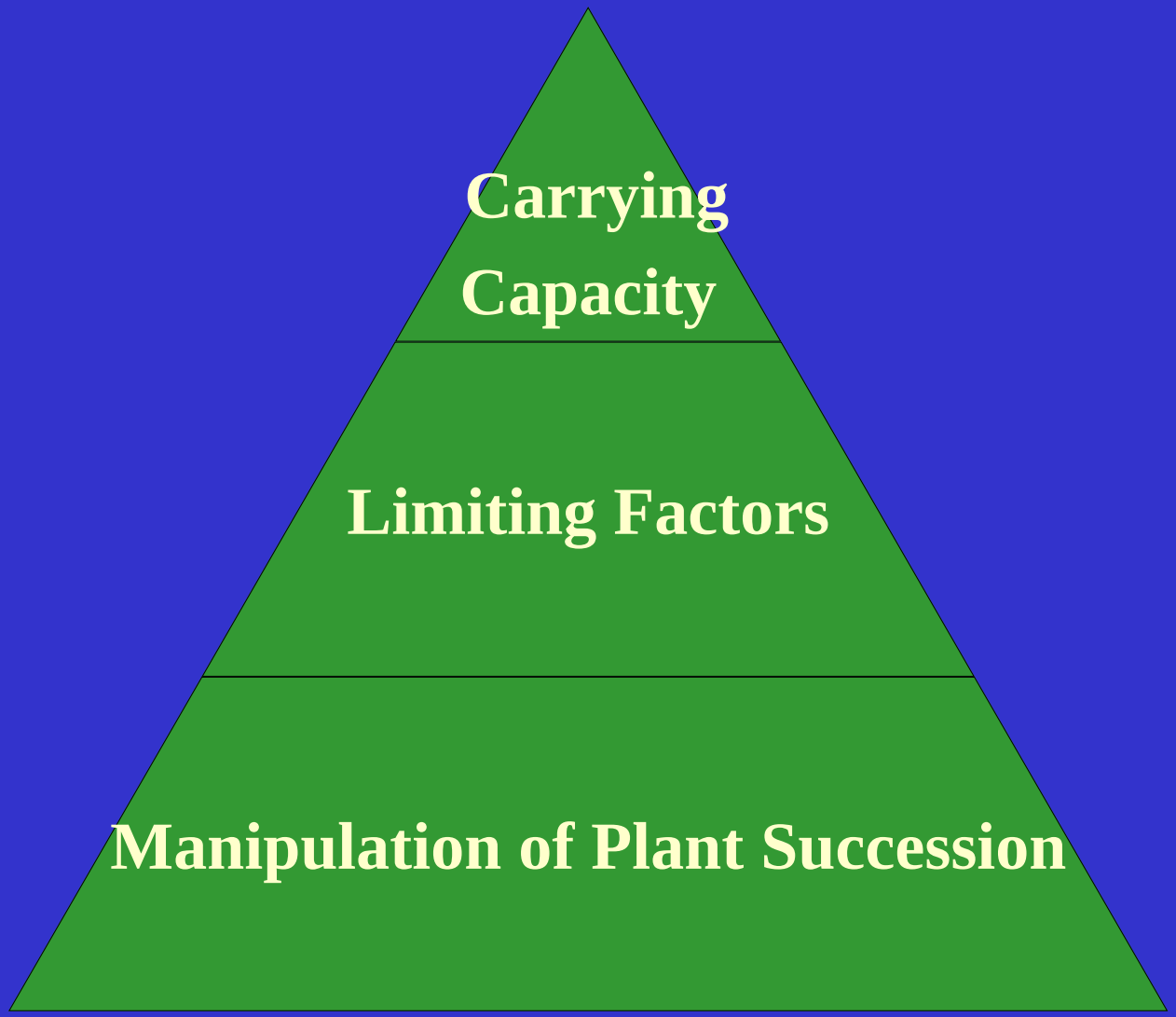


All Agroforestry practices provide ecosystem services and potential for diverse farm products.

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

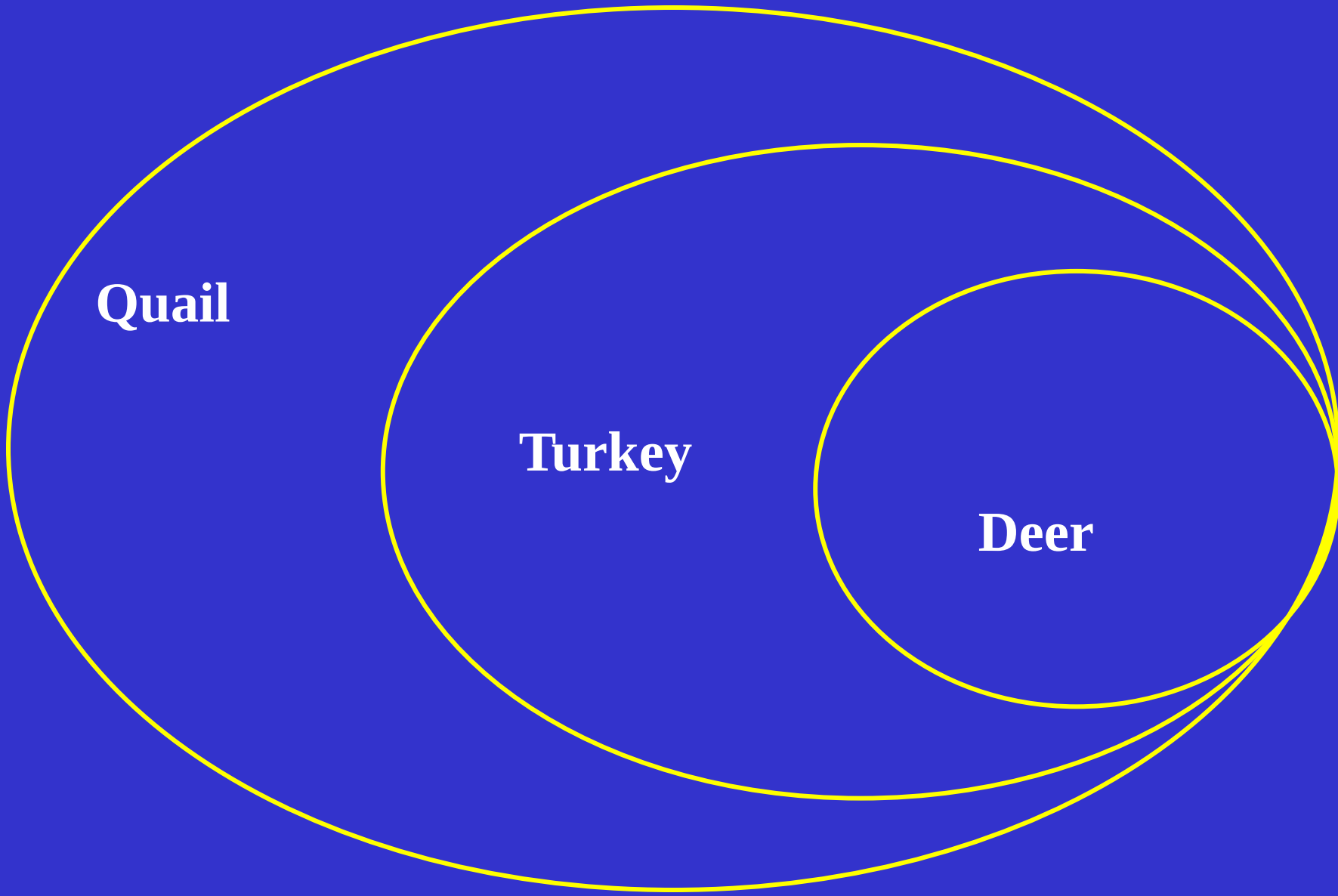
Habitat Requirements

- 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

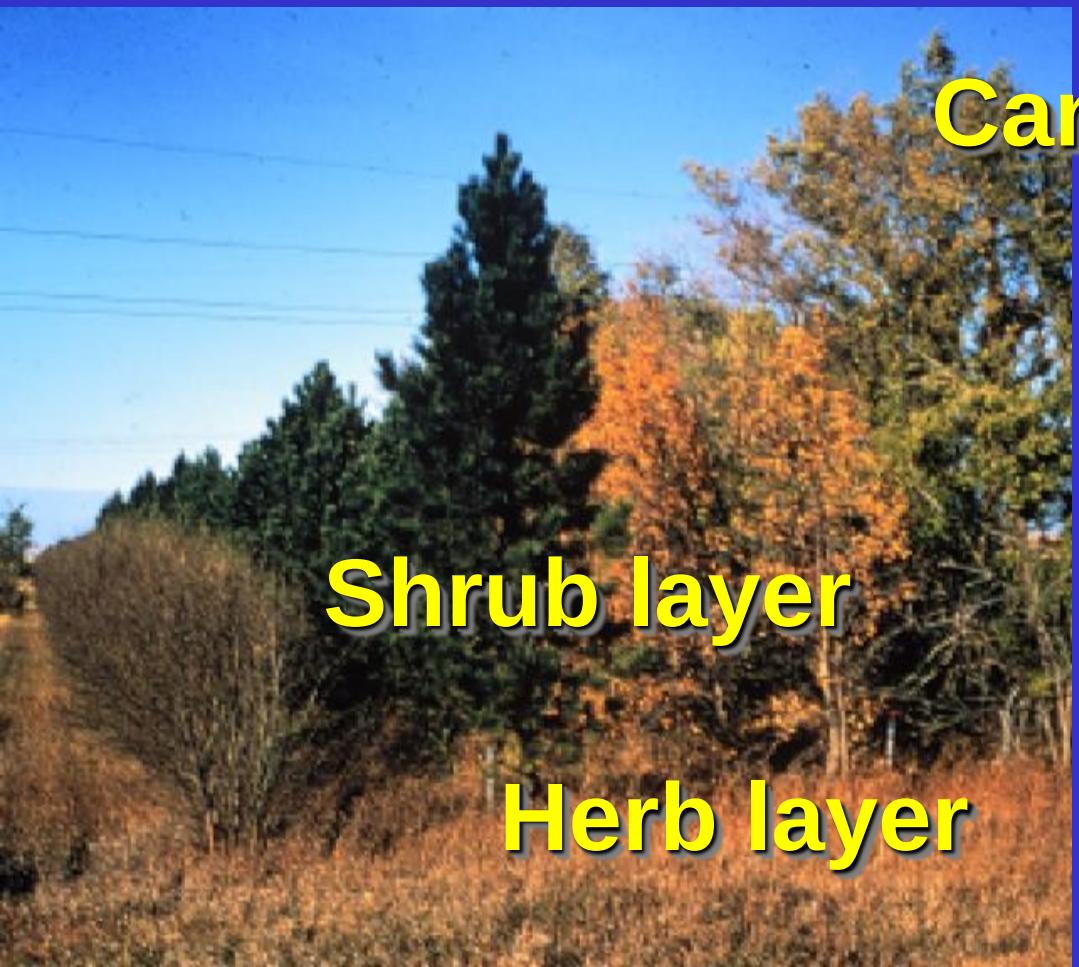
Design Principles

- Optimize vegetation diversity

Consider year-round food and cover needs

Design Principles

- Develop vertical structure



Design Principles

- Create buffer width

Design Principles

- 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

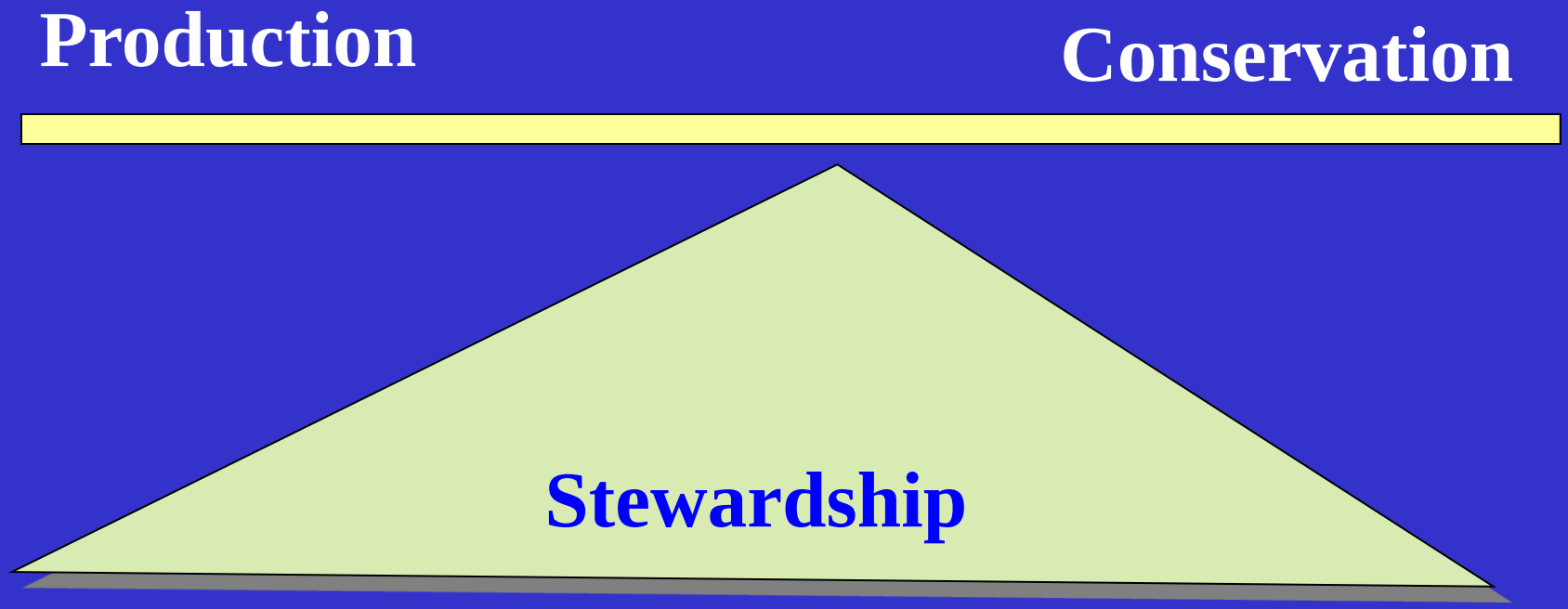
Design Principles

- Management and maintenance

Consider landowner objectives

Time disturbance to local climate

Consider how disturbance affects other resource objectives



AGROFORESTRY

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

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
- Elderberry
- Blueberry
- Roughleaf dogwood

Rows of shrubs can provide cover and travel corridors

Windbreak Design - Wildlife

Consider:

> Connecting habitats cover

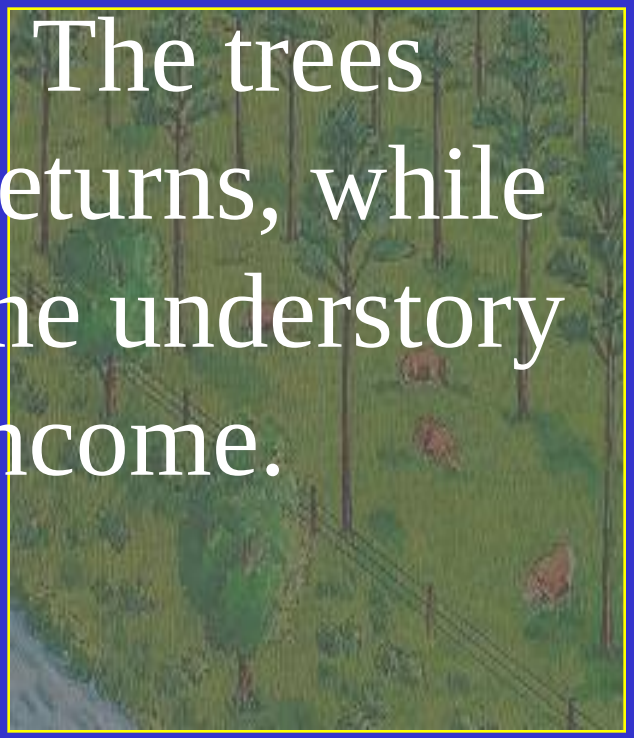
> Winter cover needs

> 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

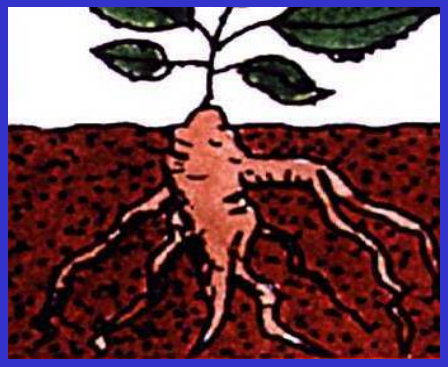
LATE SEASON DRAWDOWN
SPRANGLETOP

FALL MIGRANT WATERFOWL

Forest Farming

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


Group Opening



Forest Grown Herbal Medicinals

- **American Ginseng**
- **Goldenseal**
- Witch Hazel
- Black Cohosh
- Bloodroot
- Saw Palmetto (Florida)
- Slippery Elm
- Elderberry Flowers
- Virginia Snakeroot

FOOD PLOTS

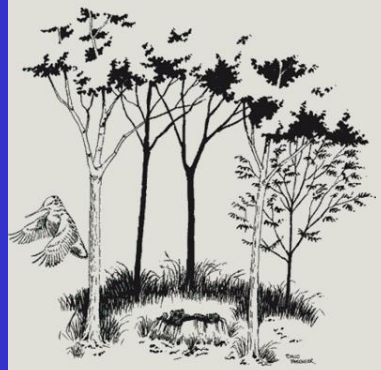
- 1/4 to 5 acres in size
- Minimum 25’ wide
- Plant only 1/2 of plot each year
- May relocate each year

Just harvested up to 10 years

80 years or more
Ready for harvesting

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.



10 to 20 years
Ready for thinning

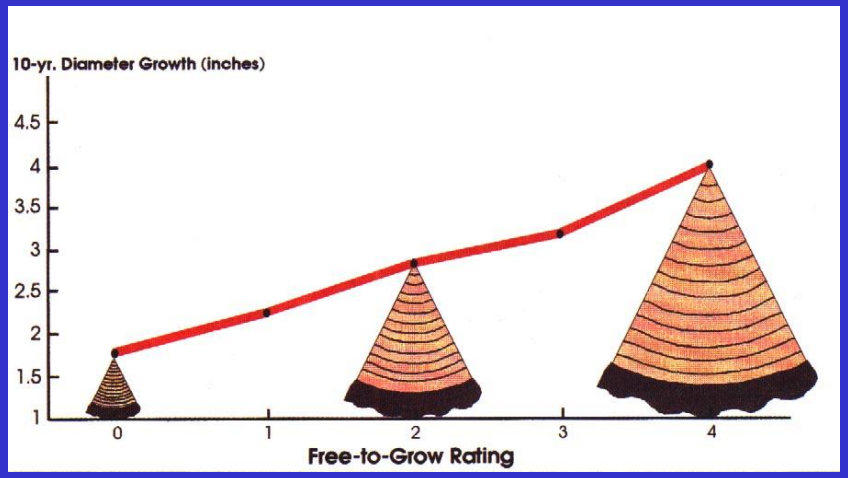
60 to 70 years

20 to 30 years

40 to 50 years

Benefits of Thinning

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



Forest Farming

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!

Agroforestry

All Agroforestry practices provide ecosystem services, can diversify farm products, and meet wildlife habitat needs.

- Developing new technologies to benefit agriculture
- While preserving and enhancing our natural resources

Putting Science into Practice


Questions?