

Sustaining Healthy Forests Using Natural Models to Guide Management

- A Context
- The issue
- Needs

Dr. Brian Palik
USDA Forest Service
Northern Research Station

Center for
Research on
Ecosystem
Change



A Nation's Forests

Economic Importance: Indiana (for example)

- \$9 billion annually contribution to the economy
 - \$1 billion annually from forest-based recreation/tourism
 - \$175 million from the sale of trees
 - \$25 million from the sale of associated forest products
- \$1.4 billion annually from forest-based manufacturing
- \$8 billion value of shipments from forest-based manufacturing
- 54,000 jobs



Indiana

Area

USA Total: 7.49 million ac (33%)

USA Contiguous: 6.24 million ac (33%)

Forest Management: Historically (post WWII)



Production forests

- wood and fiber
- watershed protection
- wildlife (mostly game)
- recreation

Agricultural Model: single species focus, energy subsidies

Conservation forests

- habitat (coarse filter)
- wildlife (more than game)

Reserves: national parks, wilderness areas, etc.



Landscape Allocation



Reserve

Reserve

**Production Forest
(Agricultural Model)**

Reserve

Reserve

Ecosystem science tells us that:

- This dichotomy is not sufficient to meet biodiversity and conservation objectives broadly
- The condition of the “matrix” is important for sustaining many species (biodiversity)
- Managing for biodiversity across more of the landscape is important for sustaining healthy forests and their services: e.g., *storing carbon, resisting invasive species, adapting to climate change, growing diverse wood products*

The Greening of Forestry: Management Based on Natural Models

~~Agricultural Model~~

Premise:

Understanding how forests work here (natural forests).....

results in guides for healthier, more sustainable forests here (managed forests)

The agricultural model is used in select places on the landscape

Intensive Production

Reserve

Intensive Production

Reserve

“Ecological Forestry”

Objectives

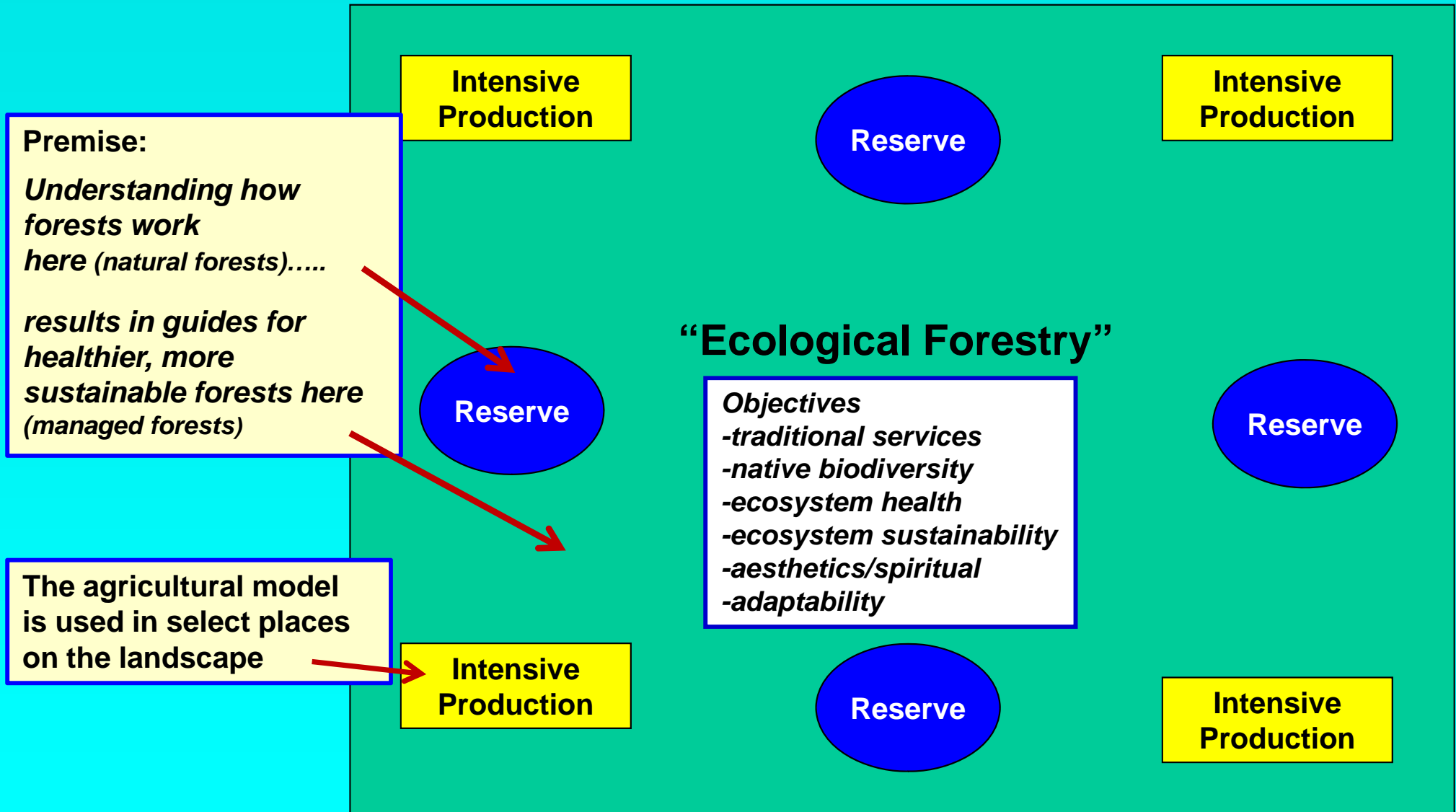
- traditional services
- native biodiversity
- ecosystem health
- ecosystem sustainability
- aesthetics/spiritual
- adaptability

Reserve

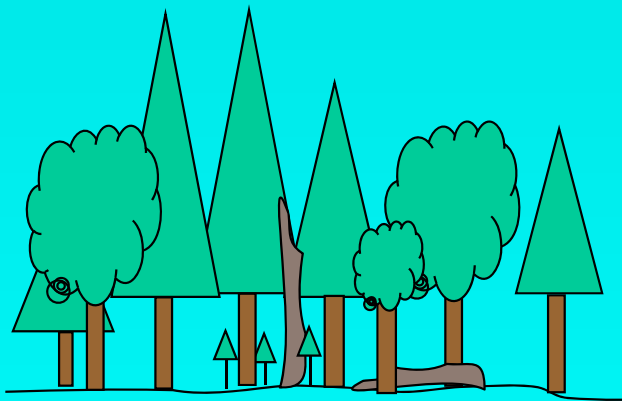
Intensive Production

Reserve

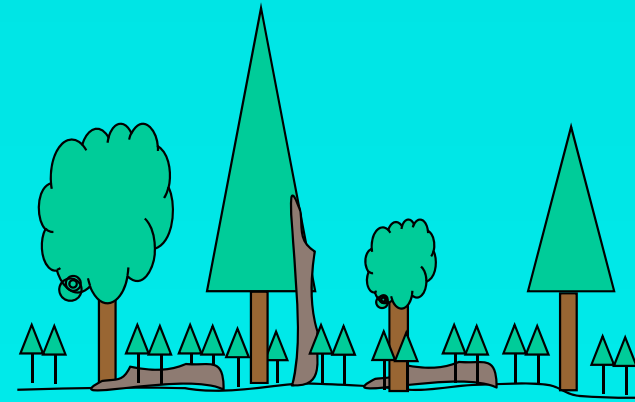
Intensive Production



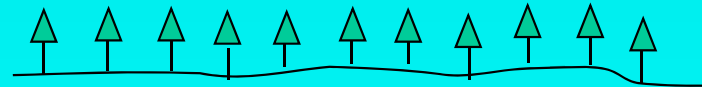
A Cartoon Example



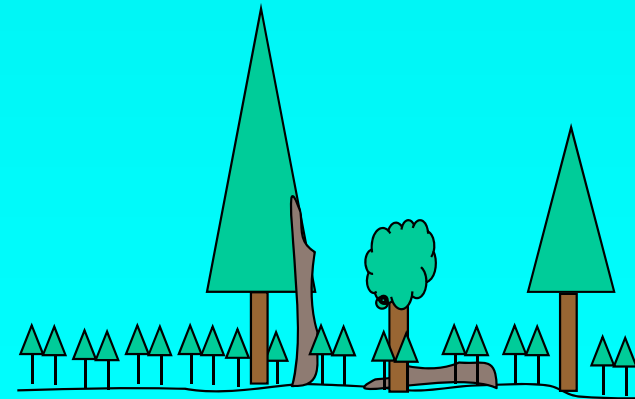
Mature Forest



Young forest after natural disturbance



Young forest after harvest (agricultural model)



Young forest after harvest (natural model)

This forest has:

- greater diversity of habitats & species
- greater capacity to store carbon
- enhanced resistance to invasive & pests
- greater diversity of timber species
- increased options for the future

Evidence for adoption of natural models forestry?

Forest Certification (particularly FSC): many sustainability indicators are based on natural forest processes

National Forest Management Plans: the next generation all speak to restoring and managing based on elements of natural models

US Forest Service is a leader in this transformation, but partnerships are crucial!

Needs:

Fundamental ecosystem research: comprehensive understanding still lacking for many types of forests

The economics of ecological forestry: costs/benefits relative to traditional forestry, the value of ecological services

Landscape-scale conservation: diverse ownerships working together

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