

**Desired Forest Conditions for Wildlife (DFCW): A Focused Forest Management Paradigm for Wildlife in the Mississippi Alluvial Valley**

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And Forest Science Gold 5th Anniversary August 12, 2020, School of North Carolina

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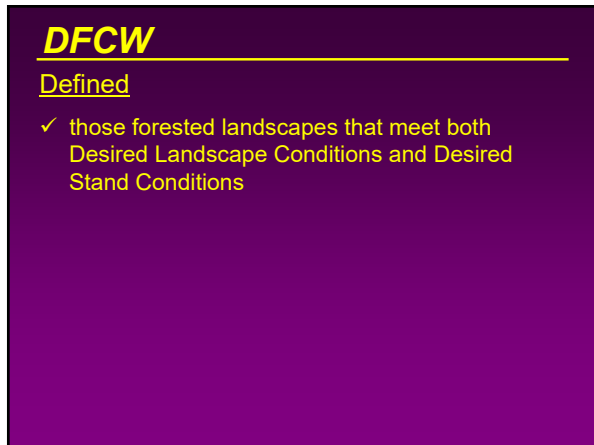
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***DFCW***

Defined

- ✓ those forested landscapes that meet both  
Desired Landscape Conditions and Desired  
Stand Conditions

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**Lower Mississippi Valley Joint Venture's  
Forest Resource Conservation Working Group**

*Approved by the  
Management Board  
Spring 2007*

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RESTORATION, MANAGEMENT AND MONITORING OF  
FOREST RESOURCES IN THE MISSISSIPPI ALLUVIAL VALLEY:  
RECOMMENDATIONS FOR ENHANCING WILDLIFE HABITAT

LOWER MISSISSIPPI ALLUVIAL VALLEY JOINT VENTURE  
FOREST RESOURCE CONSERVATION WORKING GROUP

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## Mississippi Alluvial Valley

### Description

- ✓ part of 7 states adjacent the Mississippi River
- ✓ geology characterized by alluvial deposits with notable exceptions
- ✓ 75% privately owned forests



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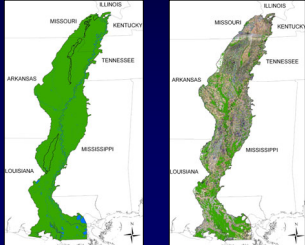
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## Mississippi Alluvial Valley

### Land Use Patterns – Deforestation/Conversion

- ✓ 26.5 million acres → 6.6 million acres (26.5%) (Gardiner 2015)



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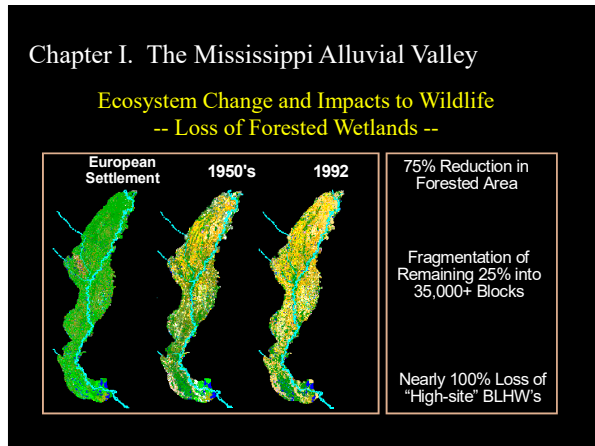
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RESTORATION, MANAGEMENT AND MONITORING OF FOREST RESOURCES IN THE MISSISSIPPI ALLUVIAL VALLEY: RECOMMENDATIONS FOR ENHANCING WILDLIFE HABITAT

**Lower Mississippi Valley Joint Venture's Forest Resource Conservation Working Group**

Context Includes Overviews of:

- The Mississippi Alluvial Valley
- Priority Wildlife Species and Habitat Objectives
- Management of Bottomland Hardwood Forests
- Restoration of Bottomland Hardwood Forests
- Forest Evaluation and Monitoring
- Recommendations and Conclusions

LOWER MISSISSIPPI ALLUVIAL VALLEY JOINT VENTURE  
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Chapter 2. Priority Wildlife Species

Bats    Waterfowl

Bears    Forest Interior Songbirds

Reptiles & Amphibians    American Woodcock

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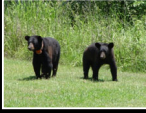
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### Priority Wildlife Species: Habitat Needs



Large Cavities



Large Cavities, Dense Ground Cover, & Hard and Soft Mast



Down Woody Material

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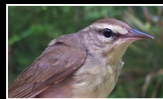
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### Priority Wildlife Species: Habitat Needs

Cavities and Hard and Soft Mast



Cavities & Structural Complexity



Dense Undergrowth



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### Priority Wildlife Species: Habitat Needs



Pileated Woodpecker



Recently Dead / Dying Trees

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## Chapter 2. Priority Wildlife Species



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14

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...we have a long history of forest management, primarily economically-driven with little specific thought given to enhancement of wildlife habitat.



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## DFCW

### Management of Bottomland Hardwoods

- ✓ Putnam et al. (1960) tree classification system for bottomland hardwoods (primarily in the MAV)
  - preferred growing stock
  - reserve growing stock
  - cutting stock
  - culls (considered wildlife habitat if no timber value)

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Population Sustainability =  
 (landscape quality) + (site quality)

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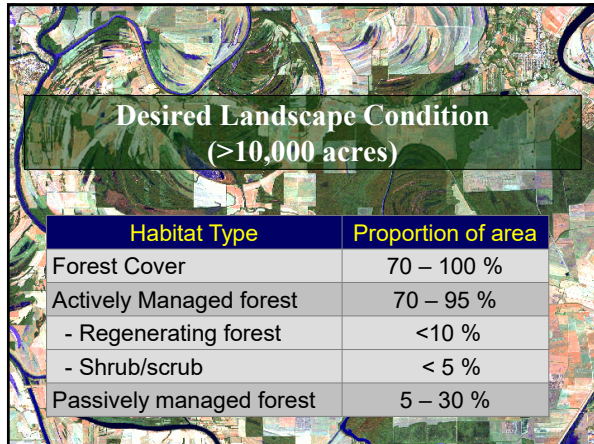
Landscape Quality



Block size and Configuration  
Distance from Hostile Habitats

Species' Requirement:  
 Large, Contiguous Blocks of  
 Bottomland Hardwood Forest

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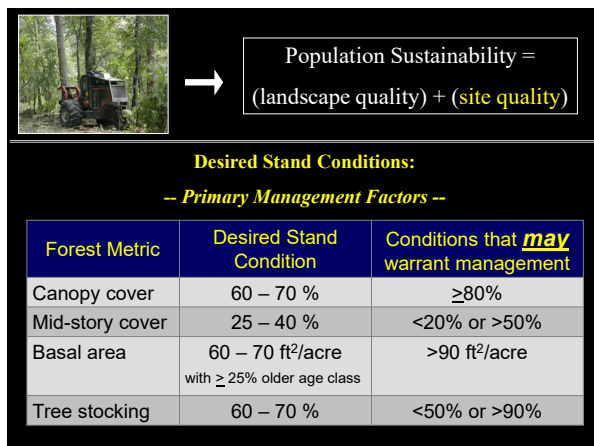
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**Desired Stand Conditions:  
-- Secondary Management Factors --**

Forest Metric	Desired Stand Condition	Conditions that <i>may</i> warrant management
Dominant trees	>2 / acre	<1 / acre
Under-story cover	25 – 40%	<20% or >60%
Reproduction (advance intolerant)	30-40% of area	<20% of area
Coarse woody debris	≥200 ft <sup>3</sup> / acre	<100ft <sup>3</sup> / acre
Small cavities (< 10" diameter)	>4 visible holes / acre	<2 visible holes / acre
Den trees (> 10" diameter)	>1 visible hole / acre	<1 visible holes / acre
Standing dead / stressed trees	>6 stems / acre >10" dbh >2 stems/ac >20" dbh	<4 stems / acre >10" dbh <1 stem/ac >20" dbh

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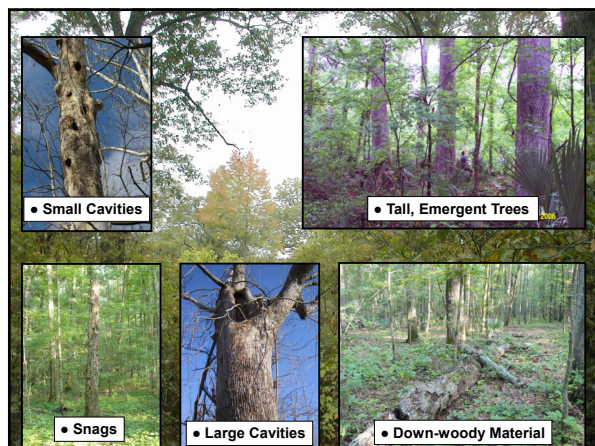
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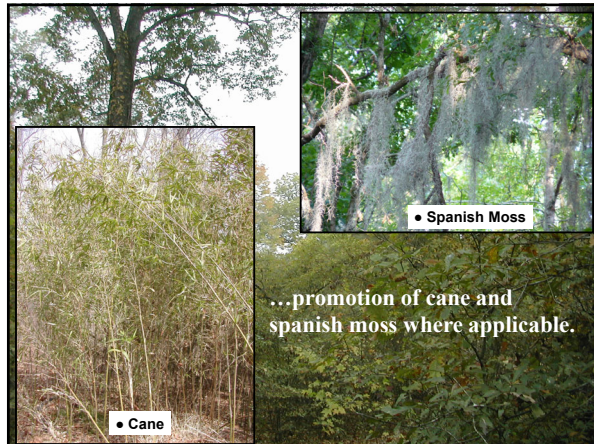
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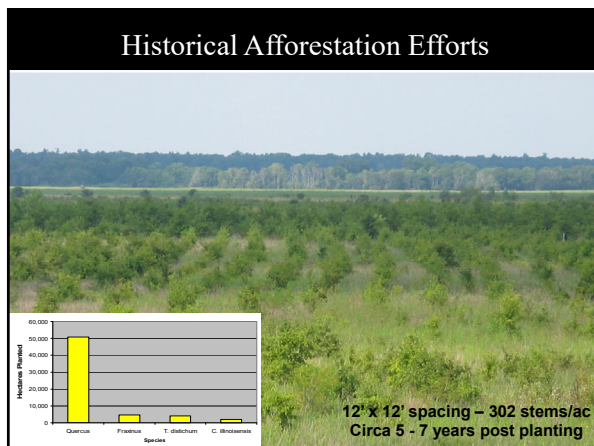
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### Historical Afforestation Efforts



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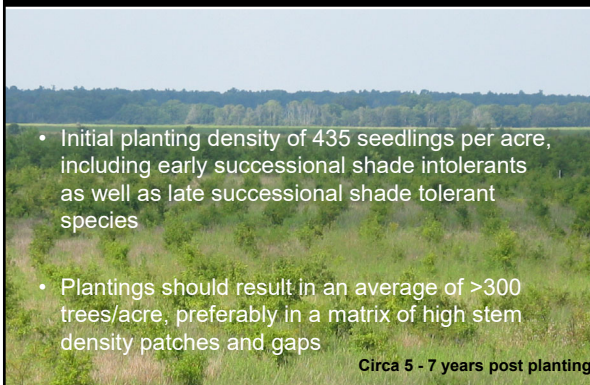
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### Recommendations: Initial Plantings



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### Recommendations: Post-Plantings

- Implementation of silvicultural treatments following DFCW



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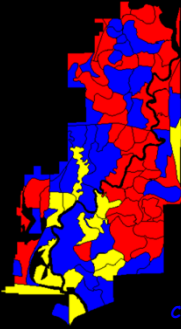
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### Inventory Data Used to Assess DFC Conditions -- Lower Portion of White River NWR --



**Comparison with DFC Attributes**

Basal Area	# Stands	%
<60ft <sup>2</sup>	5	4.42
60-70ft <sup>2</sup>	11	9.73
70-90ft <sup>2</sup>	43	38.05
>90ft <sup>2</sup>	54	47.78

**DFC Target Conditions: 60-70ft<sup>2</sup>**

Conditions that Warrant Management: >90ft<sup>2</sup>

Conditions that are Neutral for Now: 70-90ft<sup>2</sup>

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### In Summary.....management of BLH for wildlife...

- **ID Priority Wildlife and Habitat Needs**
- **Restoration**
  - Consider landscape, geomorphology, hydrology context
  - Plant multiple species, include fast-growers
  - Increase stocking rate (10' x 10' spacing)
  - Plan for "mid rotation" management
- **Management**
  - Use "Variable Retention" harvest
    - Reduce canopy & increase understory
  - Enhance forest structure
    - Retain large / dominant trees
    - Retain snags and downed wood
    - Retain stressed trees
  - Ensure appropriate reproduction
- **Monitor Habitat and Wildlife Response**

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**In Closing....**

- Management prescriptions based on wildlife needs at multiple spatial scales.



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**Population Sustainability =  
(landscape quality) + (site quality)**

- Increased communication among biologists, foresters, and administrators.



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**DFCW**

My Thoughts

- ✓ characteristics of ecological forestry
  - does not emulate natural disturbance regimes, especially large-scale disturbances
- ✓ characteristics of uneven-aged silviculture
  - concerns with regeneration of shade-intolerant species
  - concerns with changing species composition

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## Questions?



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