# The SECAS Third Thursday Web Forum

## Forest conservation priorities for landbirds in the Mississippi Alluvial Valley

3-17-2022

# Agenda

- Introduction
- Monthly topic
- Q&A and discussion
- Preview of next webinar
- Staff updates

# Forest conservation priorities for landbirds in the Mississippi Alluvial Valley

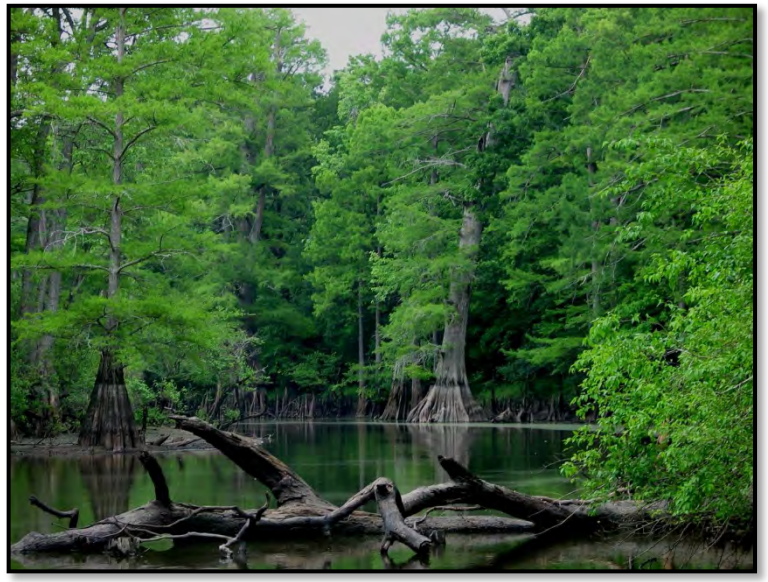
Anne Mini and Blaine Elliott with the Lower Mississippi Valley Joint Venture

3-17-2022

# Forest Conservation Priorities for Landbirds in the Mississippi Alluvial Valley

## Forest Breeding Bird Decision Support Model

## Forest Protection Decision Support Model



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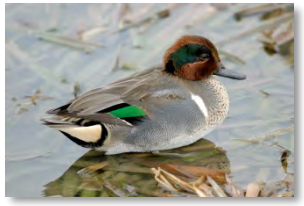
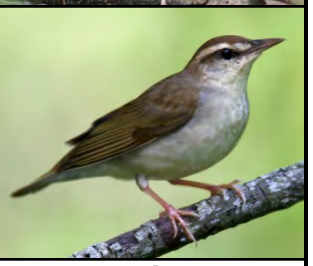
www.lmvjv.org



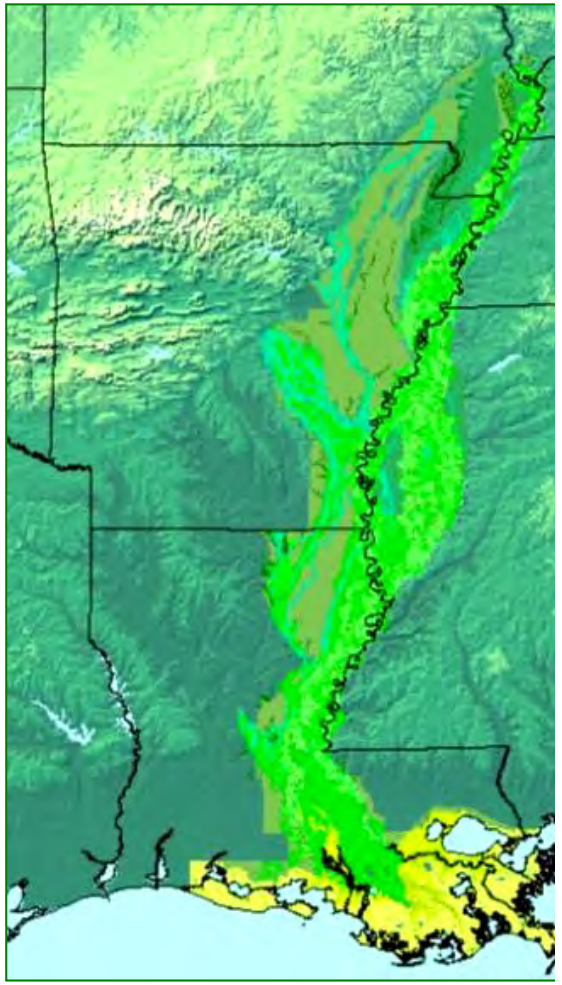
Blaine Elliott, LMVJV
GIS Applications Biologist
Anne E. Mini, LMVJV
Science Coordinator







# Background – Mississippi Alluvial Valley



Pre-European
24,000,000 acres

Partners in Flight
Bird Conservation Plan
for the

**Mississippi Alluvial Valley**

(Physiographic Area # 05)

Version 1.0

September 1999

Written by: Daniel Twedt, David Pashley, Chuck Hunter, Allen Mueller, Cindy Brown, and Bob Ford

1992
5,736,000 acres

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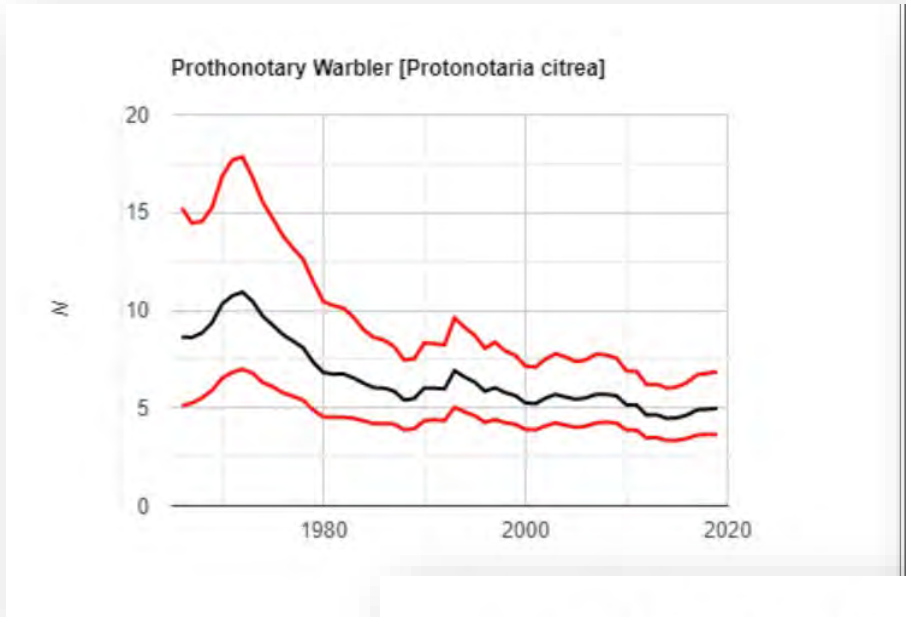
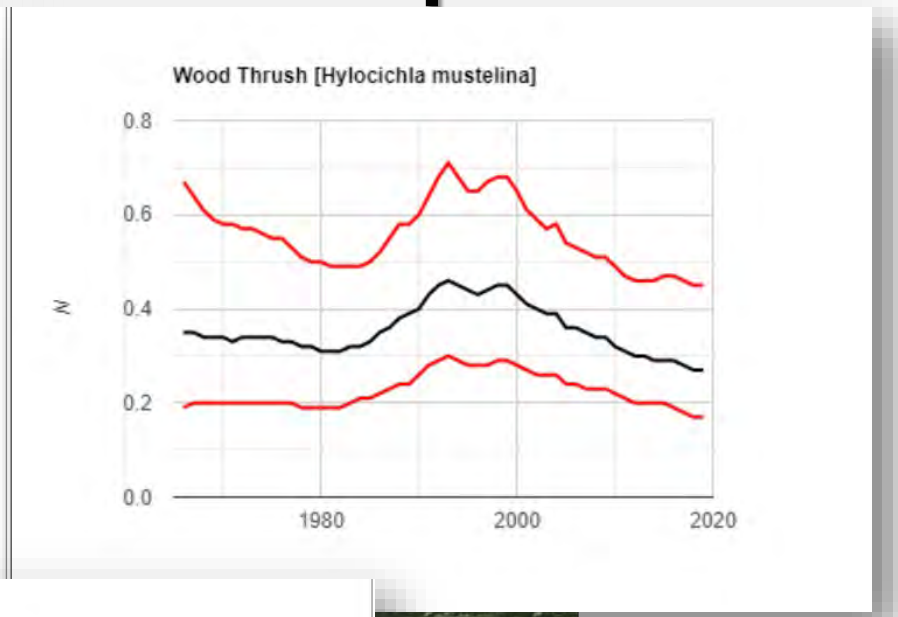
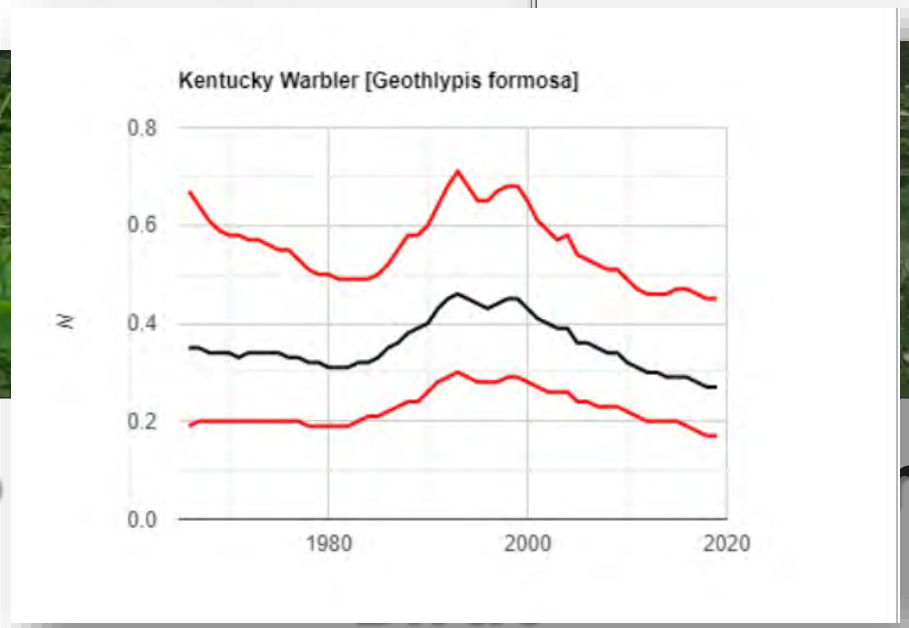
# LMVJV Partners Goal:
# Achieve a Forested Landscape



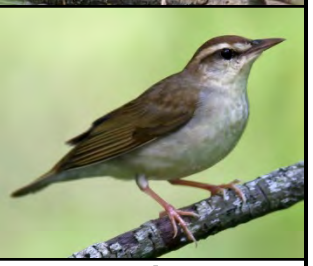




To ng







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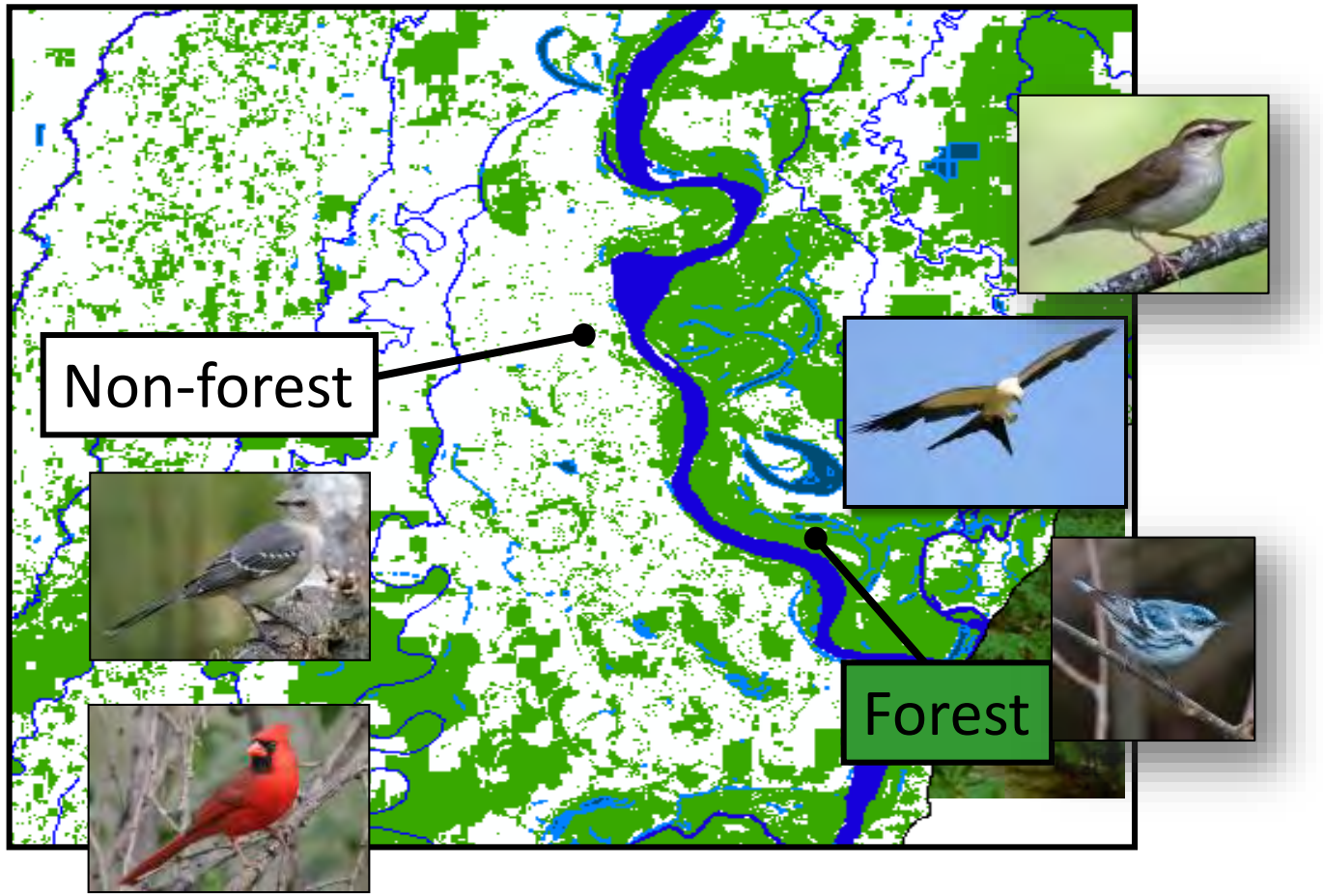
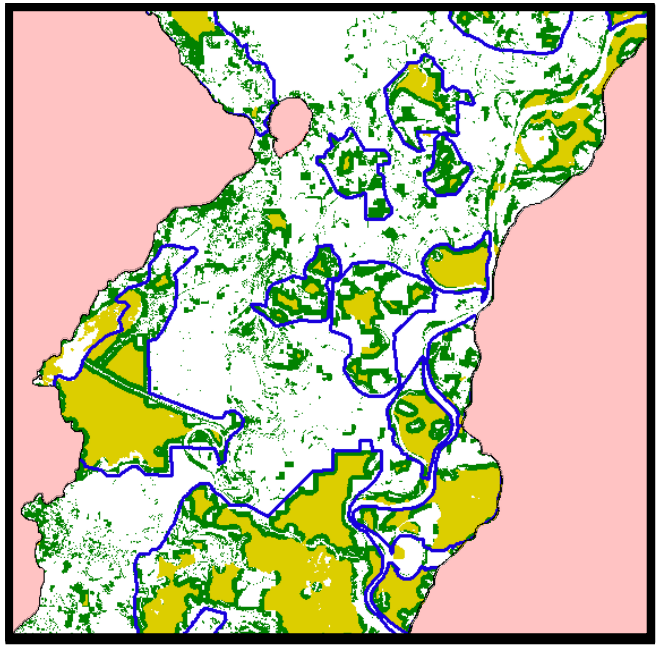
# Forest Breeding Bird Conservation in the MAV

## Limiting Factor: Forest Landcover



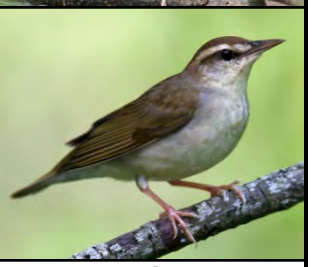

## Edge effects: predation, parasitism



**Utilize existing forest patches to support population objectives of priority breeding birds**







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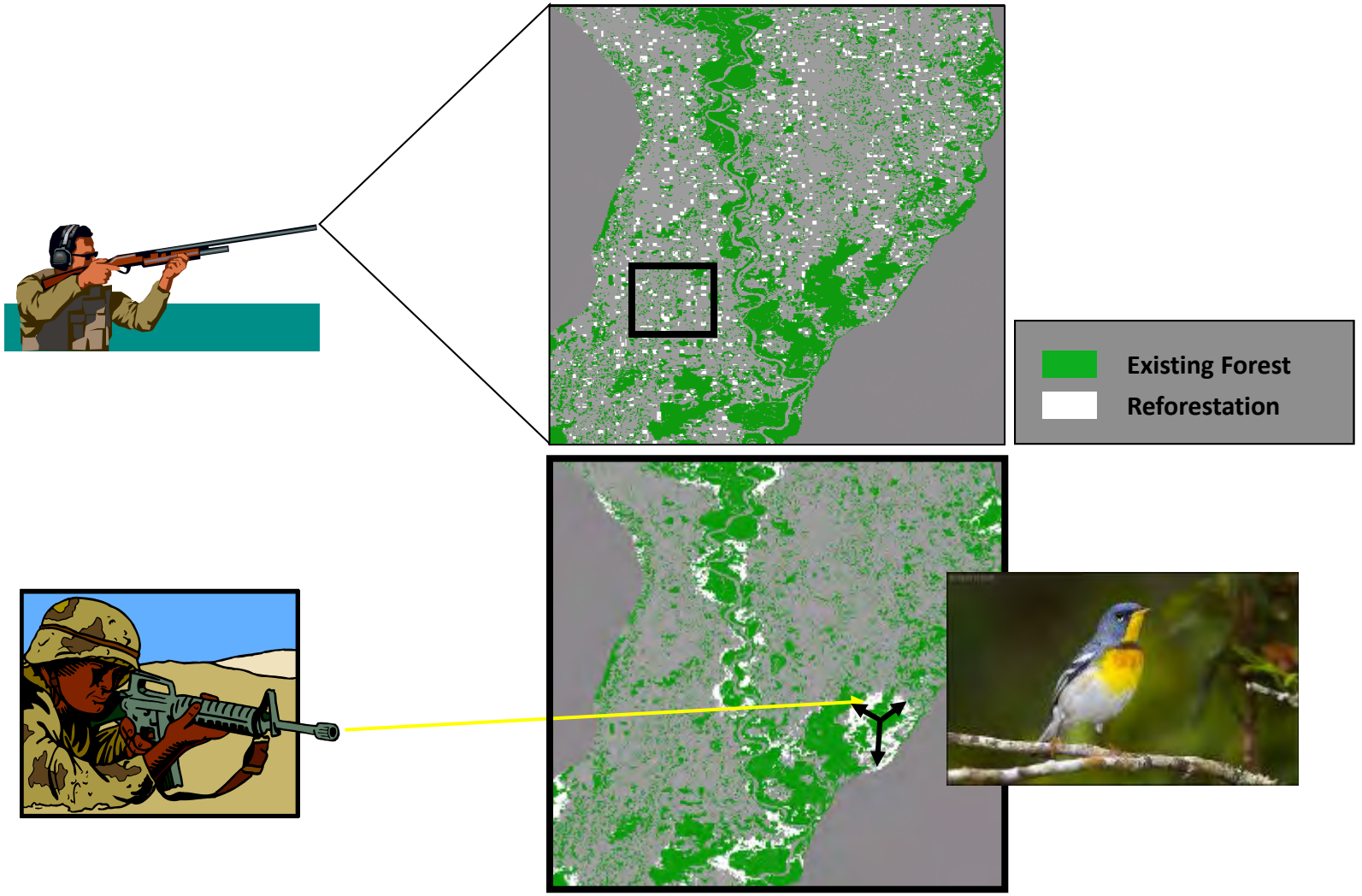
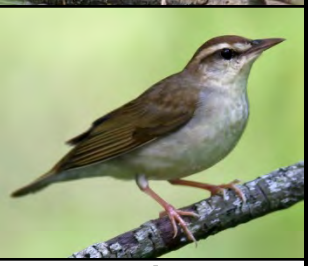
# Reforestation Priorities




**Key: Partners acting strategically to increase 'core' forest**







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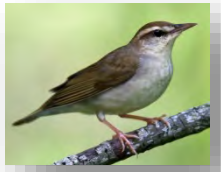
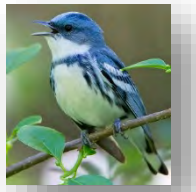
# Population-Habitat Relationships

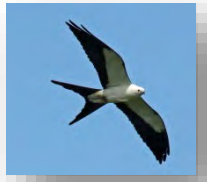
## Ecological Suites of Priority Species



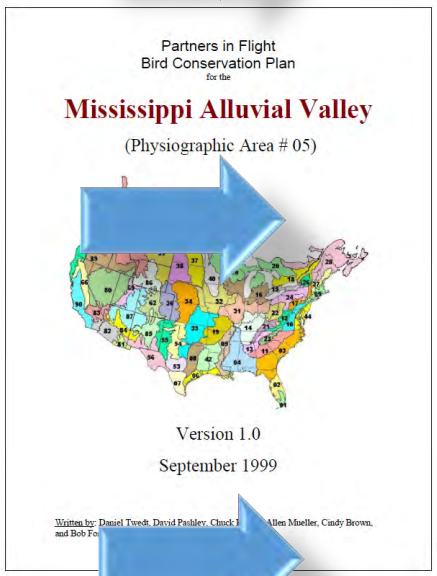
**Swainson's Warbler**
Prothonotary Warbler
Hooded Warbler
Wood Thrush
Acadian Flycatcher



**Cerulean Warbler**
Kentucky Warbler
Summer Tanager
Yellow-billed Cuckoo
Eastern Wood-Pewee



**Swallow-tailed Kite**
Red-shouldered Hawk
Broad-winged Hawk
Pileated Woodpecker
Cooper's Hawk




## Habitat Needs of Source Populations

**BUILDING FOREST CORE**

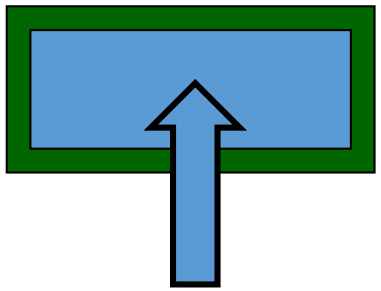
**(2,000ha "core" + 1km buffer)**

**500 Pairs**

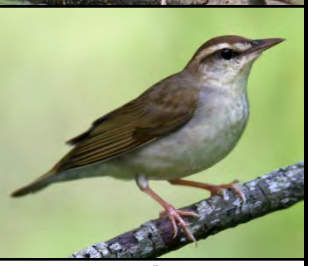
**(5,000ha "core" + 1km buffer)**

**500 Pairs**

**(> 5,000ha "core" + 1km buffer)**



**80 Pairs**



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# Forest Breeding Bird Decision Support Model

**A Spatially Explicit Decision Support Model for Restoration of Forest Bird Habitat**

DANIEL J

[1]USGS-Patu
email dan_t
†U.S. Fish a

**Abstract:**
*reduced by
liberately t
with larger
populations
forest bird
area of for
number of
and area o
to achieve
forests in a
land in the
decision su
the amount
The total ar
identified i
1950s.*

**Key Word**
planning, re

## A. Defragment Existing Forests

- Add to forest cores >1000 but <2000 ha (value range 0 – 700; sub-weight = 5)
- Add to forest cores >100 but <1000 ha (value range 0 – 700; sub-weight = 3)
- Add to forest cores <100 ha (value range 0 – 700; sub-weight = 1)

Model inputs rescaled to 0 - 700

Model weight = 4

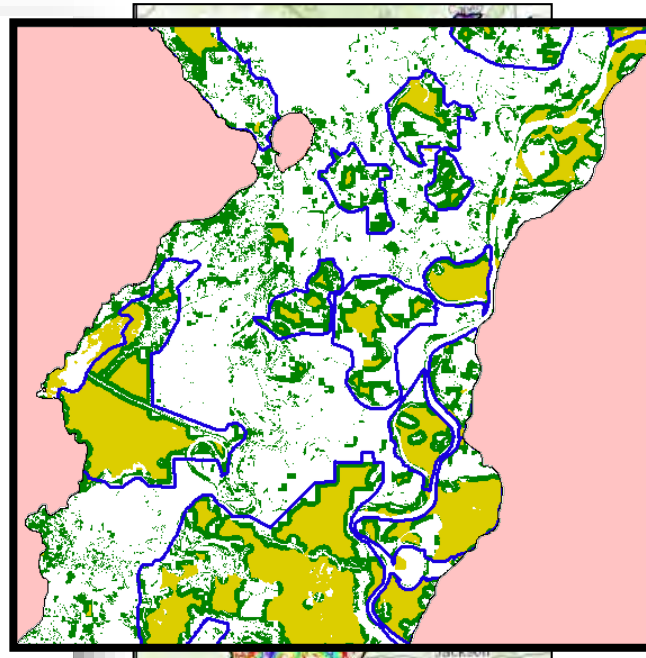
- Add to forest cores >2000 but <5000 ha (value range 0 – 700) — Model weight = 3
- Increase % forest cover within 320 km$^2$ (value range 0 – 5600; see Table 1) — Model weight = 2
- Add to forest cores >5000 (value range 0 – 700) — Model weight = 1

25%

If restoration priority was among the upper 25% of priorities intended to defragment existing forests (A), then priorities were modified to emphasize restoration of higher elevation sites (B), else priorities remained unchanged in final model.

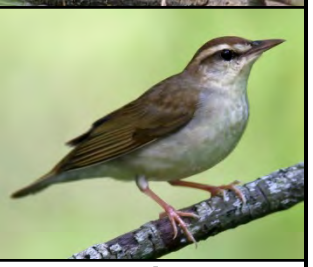
75%

Final decision support model for conservation of forest birds

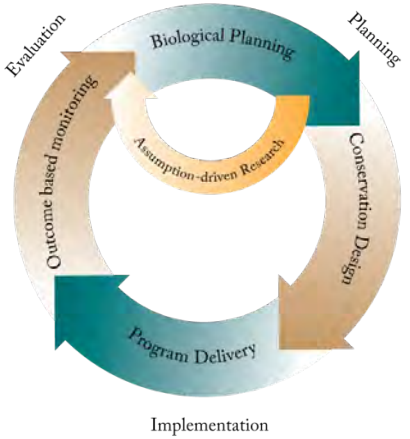




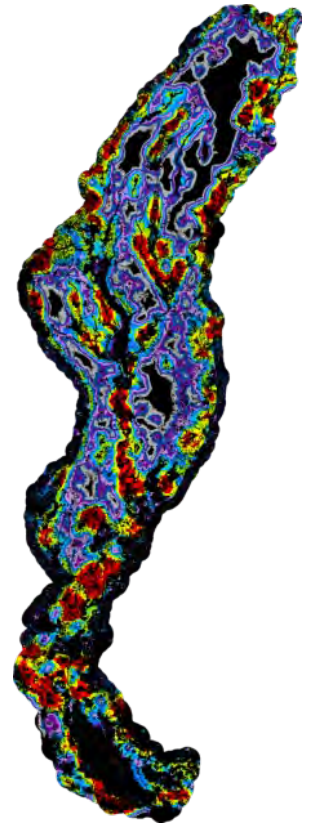




# Changes to Models – Then & 2015




- Modified how forest core was defined
  - 1,000 m buffer → original
  - 250 m buffer → 2015 version
- Used different data set to delineate 'higher elevation' forest
  - Combination of five data layers → original
  - GCPOLCC flood frequency layer → 2015 version
- Areas of historic prairie
  - Not removed → original
  - Removed before model was run → 2015 version



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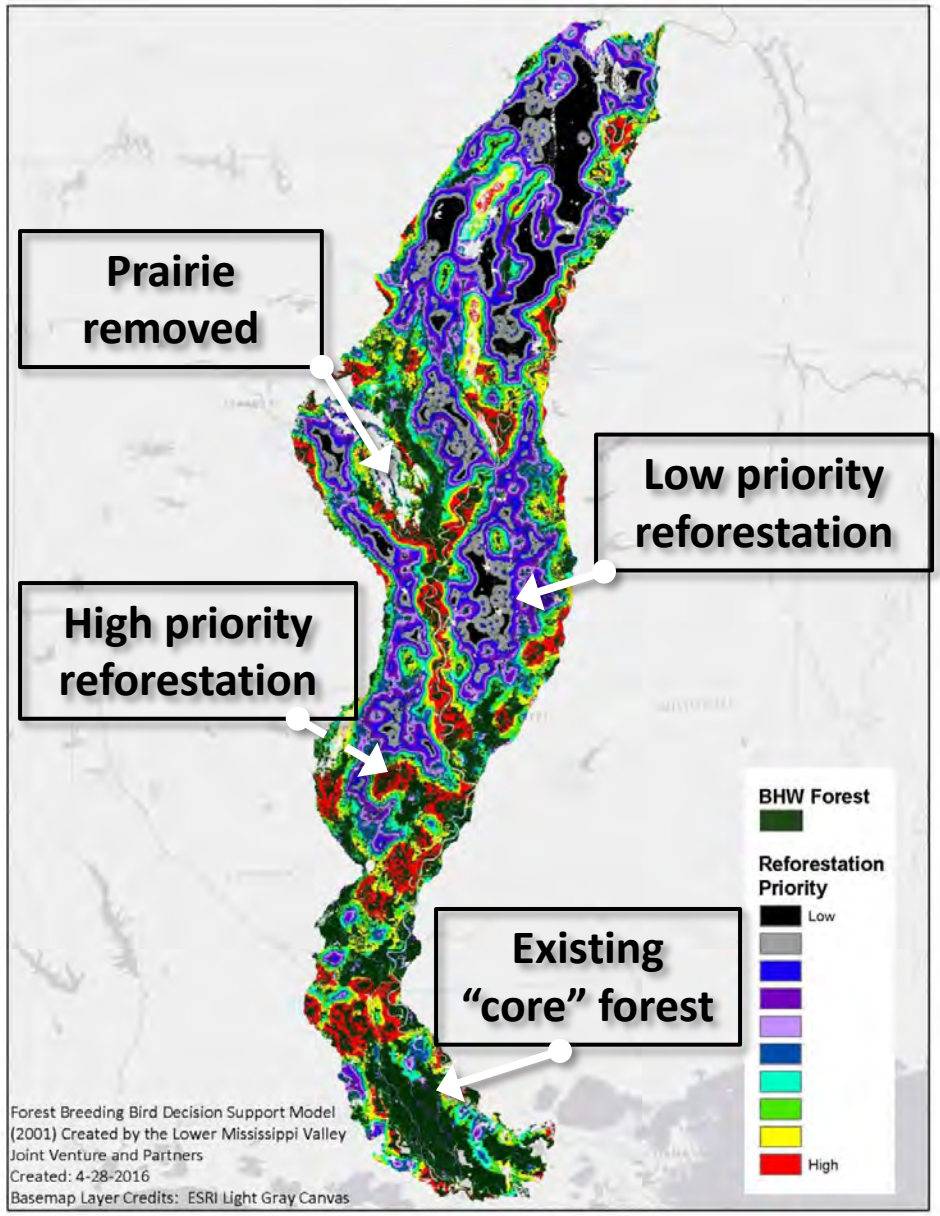
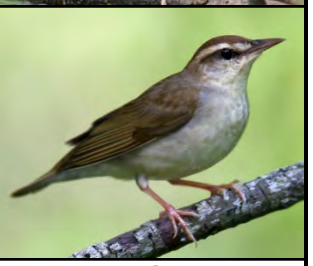
# FBBDSM 2015 version





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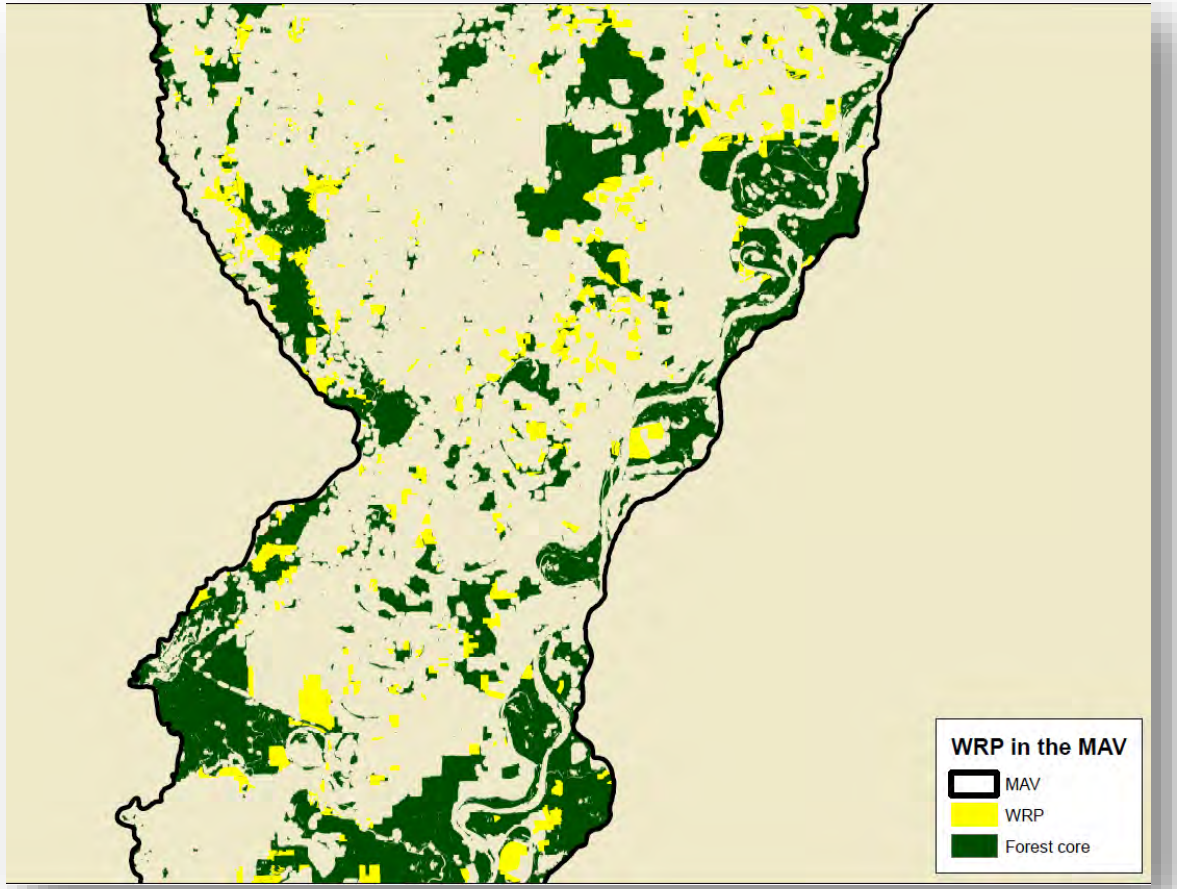
# Gaining Ground for Birds

## ~1,000,000 acres restored in Mississippi Alluvial Valley

**WRE has supported the reforestation of >650,000 acres**

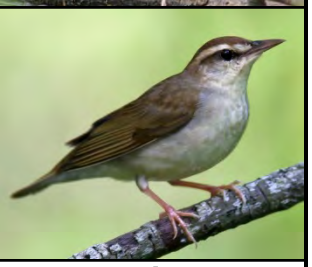
**51% of all WRP acres is in Top 20% priority**

**Represents 28% of all acres reforested in Top 20% priority**









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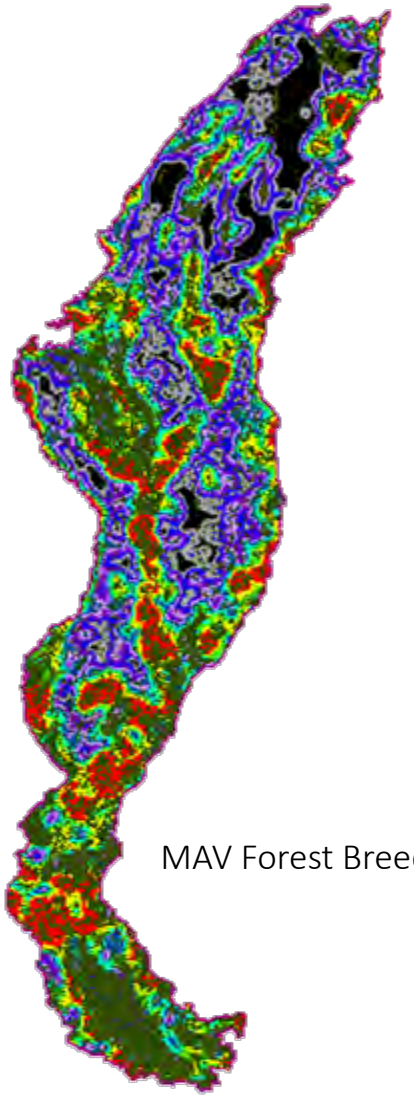
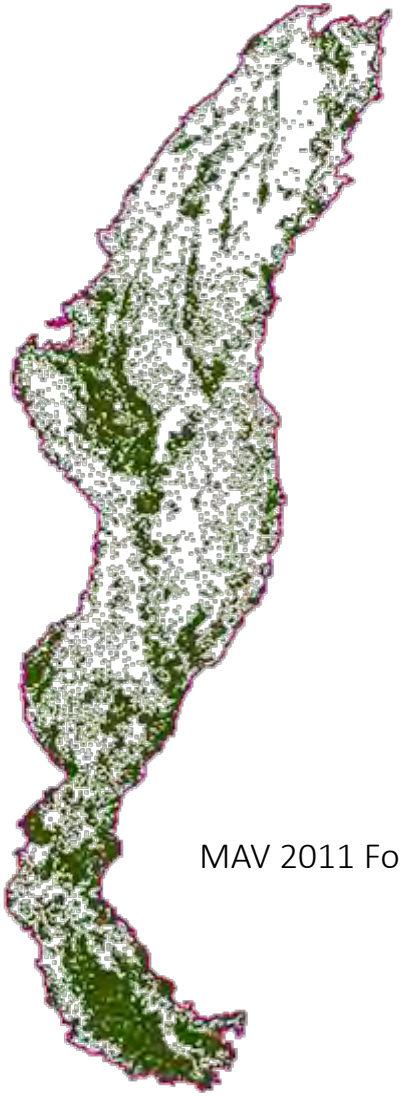
# MAV Forest Protection Decision Support Model



MAV Forest Breeding Bird DSM



MAV 2011 Forest





Lower Mississippi Valley
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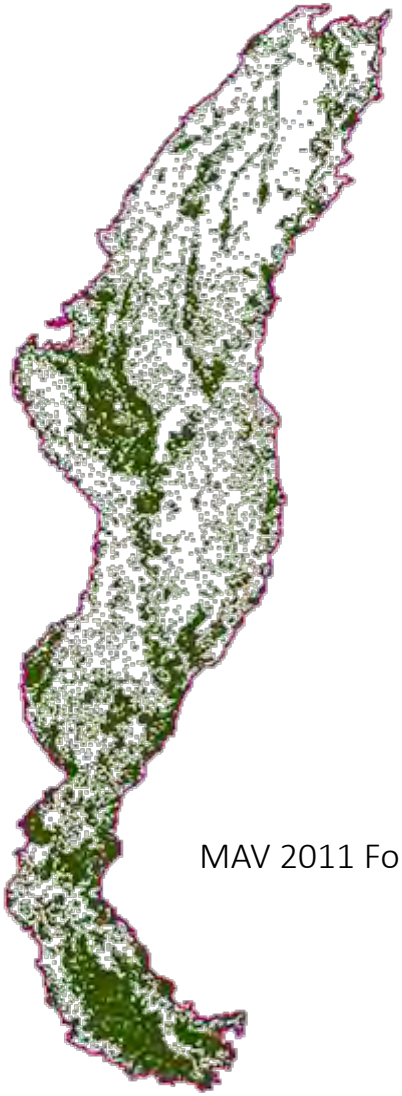
# MAV Forest Protection Decision Support Model

Forest Protection Prioritization helps secure the futures of forest patches that:

- Preserve refugia and corridors relied upon by numerous priority plant and animal species
- Enable MAV forest bird population goals to be achieved
- Provide substantial flood storage benefits
- Help maintain the accuracy / relevance of the Reforestation priorities of the Forest Breeding-bird Decision Support Model



MAV 2011 Forest





Lower Mississippi Valley
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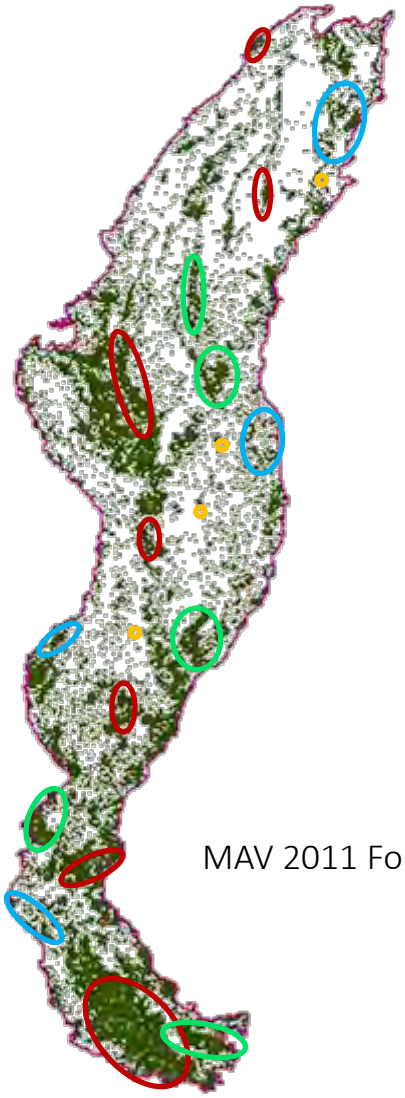
# MAV Forest Protection Decision Support Model

## Model Inputs

- Forest-core patches >2000 ha
- Forest-core patches 1600 ha - 2000 ha
- Forest-core patches >2000 ha AND adjacent to FBBDSM Top 10 percent priorities
- Forest-core patches <2000 ha AND adjacent to FBBDSM Top 10 percent priorities



MAV 2011 Forest





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# MAV Forest Protection Decision Support Model

## Model Inputs Prioritized

- Forest-core patches >2000 ha
- Forest-core patches 1600 ha - 2000 ha
- Forest-core patches >2000 ha AND adjacent to FBBDSM Top 10 percent priorities
- Forest-core patches <2000 ha AND adjacent to FBBDSM Top 10 percent priorities

Permanent Easement and Fee Title **Conservation Parcels** determine level of protection

MAV 2011 Forest



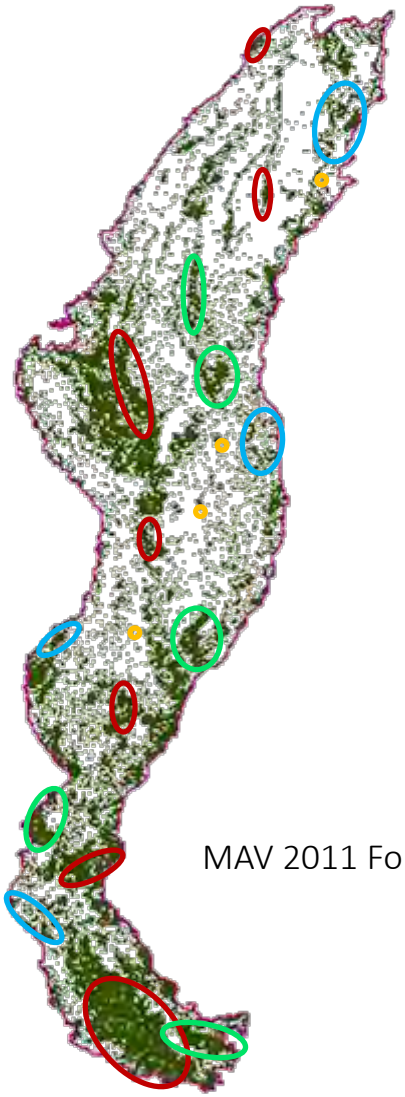


# MAV Forest Protection Decision Support Model

## Model Inputs Weighted

- Forest-core patches >2000 ha (**Higher Influence**)
- Forest-core patches 1600 ha - 2000 ha (Moderate Influence)
- Forest-core patches >2000 ha AND adjacent to FBBDSM Top 10 percent priorities (Moderate Influence)
- Forest-core patches <2000 ha AND adjacent to FBBDSM Top 10 percent priorities (Lower Influence)

| FCPs | MODEL WEIGHTS (max) in Refor Zone | out Refor Zone |
|---|---|---|
| >2000ha | 100% + 40% | 100% |
| 1600 - 2000ha | 50% + 20% | 50% |
| <1600ha | 20% | 0% |



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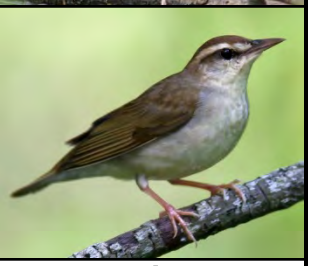
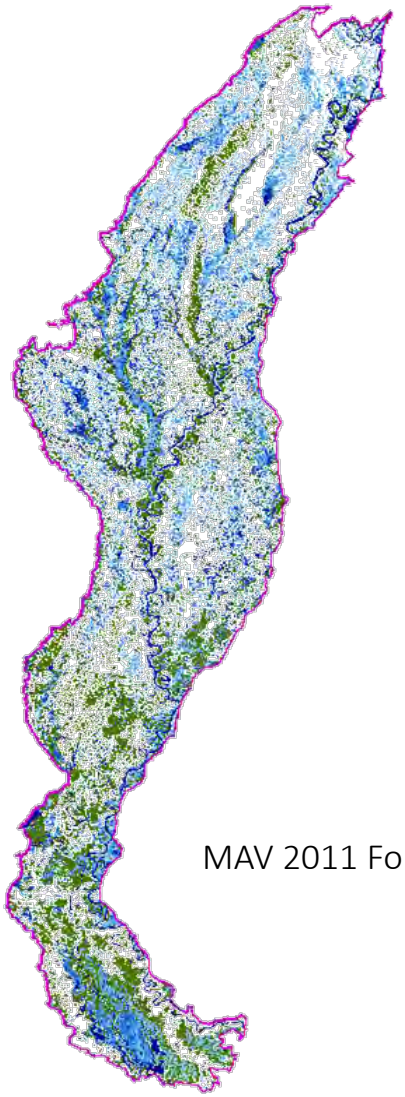


# MAV Forest Protection Decision Support Model

## Model Inputs Prioritized

- Forest-core patches >2000 ha (**Higher Influence**)
- Forest-core patches 1800 ha - 2000 ha (Moderate Influence)
- Forest-core patches >2100 ha AND adjacent to FBBDSM Top 10 percent priorities (Moderate Influence)
- Forest-core patches <2100 ha AND adjacent to FBBDSM Top 10 percent priorities (Lower Influence)

Flood Inundation Probability Index used to slightly elevate priorities of higher, drier forest patches (Increase 0-20%)



MAV 2011 Forest

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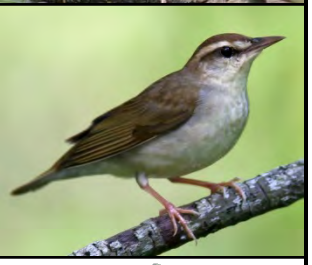

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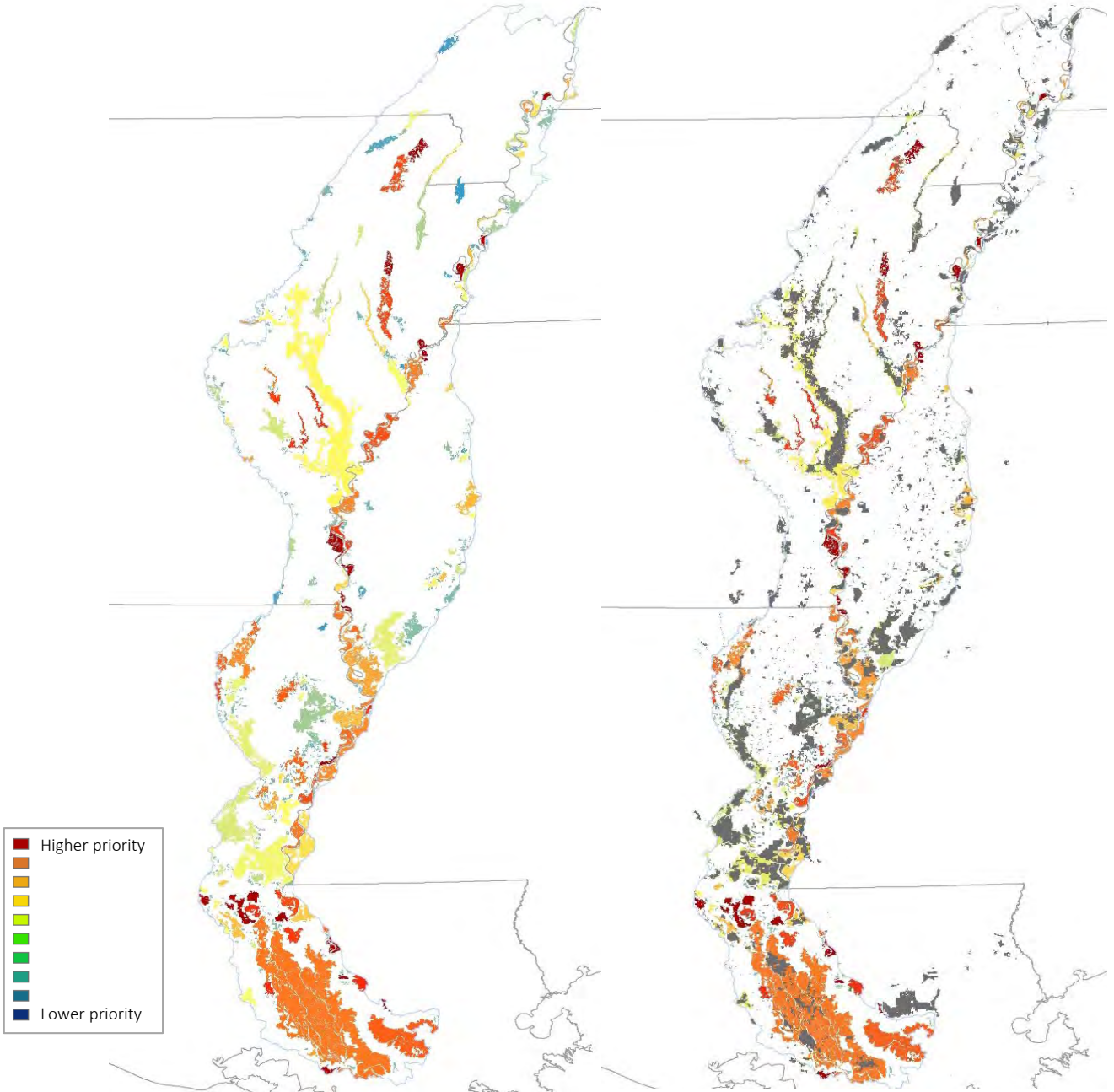
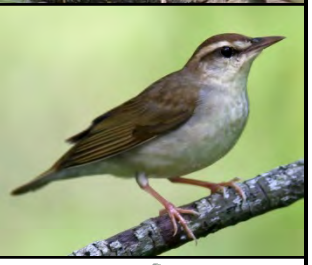
# MAV Forest Protection Decision Support Model





Lower Mississippi Valley
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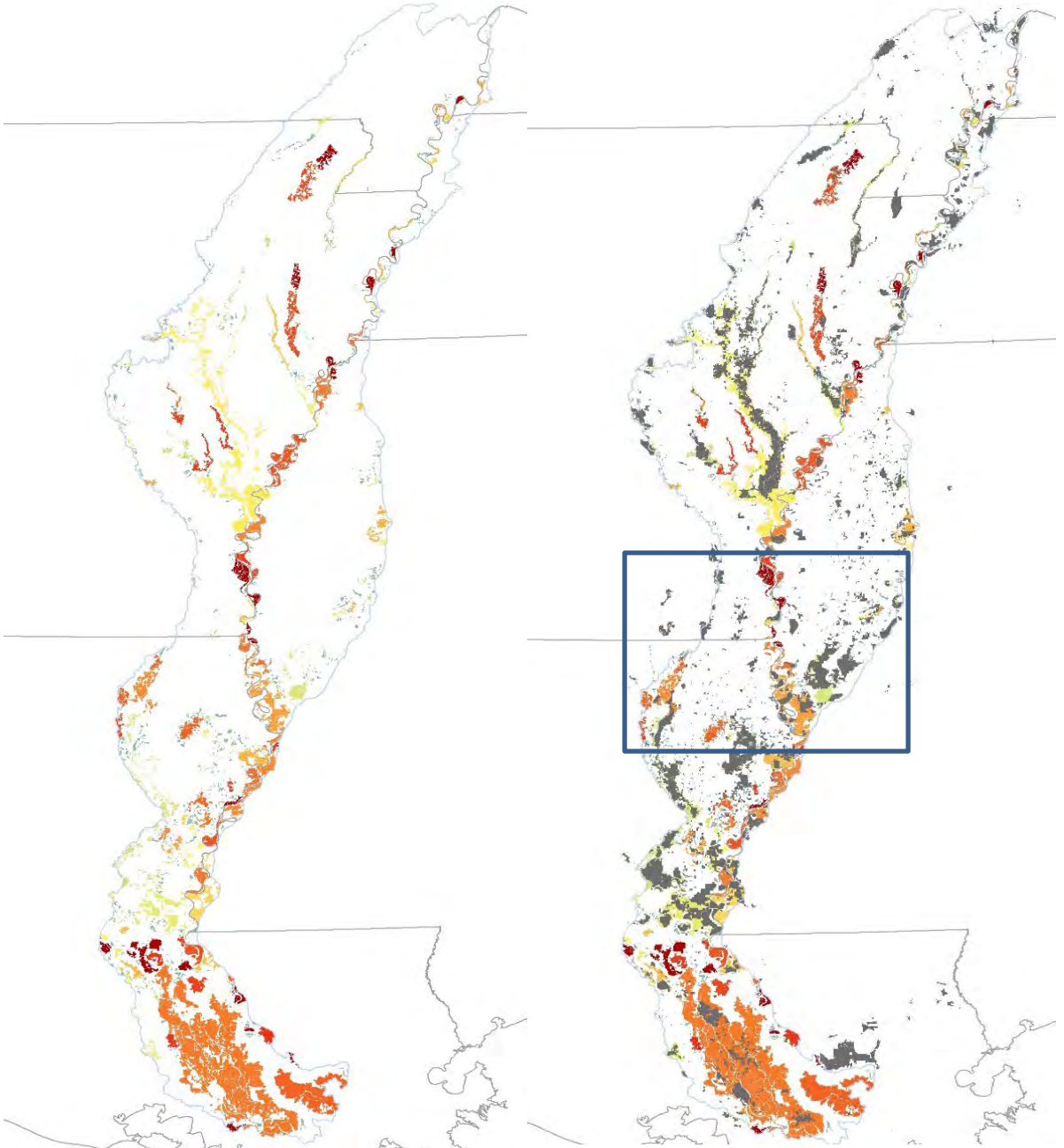
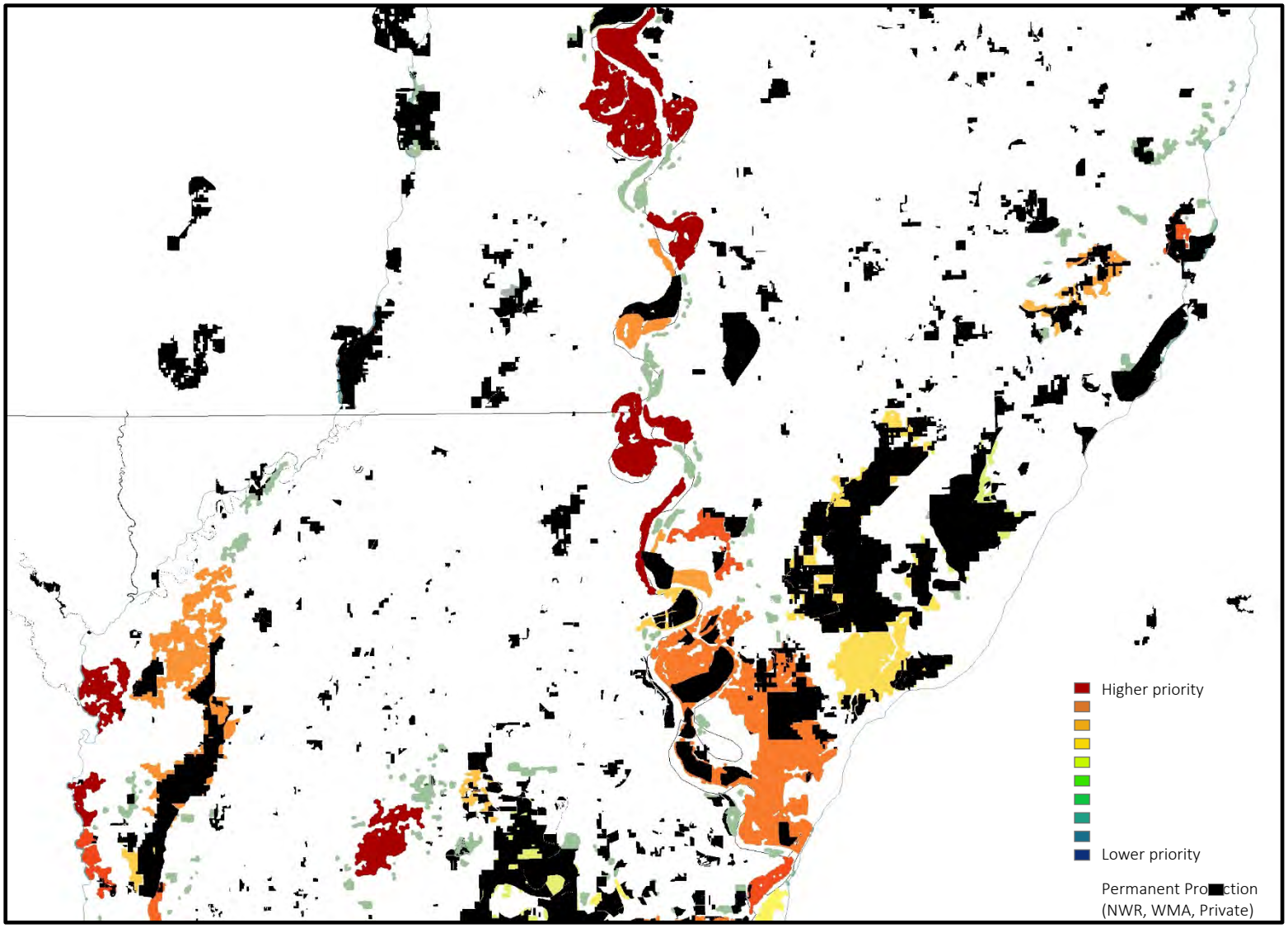
# MAV Forest Protection Decision Support Model



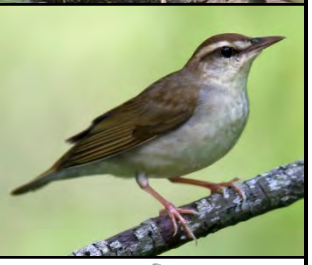

Higher priority
Lower priority
Permanent Protection
(NWR, WMA, Private)

# MAV Forest Protection Decision Support Model

We submitted and had published a manuscript to Special Issue of the scientific journal *Forests* - “Protected Areas in Forest Conservation: Challenges and Opportunities”

# QUESTIONS???

Elliott, A.B.; Mini, A.E.; McKnight, S.K.; Twedt, D.J. Conservation–Protection of Forests for Wildlife in the Mississippi Alluvial Valley. *Forests* 2020, *11*, 75.



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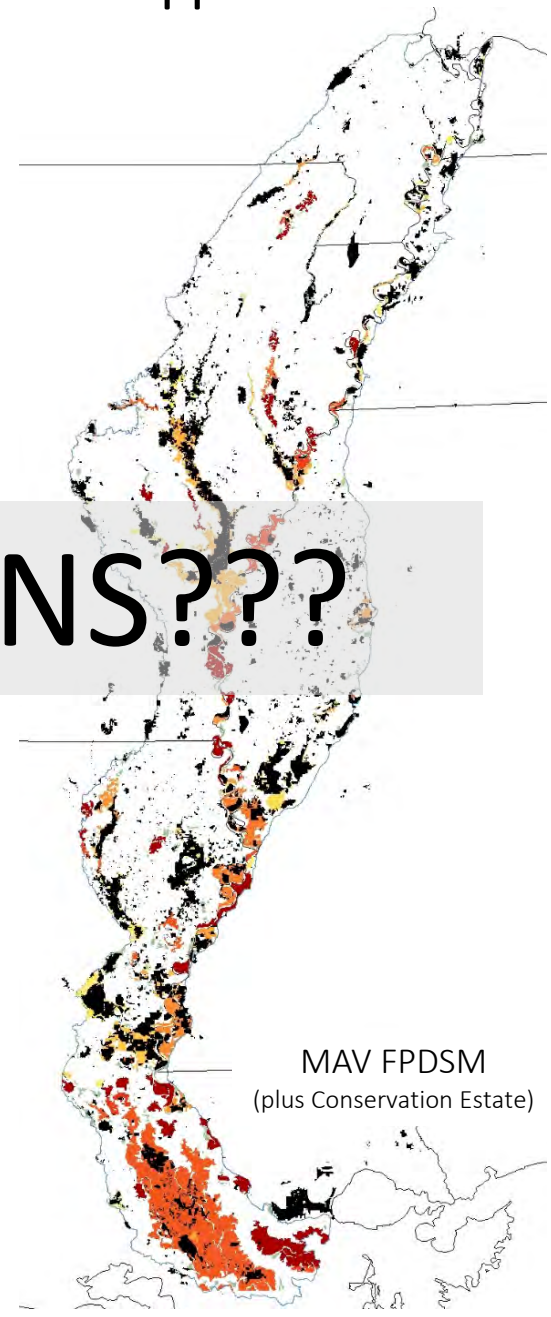
# MAV Forest Protection Decision Support Model

MAV FPDSM



MAV FPDSM
(plus Conservation Estate)

QUESTIONS???

# Building a more consistent Blueprint: Progress so far toward Southeast Blueprint 2022

Next Third Thursday Web Forum

4-21-2022

10:00 am

Rua Mordecai

Southeast & South Atlantic Conservation Blueprints

secassoutheast.org

# Staff updates

- Virtual Blueprint workshops coming soon

# Virtual Blueprint workshops coming soon

- First 3 weeks of May

# How to get involved in SECAS

- Sign up for the SECAS newsletter

  **secassoutheast.org**

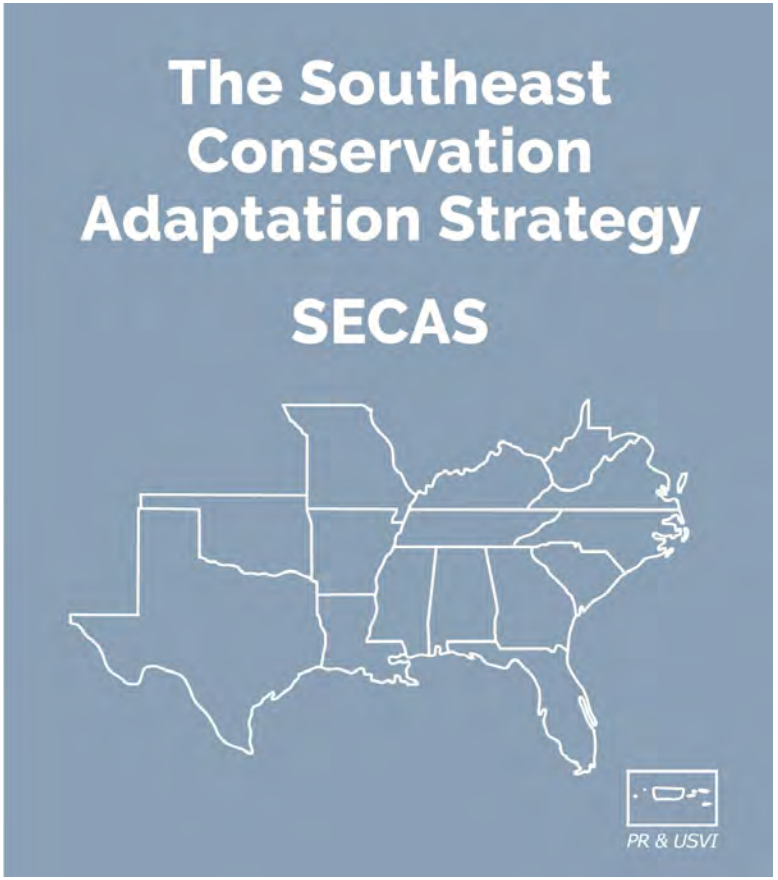
- Connect with SECAS staff or partners

  **secassoutheast.org/staff**

  **secassoutheast.org/partners**

- Explore the Southeast Conservation Blueprint

  **secassoutheast.org/blueprint**




Questions?