

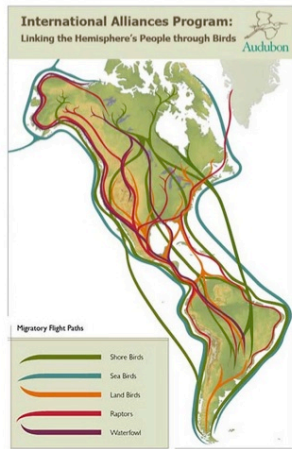
# Bird-Friendly Recommendations for Bottomland Forests in the Carolinas

Birds and People on Common Ground



## Today's Webinar

- Background
- Priority Birds
- Habitat Requirements
- Bottomland Forest Recommendations
  - Small Patch Clearcuts
  - Thinning
- Economics



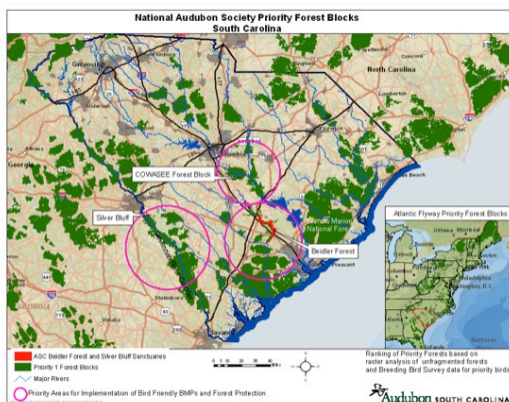
### Why Audubon? Why Now?

- The Strategic Plan
  - Flyways
  - Priority Projects
- South Carolina
  - Our target areas

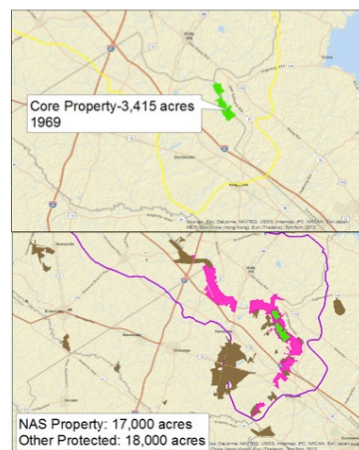


### Why Audubon? Why Now?

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  - Our target areas



Target areas along river systems where there are Audubon assets and abundant bottomland forests.



### The Beidler Model

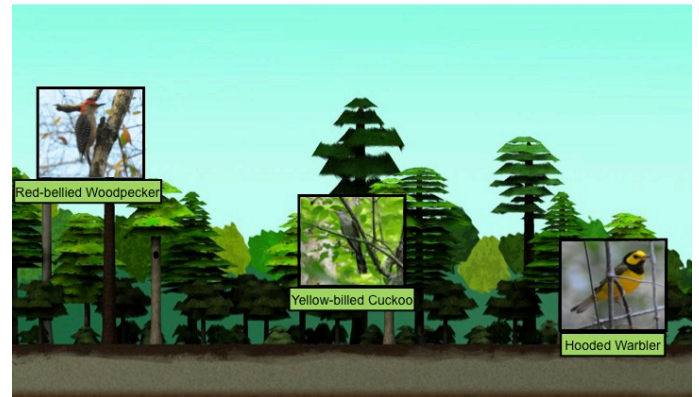
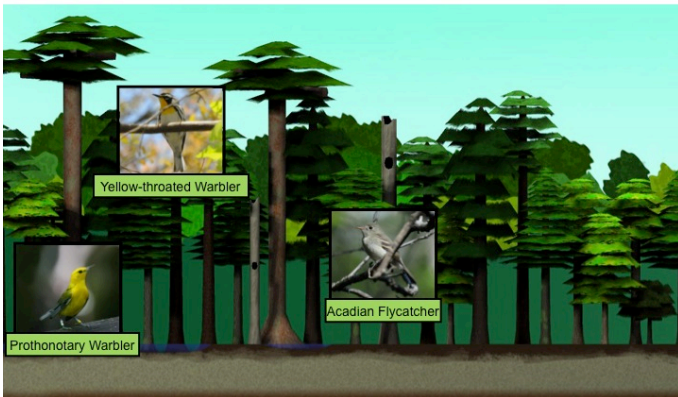
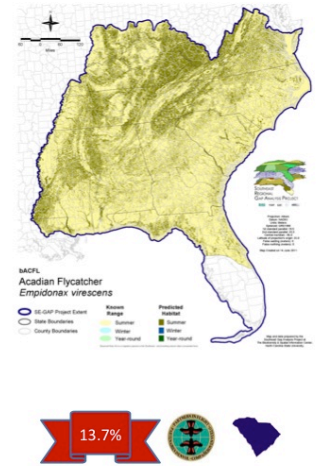
- We've targeted bottomlands because:
- 1) It's what we know
  - 2) It's great bird habitat
  - 3) Less intensively managed
  - 4) Landowners needed something more



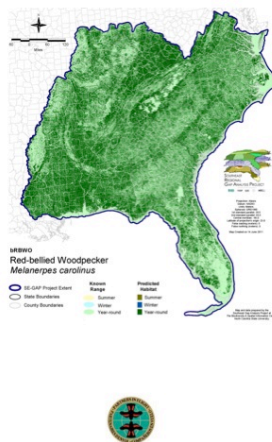
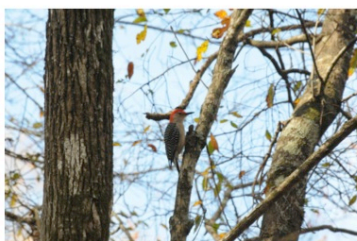
# Yellow-throated Warbler



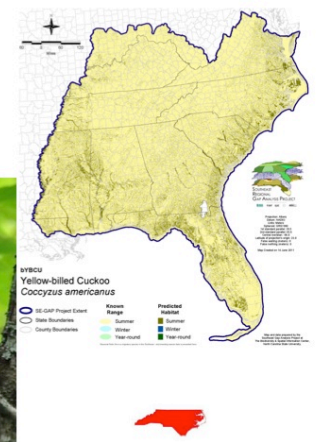
# Acadian Flycatcher



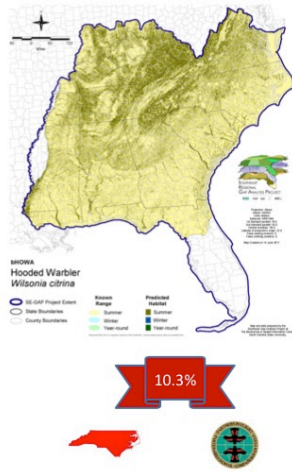
# Red-bellied Woodpecker



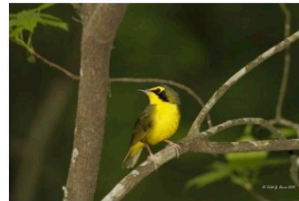
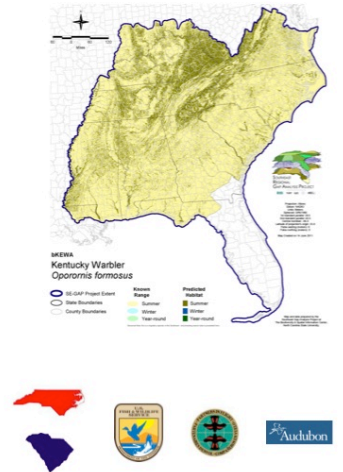
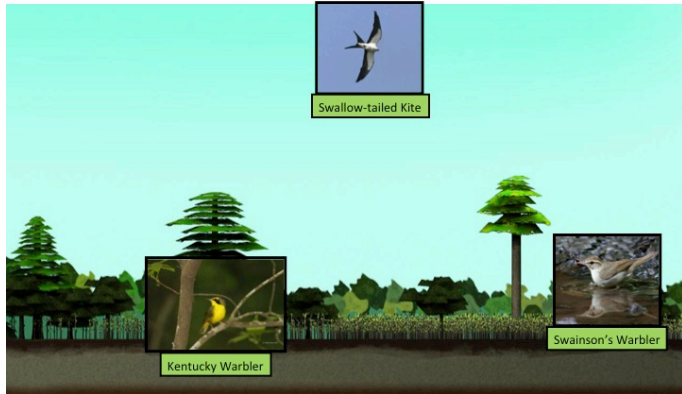
# Yellow-billed Cuckoo



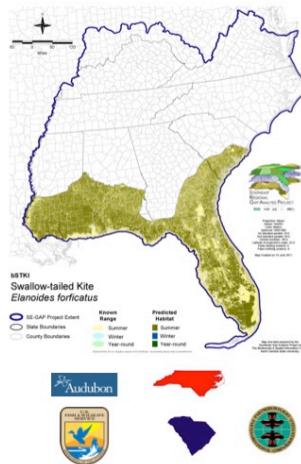
# Hooded Warbler



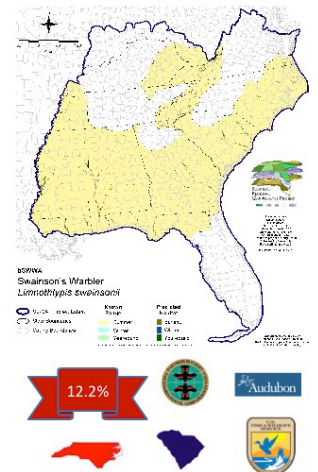
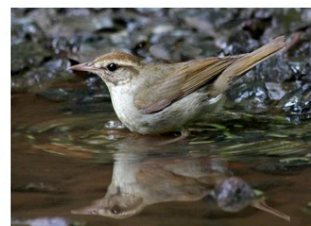
# Kentucky Warbler

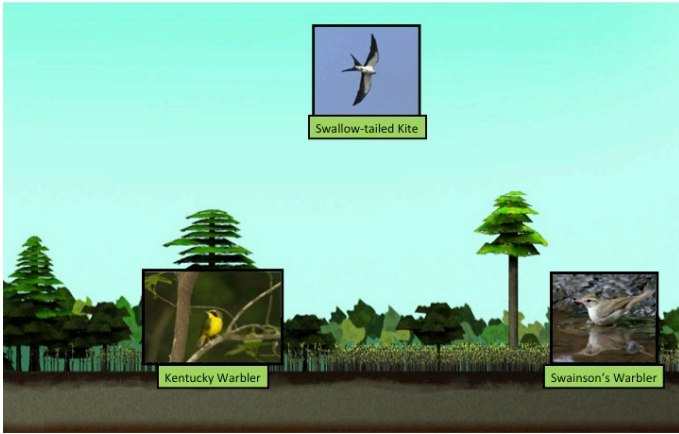


# Swallow-tailed Kite



# Swainson's Warbler





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So how do foresters get involved in making bird habitat?



The answer: mimic natural disturbance patterns during management

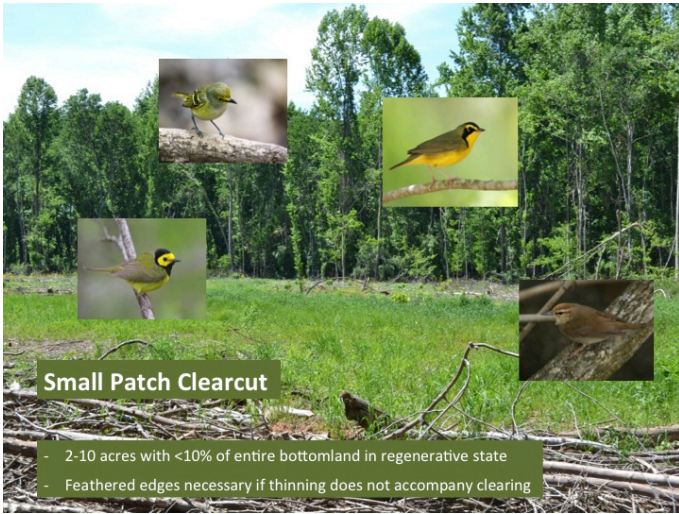
## Typical Hardwood Management

Historically we've left as is...  
or done large harvests followed by natural regeneration

© Paul Botsford, University of Mississippi, Bugwood.com UGA1437187

### Small Patch Clearcut

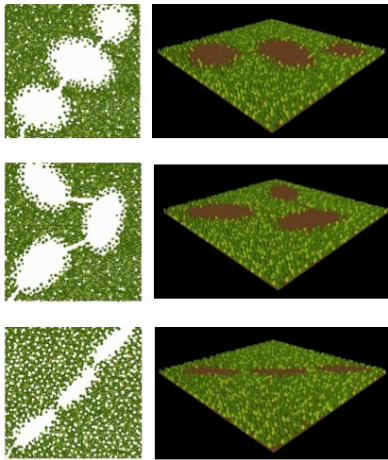
- 2-10 acres with <10% of entire bottomland in regenerative state
- Feathered edges necessary if thinning does not accompany clearing



**Question #2:**

What size we do we recommend for small patch clearcuts?

- A – 2-10 acres
- B – 1-2 acres
- C – 10-20 acres
- D – 25-50 acres
- E – more than 50 acres



“String of Pearls”

“Spokes of a Wheel”

Example – Silver Bluff Audubon Center

- 90 acre stand
- Homogenous condition
- 25 year old stand
- Mature forest function – 95% canopy closure

•Option #1

- Regenerate 10% of stand using patch cut(s)
- 15 year entry cycle
- 135 year rotation

• Option #2

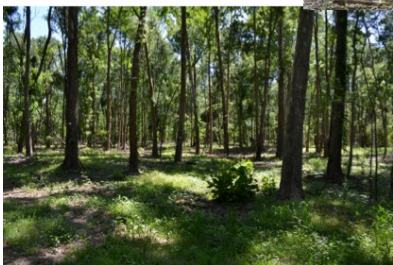
- Regenerate 10% of stand using patch cut(s), 45 left alone as old growth
- 15 year entry cycle
- 75 year rotation

What we chose

Option #2



Three small patch clearcuts of 1, 3, and 5 acres in size



75 acres thinned



Feathered edge of a small patch opening



**Brown-headed Cowbird**

Preferred habitat is open agriculture or grassland



Prolific! One female can lay as many as 40 eggs a season in the nests of other birds!



Nest parasites that grow larger and compete for adopted mom's resources



All things equal, thickets as far interior as possible



**Question #3:**

Feathered edges and small openings are two ways to reduce the impact of this parasitic bird.

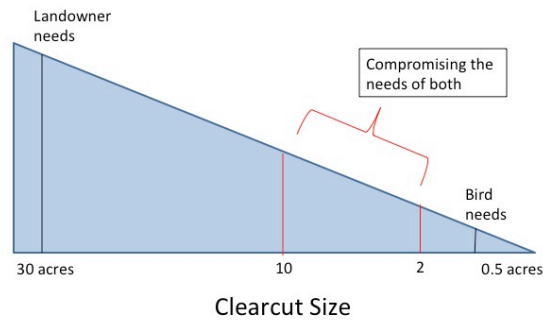
- A – Prothonotary Warbler
- B – Swallow-tailed Kite
- C – White-eyed Vireo
- D – Brown-headed Cowbird
- E – Kentucky Warbler



**Regeneration beginning at Silver Bluff**



**Balancing the needs of birds and landowners**





**Question #4:**

What is the minimum targeted canopy closure for our thinning recommendation?

- A – 10-20%
- B – 60-70%
- C – 90-100%
- D – 25-35%
- E – No thinning necessary

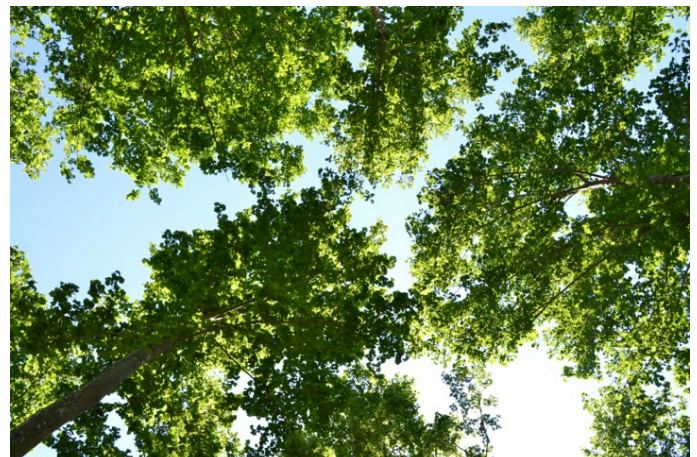
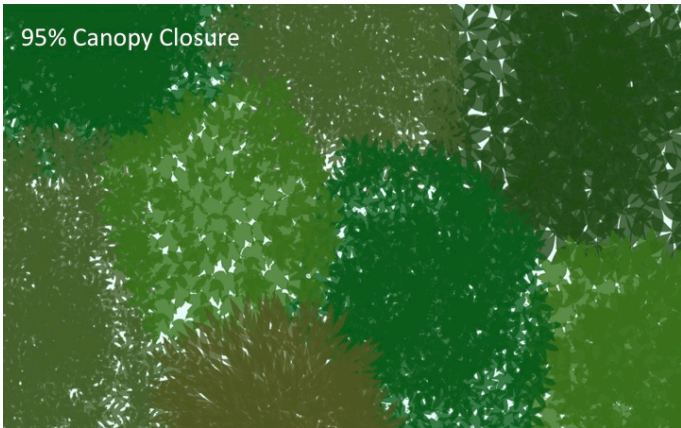


Image from timber harvest at Silver Bluff in 2014

### Epicormic Branching

Is a problem that can occur when too much sunlight is allowed into a stand.

While epicormic branching can hinder log quality, we feel that a conservative thinning will close canopy quickly enough to avoid this concern.





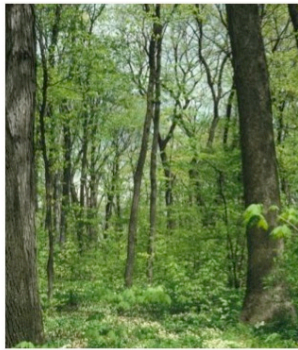
Ironwood, Sweet Gum, Palmetto, Loblolly Pine, Water and Swamp Chestnut Oaks, Green Ash, American Elm, Hawthorne, Switch Cane, and Persimmon

**Ideal Four Holes Swamp Location**  
Higher... less flooded areas



## Vertical Diversity

The extent to which plants are layered within a stand. It is determined by the arrangement of growth forms (trees, vines, shrubs, etc.), different heights of tree species, and different ages of trees of the same species. More diversity = more habitat for priority birds.



National Inquiries - <http://natureinquiries.wordpress.com>

Understory and Mid-story Structure



## Summary

- 2-10 acres with <10% of entire bottomland in regenerative state
- Feathered edges necessary if thinning does not accompany clearing
- Thinning may be necessary to satisfy landowner and/or logger; if so, shoot for 60-70% canopy closure
- Tree selection can be done to leave better species composition for economics or mast production

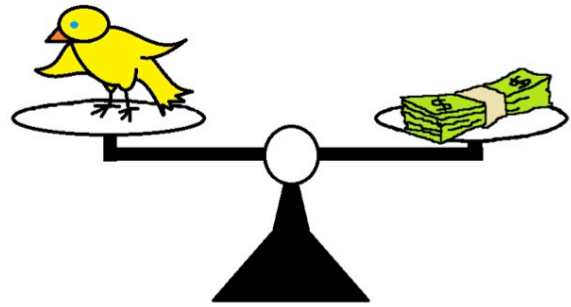
## **Question #5:**

The total percentage of a given stand that is in a regenerative state should be \_\_\_% or less under these recommendations.

- A – 5%
- B – 10%
- C – 25%
- D – 50%
- E – 90%

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Bird Friendly hardwood management and forest economics:  
a very realistic proposition

\*all numbers were taken from 2012 timber mart south

### Example – Good Stand

Species	Volume/ Acre	Price/Ton	Per Acre \$
Red Oak ST	20.06	\$30.00	\$601.81
Ash ST	17.97	\$18.00	\$323.44
Sweetgum ST	16.91	\$18.00	\$304.30
Maple ST	10.46	\$18.00	\$188.26
Blackgum ST	1.74	\$18.00	\$31.30
Elm ST	0.39	\$18.00	\$7.03
Cypress ST	53.99	\$30.00	\$1619.62

Species	Volume/ Acre	Price/Ton	Per Acre \$
Pine ST	2.49	\$25.00	\$62.18
Hardwood PW	30.53	\$10.00	305.32
Cypress PW	4.38	\$10.00	43.76
		Total	\$3487.02

### Example – Good Stand

- A 15 acre clearcut – would generate approximately \$52,300
- A 9 acre clearcut – would generate approximately \$31,380

### Example – Average Stand

Species	Volume/ Acre	Price/Ton	Per Acre \$
Red Oak ST	20.06	\$30.00	\$601.81
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Blackgum ST	1.74	\$18.00	\$31.30
Elm ST	0.39	\$18.00	\$7.03
Cypress ST	53.99	\$30.00	\$1619.62

Species	Volume/ Acre	Price/Ton	Per Acre \$
Pine ST	1.68	\$25.00	\$42.00
Misc HW ST	43.40	\$28.50	\$1236.90
HW PW	40.73	\$10.00	407.30
Cypress PW	2.8	\$10.00	\$28.00
		Total	\$1714.20

### Example – Average Stand

- A 15 acre clearcut – would generate approximately \$25,700
- A 9 acre clearcut – would generate approximately \$15,420

## Thinning

- Thinning from below – harvesting 11.5 inch dbh and lower
- Average yield of 45 tons / acre
- Generating approximately \$500 per acre

## Thinning

- Benefits
  - Improved growth of residual stand
  - Opportunity to manage species composition
  - Potential to increase mast production

## Thinning

- Risks
  - Damage to residual stand
  - Could result in lower grade of residual logs
  - Opportunity to mismanage species composition
  - Potential to cause site damage



### Resources:

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