

Bird Conservation and Forestry in Michigan: The Big Picture

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The Nature Conservancy

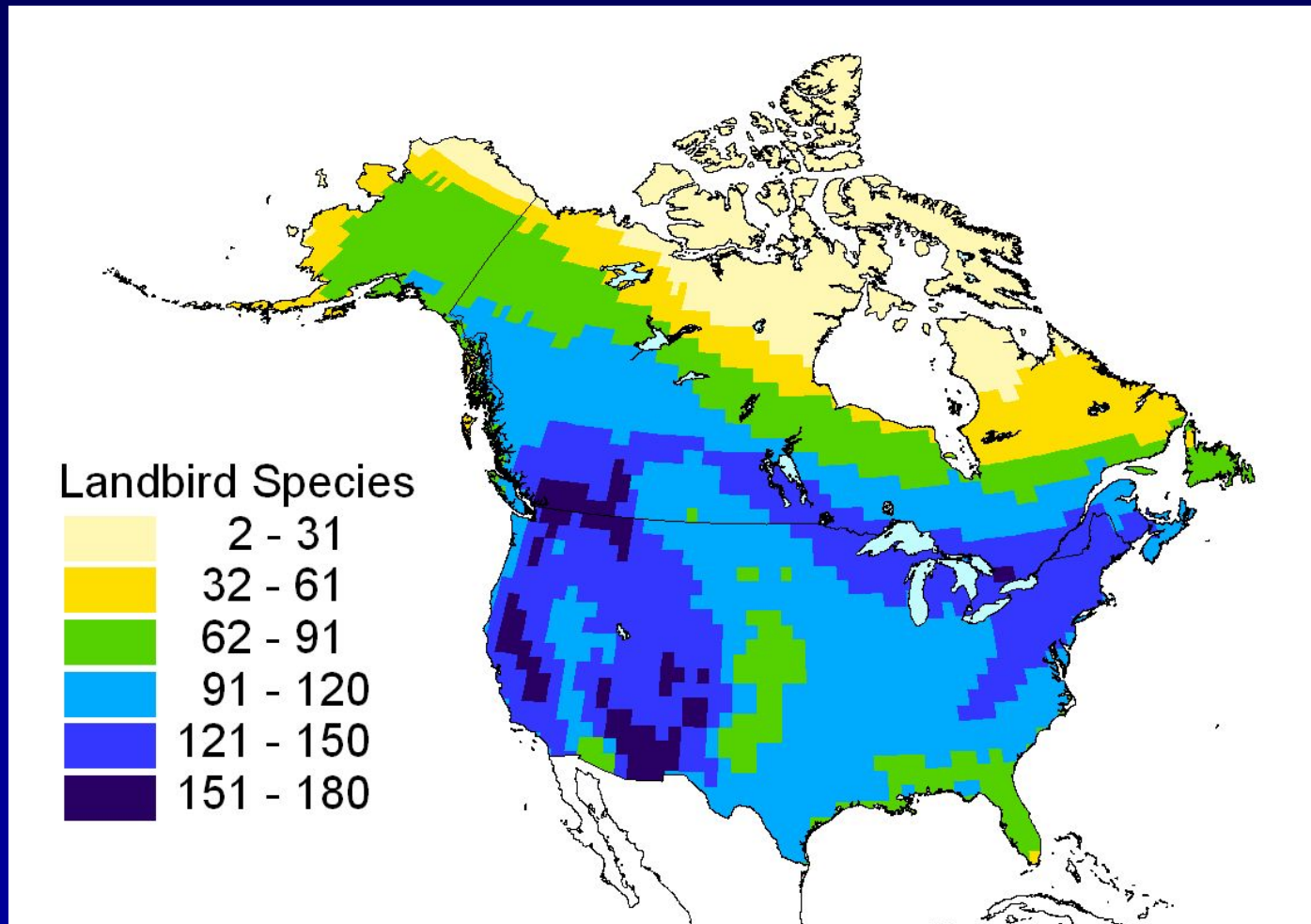
Why care about Michigan forest birds?

- Outstanding members of the community
- Enhance forest productivity
 - Higher growth rate of trees
 - Can limit outbreaks of some insects
- Societal interest
- “Canary in the mine”
 - Bald Eagle





Distribution of 448 Species of Landbirds



Michigan: forest habitat

- Southern lower Michigan
 - Deciduous, highly fragmented
- Northern lower Michigan
 - Mixed, highly to little fragmented
- Upper Peninsula
 - Mixed, moderately to little fragmented

Threats to Michigan forest birds

LOSS AND CHANGE IN HABITAT

- Habitat fragmentation (development)
- Loss of diverse structure, species
 - Deer overbrowsing
 - Some management
- Fire suppression
- Roads
- Invasive species, pathogens
 - Imported materials
 - Roads
 - Seed mix
- Migration, winter habitat change
 - Towers

Species of particular concern

– Globally significant

- Restricted range and/or small population
- Declining numbers
- Area sensitive
- Habitat specialist
- Often migratory species

Habitat associations: globally significant forest species

- Spruce-fir
 - Cape May Warbler
 - Bay-breasted Warbler



Habitat associations of globally significant species

- Jack pine
 - Black-billed Cuckoo
 - Whip-poor-will
 - Kirtland's Warbler
 - Connecticut Warbler



Habitat associations: globally significant forest species

- Northern deciduous
 - Chimney Swift
 - Black-billed Cuckoo
 - Wood Thrush
 - Veery
 - Black-thr. Blue Warbler
 - Canada Warbler



Habitat associations: globally significant forest species

- Northern wetlands
 - Black-billed Cuckoo
 - Olive-sided Flycatcher
 - Veery
 - Golden-winged Warbler
 - Connecticut Warbler
 - Rusty Blackbird (rare)



Habitat associations: globally significant forest birds

- Southern deciduous forest
 - Whip-poor-will
 - Red-headed Woodp.
 - Wood Thrush
 - Veery
 - Cerulean Warbler
 - Worm-eating Warbler
 - Louisiana Waterthrush
 - Kentucky Warbler



Habitat associations: globally significant forest birds

- Southern wetlands and scrub
 - Black-billed Cuckoo
 - Veery
 - Blue-winged Warbler
 - Prothonotary Warbler
 - Yellow-breasted Chat





Michigan forest birds: maximizing output

- For breeding birds: source populations
 - Landscapes 70% forested
 - Patches 10,000+ acres
- For migrants: food and shelter
 - Proximity to Great Lakes, other water
 - Structurally diverse and species-rich forest
 - Relative isolation of habitat
- For wintering birds: food and shelter
 - Cone crops, other seed and fruit sources
 - Legacy trees

Breeding birds: actions

- Riparian corridors
 - BMPs
 - Legacy trees
- Upland forests
 - Large forest blocks (especially in south)
 - Structural and species composition diversity
 - Group selection (Black-thr Blue W, Wood Thrush, Veery)
 - Legacy trees (nest sites-Chimney Swift, raptors, N. Parula)
- Post-fire
 - Leaving standing burned trees (Chimney Swift, Black-b Woodp)

Breeding birds: actions

- Road issues

- Ensure fill free of invasive species (garlic mustard, spotted knapweed)
- Ensure natural flow of water

- Invasives and pathogens: forest health

- Predicting likely invaders and monitoring at likely points of entry – hemlock wooly adelgid
- Immediate quarantine of infected areas - avoid Emerald ash borer II

Managing at fine scales

- Species-specific management
 - Red-headed Woodpecker
 - Cerulean Warbler
 - Kirtland's Warbler
 - Louisiana Waterthrush

Species management

- Red-headed Woodpecker
 - Savanna of 250 ac or more,
 - Tree density 0.2-1.9 trees/acre
 - Oak preferred
 - Nesting trees (large diameter trees)
 - Fire management
 - Distant from roads



Betty Cottrille

Species management

- **Cerulean Warbler**
 - Upland forest blocks of 10,000-25,000 acres
 - Imbedded core areas of 1730 acres with supercanopy trees
 - Southern Michigan



Betty Cottrille

Species management

- Louisiana Waterthrush
 - >450 acre forest blocks that are >80% forest cover
 - Imbedded small streams (first or second order) with clear water, riffles, steep banks
 - Southern Michigan



Birds: forest practices

- Some Michigan examples
 - Raptors (Red-sh hawk, Bald Eagle, Goshawk)
 - Kirtland's Warbler
 - Huron-Manistee National Forest (Black-backed Woodpecker)
 - Snag trees
 - Mixed pine: Seney National Wildlife Refuge
 - Shelter Bay (conifer retention)

Migrants

- **Landscape management**
 - Great Lakes shoreline
 - Proximity to water
 - Value of isolated habitat
- **Site-specific management**
 - Diverse forest structure
 - Diverse species composition
 - Favored trees for foraging
 - BMPs for waterways

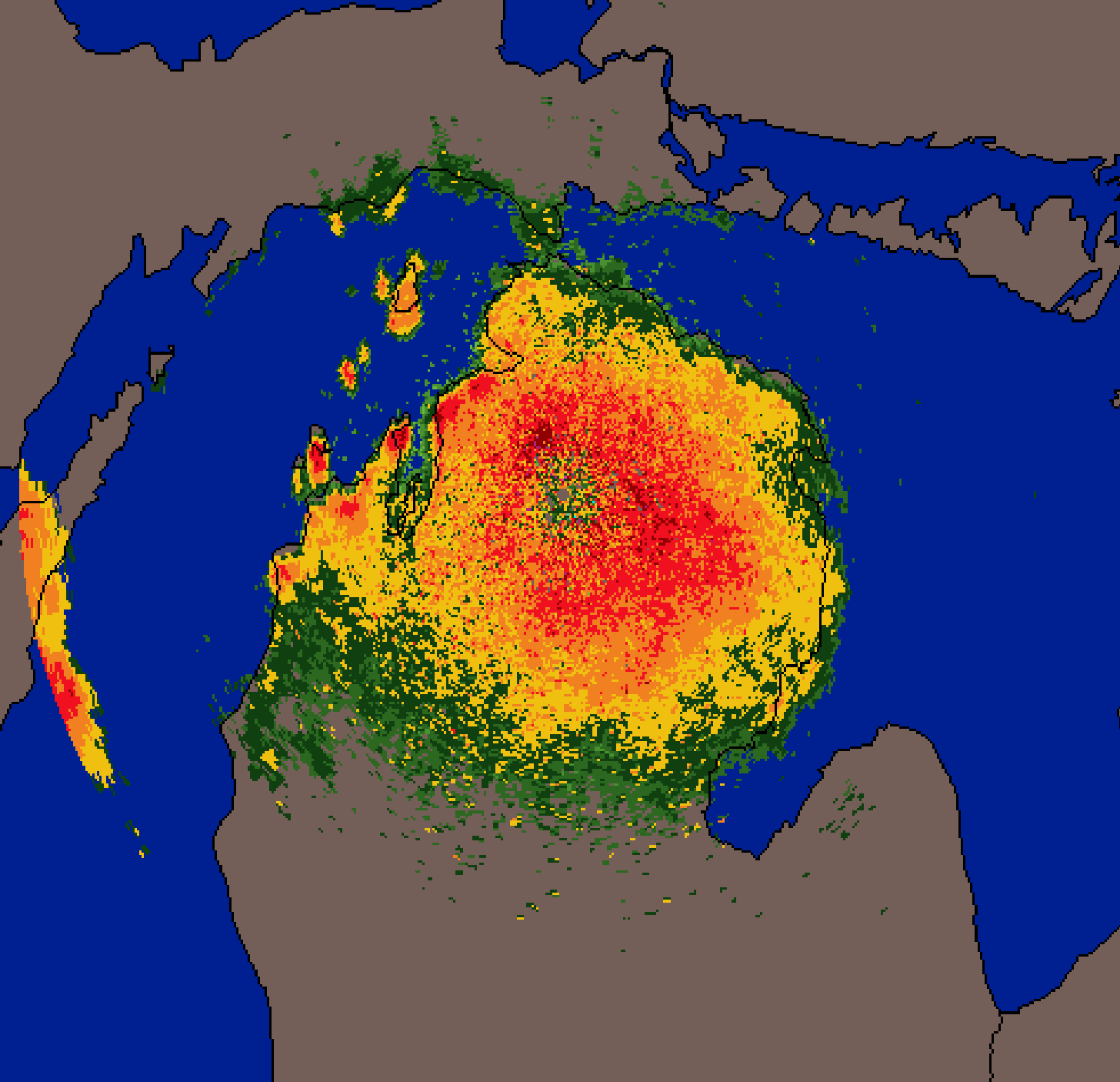


D/T: 08/17/00 0131Z
RANGE: 230 KM
RES: 1 KM X 1 DEG
MODE: CLEAR AIR
UCP: 31
ELEV: 0.5 DEGREES

UNITS: DBZ



MAX DBZ: 28



Wintering birds

- Guild approach
 - Crossbills (cones on mature conifers)
 - Other seed eaters (e.g., birch)
 - Fruit eaters (e.g., mountain ash)
 - Raptors (open country to forest owls)

Linking breeding and wintering grounds: Kirtland's Warbler



The fall and rise of the Kirtland's Warbler: A successful conservation story, so far...



Creation of suitable breeding habitat



Control of cowbird numbers









KIRTLAND WARBLER'S FIGHT FOR SURVIVAL



This open area was recently regenerated to provide better suitable nesting conditions for the Kirtland's Warbler. This endangered warbler is a songbird that nests only in this area of Michigan and migrates to its wintering grounds in the Bahamas. It nests only in young jack pine forests on sandy soils. Adequate nesting areas consist of approximately 500 acres or larger. The Kirtland's Warbler management areas are usually burned to reduce the resistance left from logging. The areas are then densely planted with jack pine seedlings. About 1200 seedlings per acre are planted to create desirable nesting conditions.

Kirtland's Warblers will begin nesting in areas such as this one when the trees reach about 5 feet high (about seven years old). The warbler will nest on the ground along the edges of small openings. They will continue to use this area until the seedlings on the lower branches of the trees start dropping off. This usually occurs when the trees reach a height of 18 to 20 feet (about 20 years old).

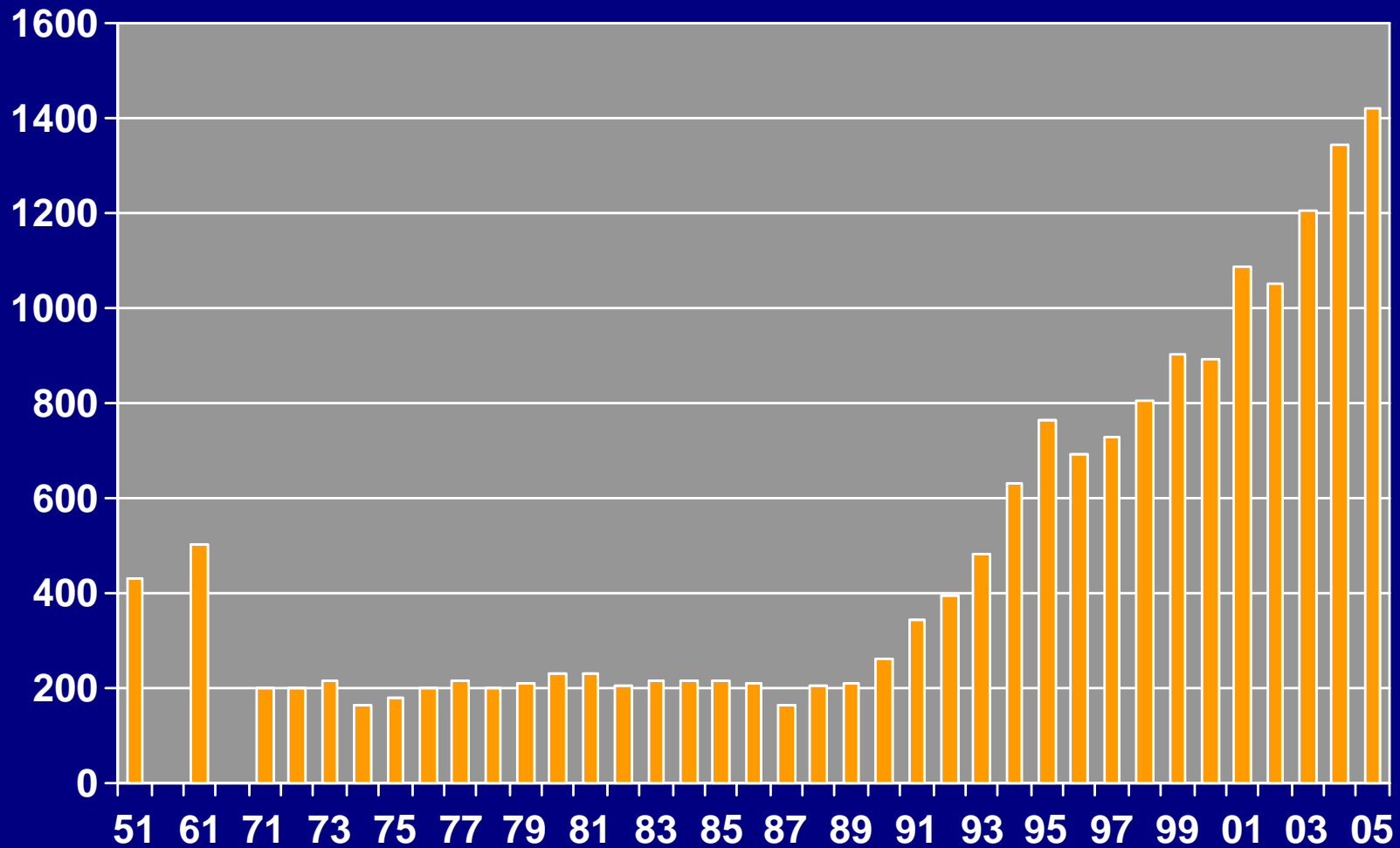
This area will be harvested again after the trees reach about 30 years old and the warblers have ceased nesting here. Regulating the cycle will result in a continuous supply of nesting habitat for the warbler. These areas also provide important habitat for other species such as Least Sandpiper, Sharp-shin, Greater Scaup, Marsh Wren, and White-throated Sparrow.

Kirtland's Warbler habitat management is a combined effort of the Michigan Department of Natural Resources, the U.S.D.A. Forest Service, the U.S. Fish and Wildlife Service, and the Michigan Audubon Society.

MDNR WILDLIFE 1336



1951, 1961, 1971-2005 Census



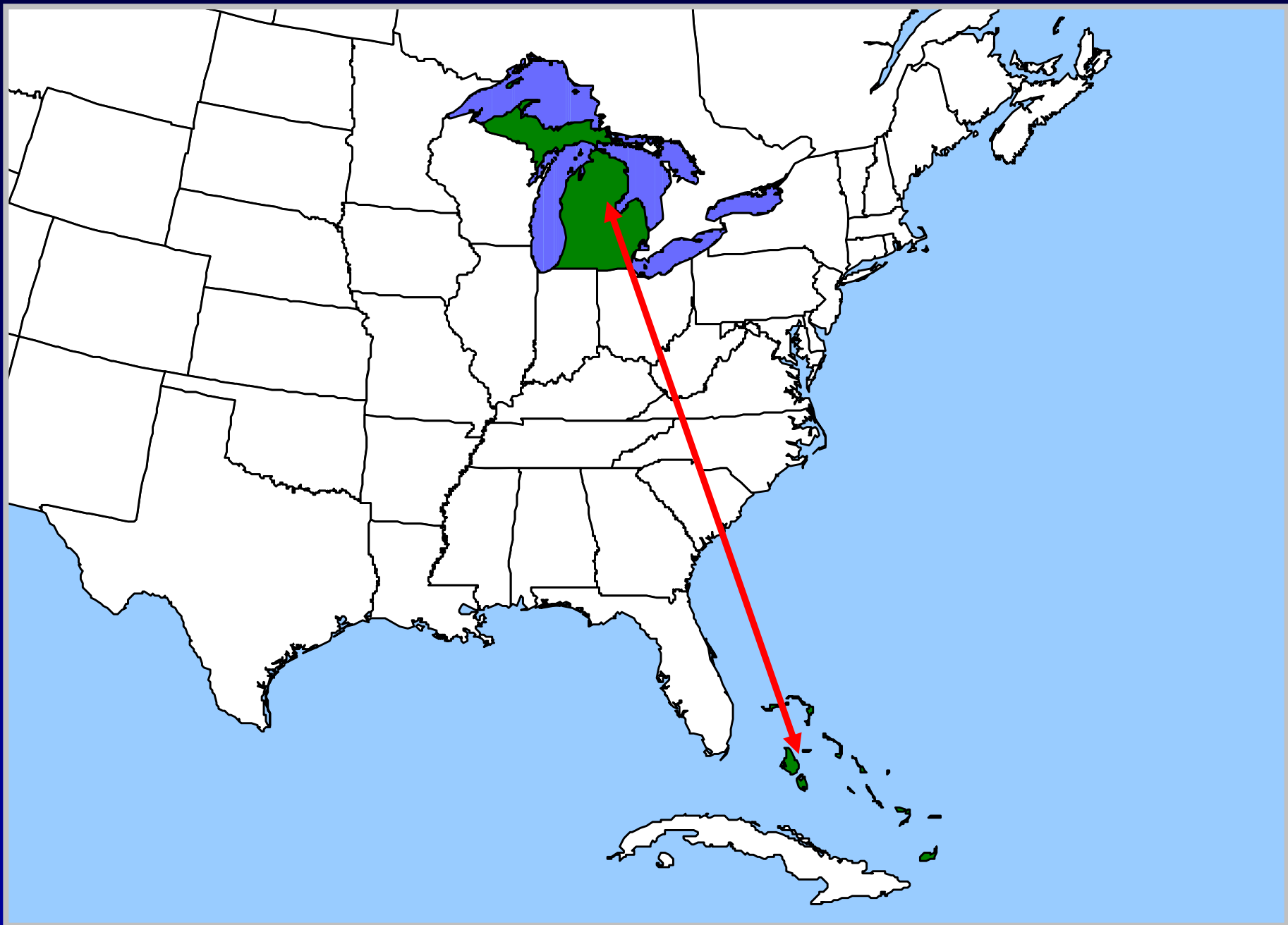
■ Singing Males

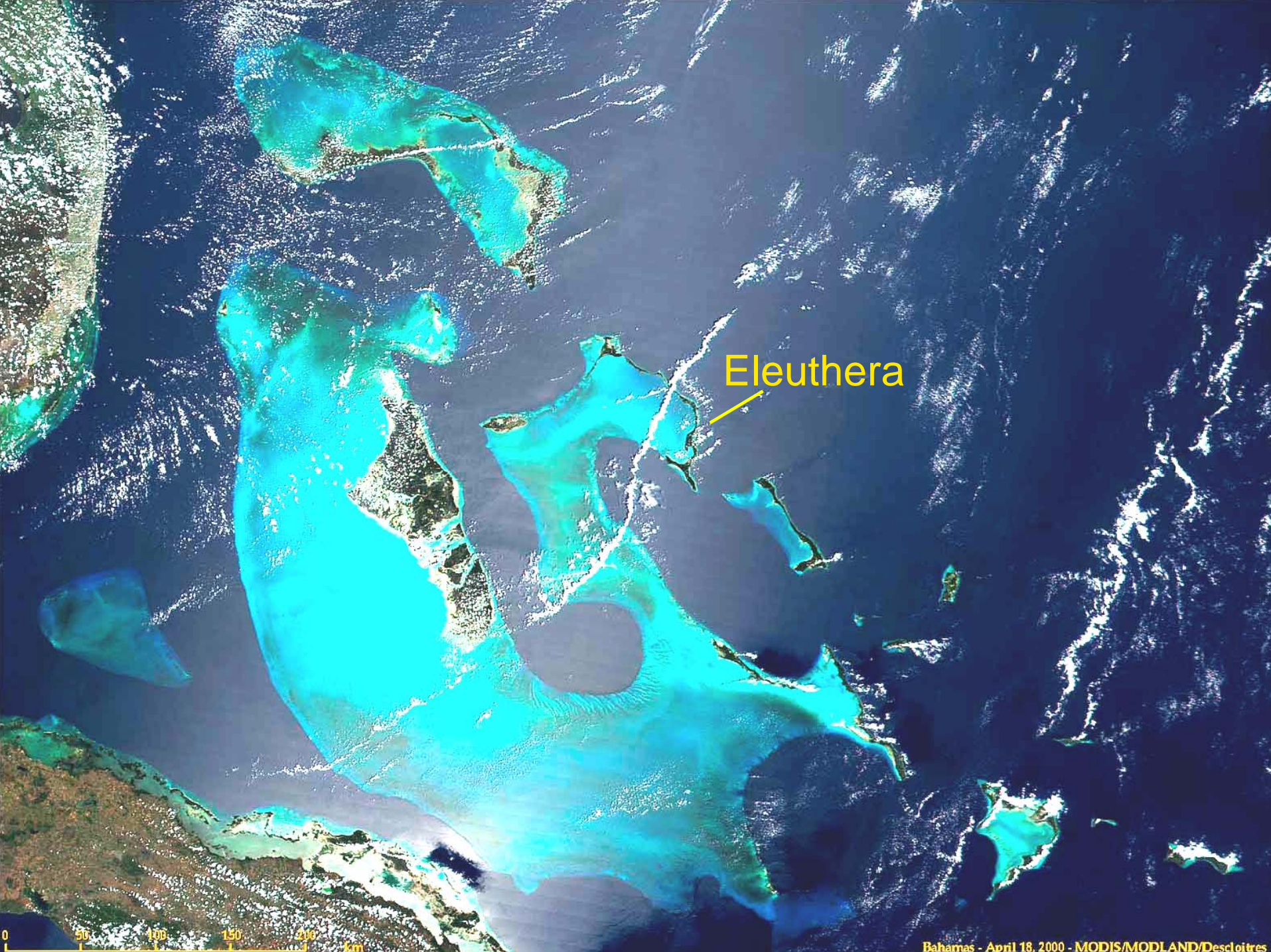
Kirtland's Warbler Distribution by Habitat Origin











Eleuthera



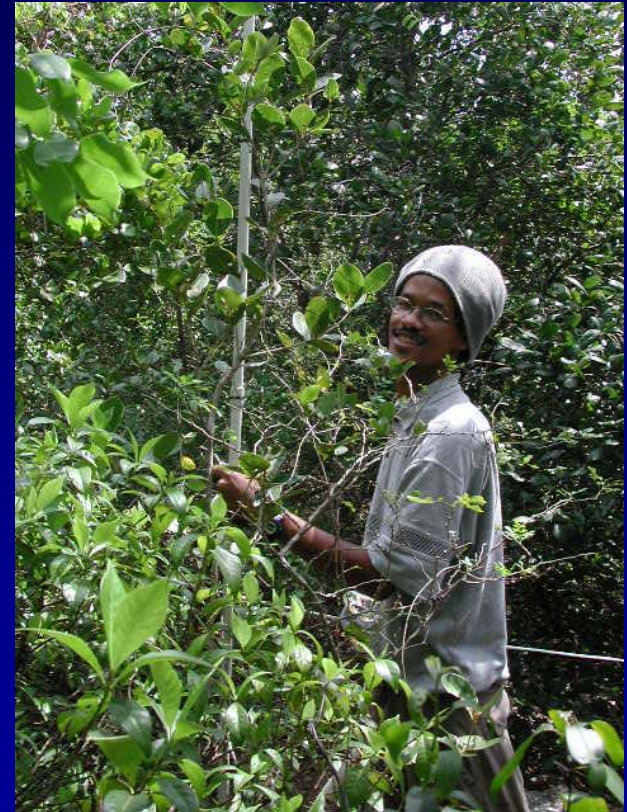


Kirtland's Warbler Research and Training Project



- Build conservation capacity in The Bahamas by providing field experience and training to Bahamian Students
- Characterize habitat requirements for wintering Kirtland's warblers
- Characterize population biology and ecology of focal migrants and native birds

Research and training activities: Quantifying habitat structure







PRELIMINARY FINDINGS & POTENTIAL IMPLICATIONS

- KWs on Eleuthera are all found in second-growth, human-disturbed, habitats (5-30 years of age, most vegetation below 3 m).
- As winter droughts proceed KWs abandon the driest sites with low or no food supplies (e.g., fruit) and move to moist sites that have more food; droughts may cause mortality
- The relatively moist food-rich sites at late winter may be key to conservation of KW habitats in the Bahamas.
- Conservation of KW habitat could be linked to Bahamian water conservation efforts to protect fresh water lens.

The Bahamas-Michigan Connection: BB-XR



The Bahamas ← → Michigan

Information sources

- Birds of North America accounts
 - bna.birds.cornell.edu/BNA/about
- The Nature Conservancy abstracts
 - <http://home.tnc/toolsandreports/conservationtools>
 - Click Conserveonline, browse library, subject category, birds. Species listed by common name.