

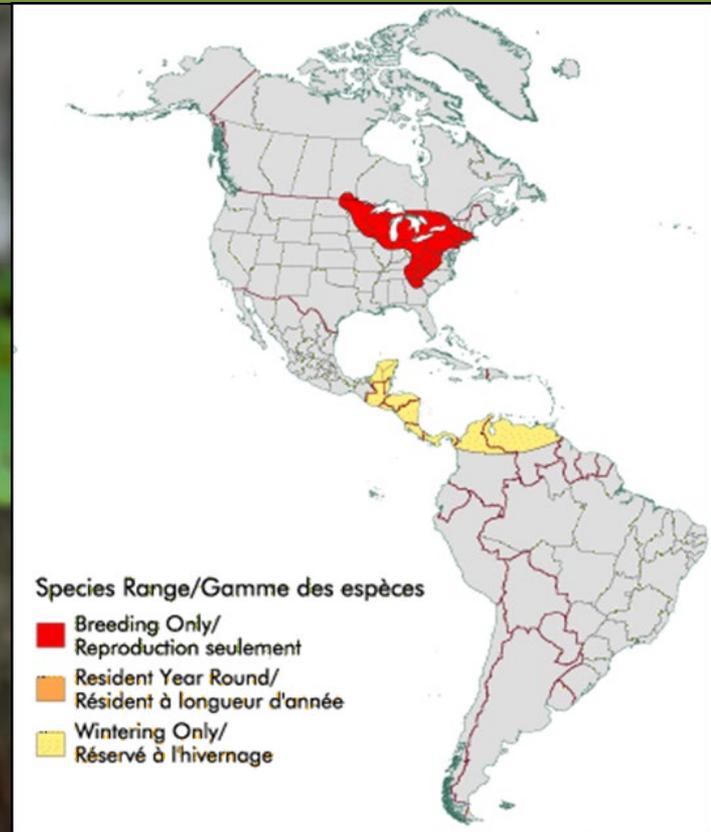


Golden-winged Warbler Breeding Habitat

Presented By: Peter Dieser

Golden-winged Warbler

- Neotropical Migrant
- Ground Nester
- Males use canopy trees for song perches and to forage
- Foliage Gleaner - Forages in all vegetation layers (shrub, sapling and tree)
- Territories almost always incorporate a mature forest edge



Primary Reasons for Decline

*approximately 70% since 1966

- Loss of Breeding Habitat
 - Req. contiguous forest and site/landscape level diversity
- Loss of Stopover Cover
- Loss of Winter Cover
- Human Development (habitat fragmentation)
- Lesser Factors: Nest Parasitism, Hybridization

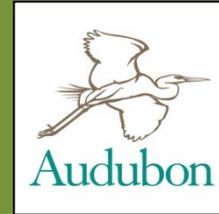
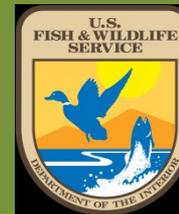


Golden-winged Warbler BMPs

BEST MANAGEMENT PRACTICES FOR
**Golden-winged Warbler Habitats in
the Great Lakes Region**
A Guide for Land Managers and Landowners



GWWA Best Management Practices (BMPS) were created by the Cornell Lab of Ornithology in 2013 and updated in 2019 under the guidance of the GWWA Working Group and with the assistance of by a consortium of more than 140 biologists and managers engaged in GWWA research and conservation.



How is Habitat Created?

- Natural Disturbance: Promote or emulate natural disturbance regimes (fire, beaver activity, and flooding) that create early successional forest/brushland habitat. This is especially relevant in noncommercial areas where active management is difficult due to limited funding.



- Natural disturbances pictured here: Understory Fire, Blowdown, Insect/Disease, Beaver Flowage

How is Habitat Created?



Mechanical Brush Treatment – ABC's Focus on MN Public Lands



Timber Management



Prescribed Burning

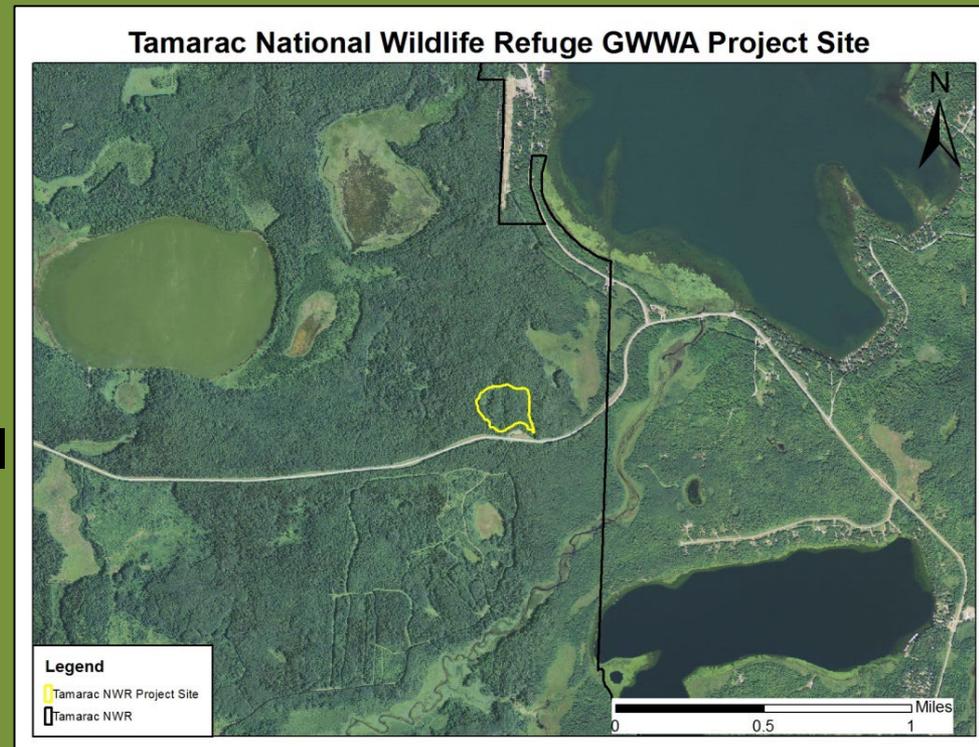


Reclaim and Restore Degraded Sites

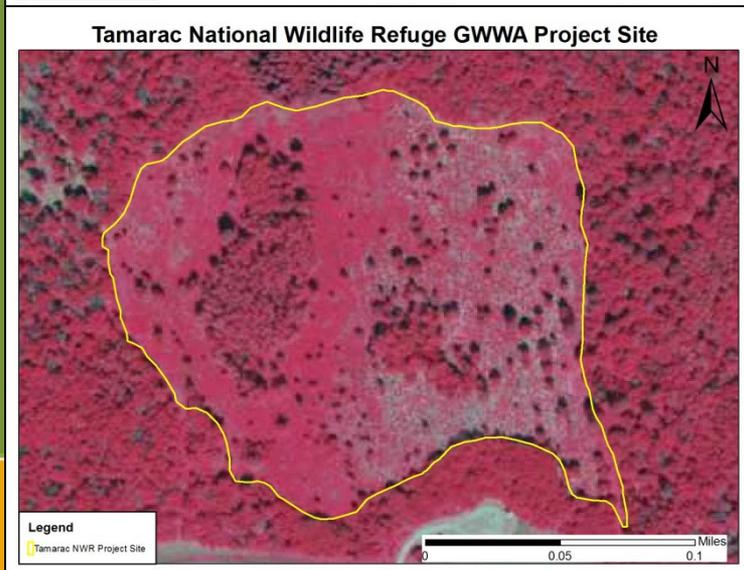
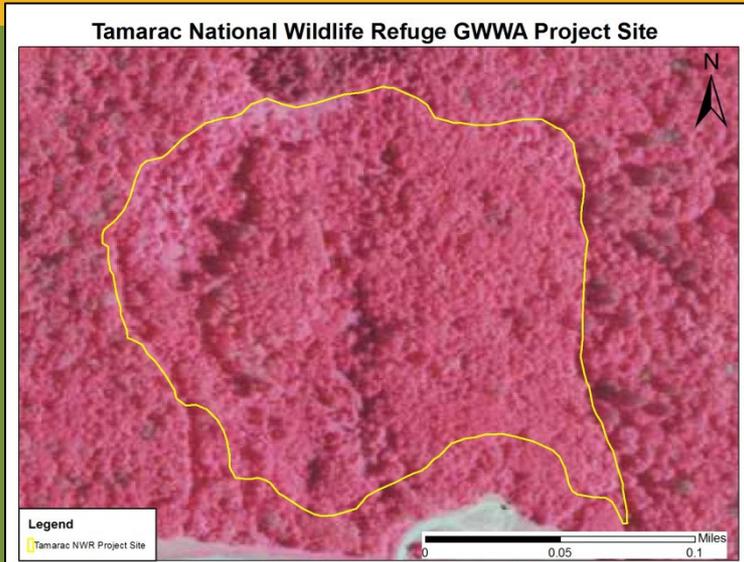


Landscape-level Requirements: Identifying Suitable Project Sites

- $\geq 50\%$ forest cover within 1.5mi of restoration or harvest site
- Deciduous or mixed forest cover types
- Conifer component $<$ approx. 30%
- Mix of mature and early successional deciduous forest ages
- Created habitat is ≤ 1 mile from other early successional patches



Project Site Requirements: Creating Young Forest Habitat



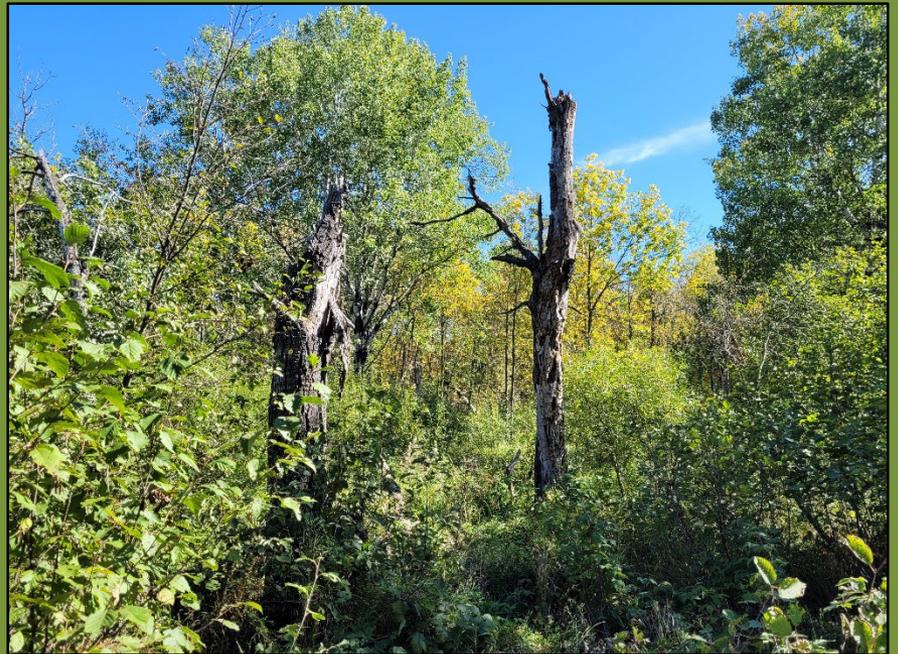
- Adjacent Mature Forest
- Deciduous or Mixed Deciduous Overstory
- Post Treatment (Brushland):
 - 25-50% shrub/sapling cover unevenly distributed as clumps (depends on site-lvl features and number of mature trees present)
 - Well distributed leave trees or patch creation
- Post Treatment (Forest):
 - Optimal target is 10-15 trees per acre (Dom/CoDom) – DBH > 9"
 - Well distributed leave trees and/or patch creation
- Include Legacy Patches and Feathered Edges When Possible

* Sites are occupied for 10-12 years post treatment















45.87

6.64

34.61



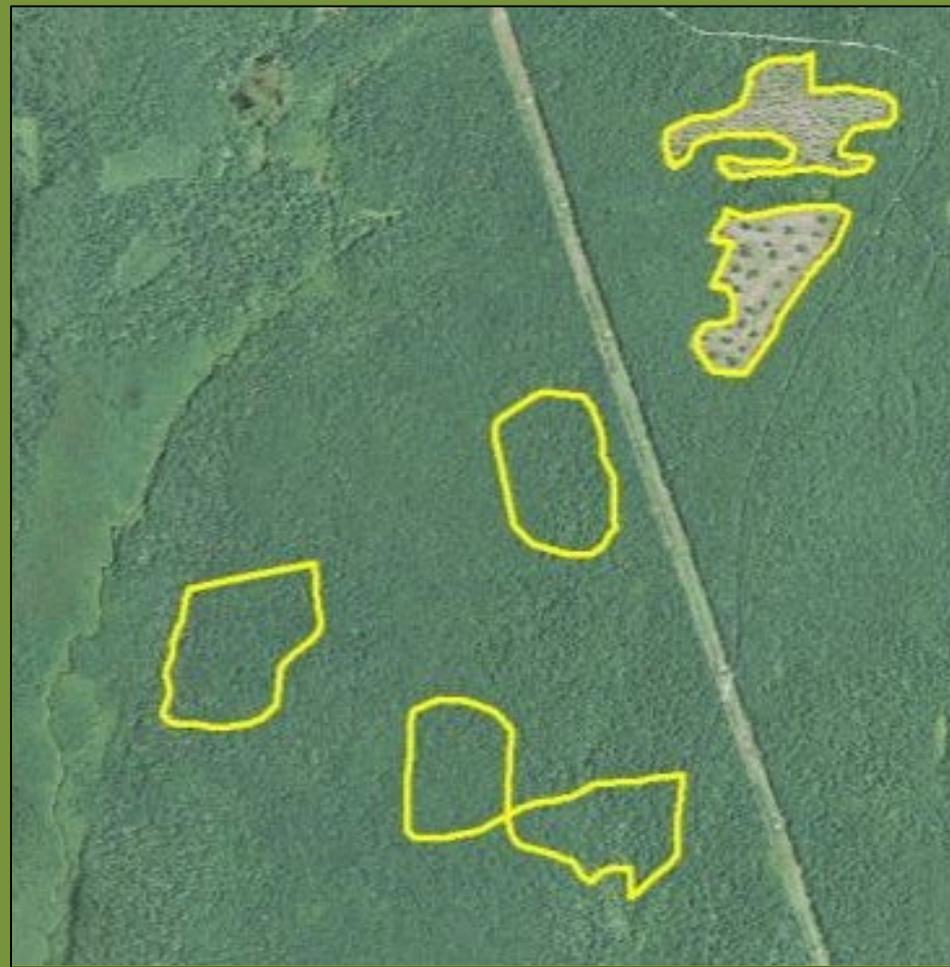
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- Two 20-acre stands, both 10-15 RBA



- Four additional 22-acre stands marked and ready
- Mixture of grouped and scattered residuals (20 RBA)
- Harvests planned to strategically maintain a pipeline nesting and post-fledging habitat in this local landscape

WITHIN THE HARVEST

Few residual trees



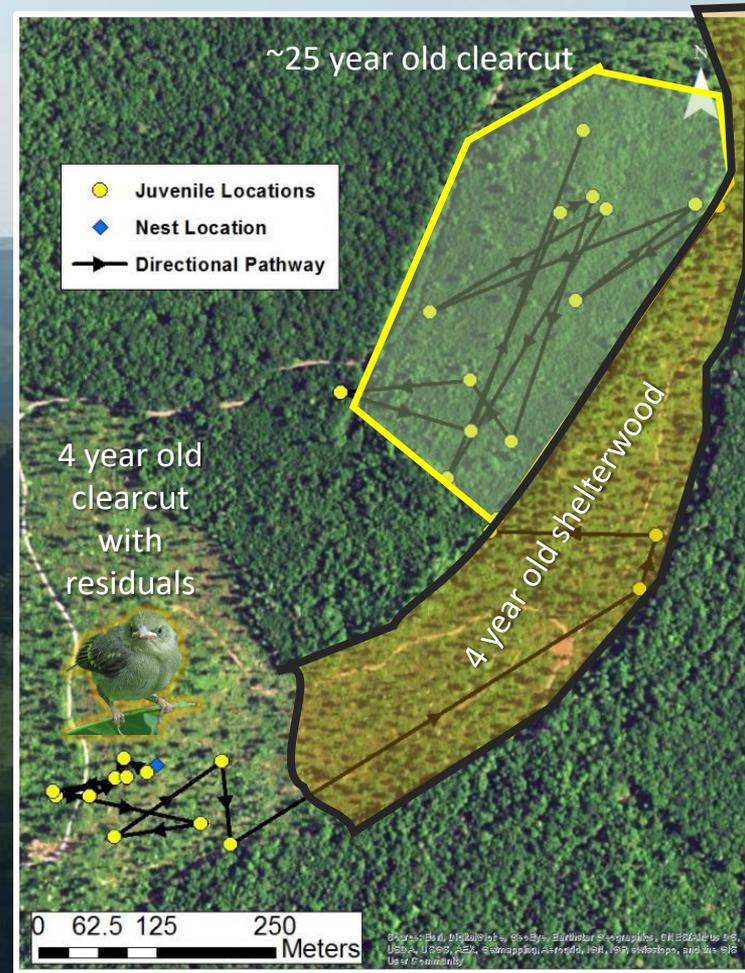
High residual



Clumps can be better for certain small mammal and bird species (and you may get some mature forest species coming into the clumps) but species specific responses differ (E.g. male GWWAs use scattered trees to claim territories)

Forest Management and Golden-winged Warbler Full Breeding Season Habitat Needs

Fiss, C.J., D. J. McNeil, A.D. Rodewald, J.E. Duchamp, and J.L. Larkin. 2020. Post-fledging Golden-winged Warblers require forests with multiple stand developmental stages. Condor <https://doi.org/10.1093/condor/duaa052>

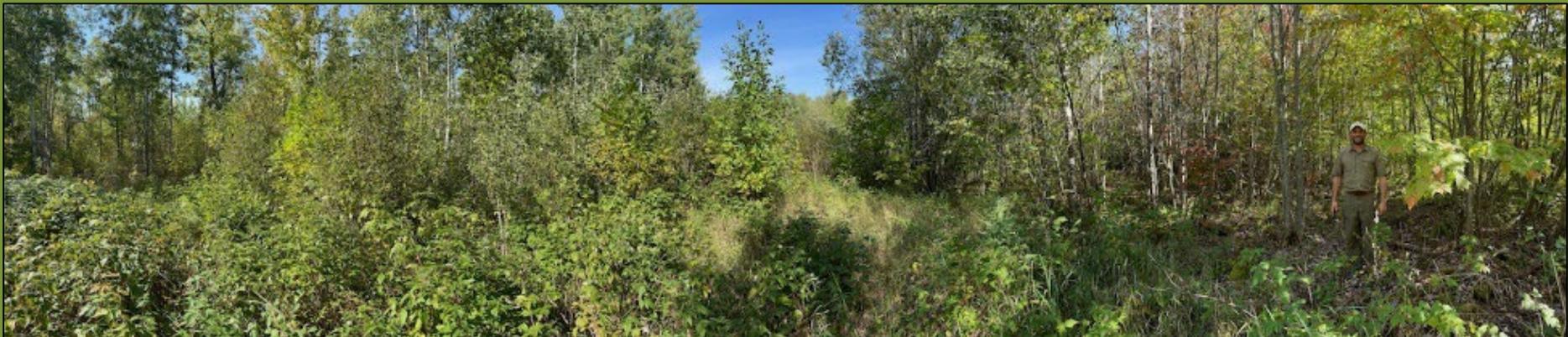




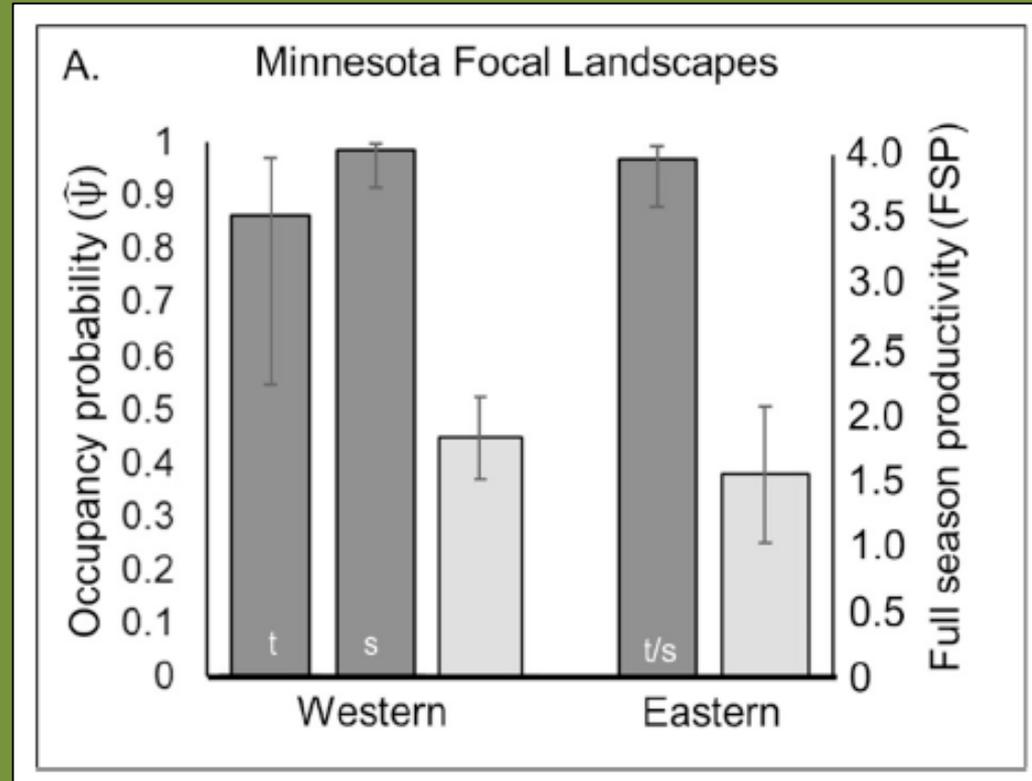
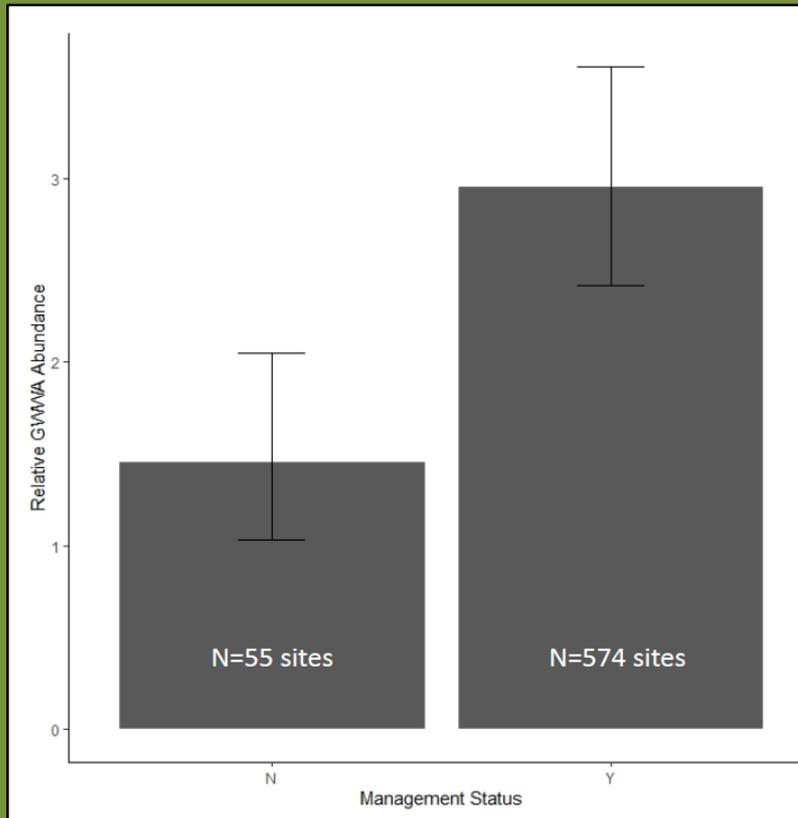
Nesting = Stand initiation stage



Fledglings: Stem Exclusion Stage



Avian Surveys: GWWA Observations



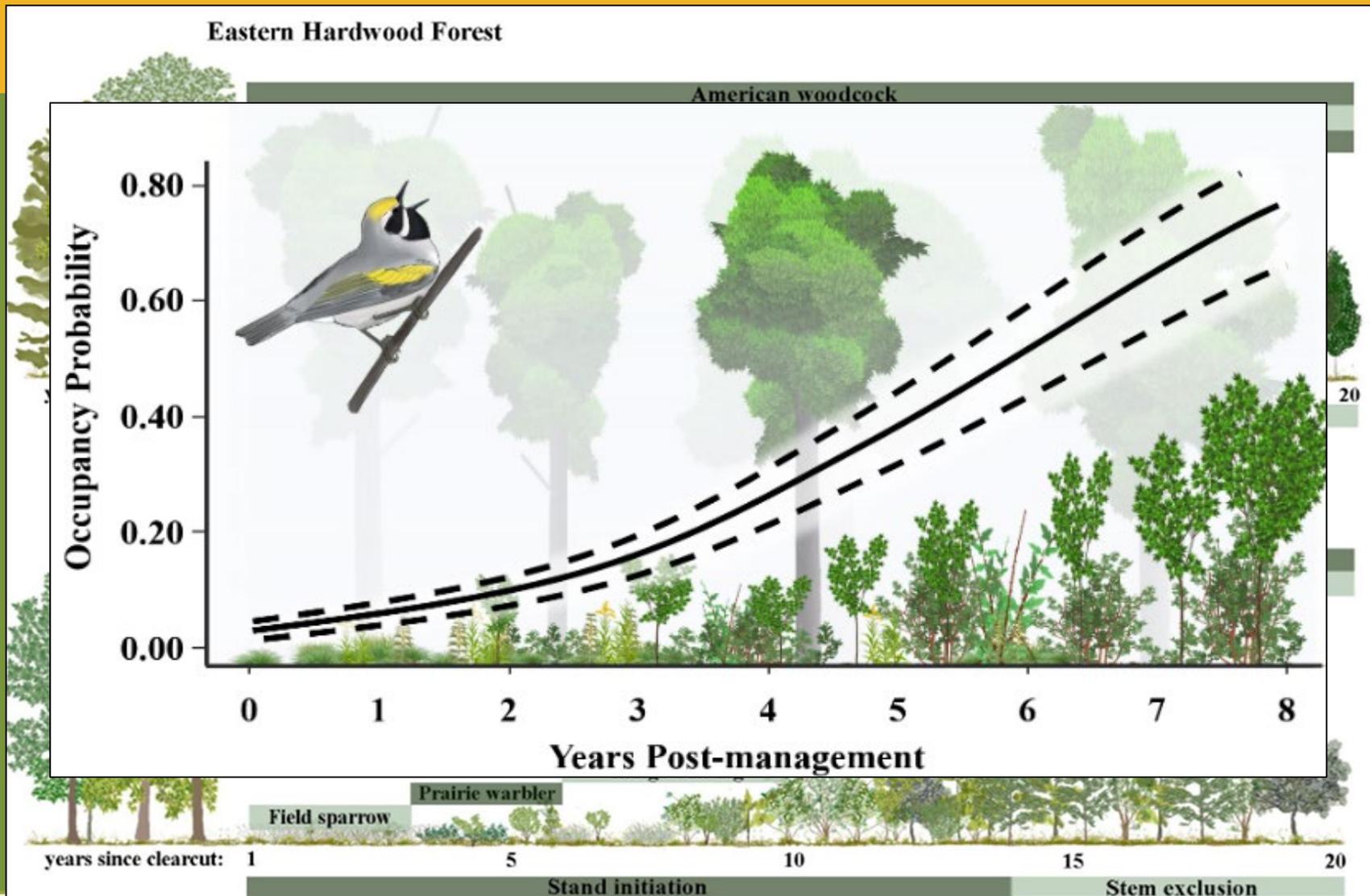
McNeil, D. J., A. D. Rodewald, O. J. Robinson, C. J. Fiss, K. V. Rosenberg, V. Ruiz-Gutierrez, K. R. Aldinger, A. A. Dhondt, S. Petzinger, and J. L. Larkin (2020). Regional abundance and local breeding productivity explain occupancy of restored habitats in a migratory songbird. *Biological Conservation* 245:108463.

Avian Surveys: AMWO Observations



*Jeff Larkin professor of Wildlife Ecology and Conservation presentation of monitoring completed by the Cornell University and Indiana University of Pennsylvania-Research Institute. Findings part of an upcoming publication under peer review.

Post Treatment Songbird Occupation



*MN include a mix of songbird species from both Eastern and Central Hardwood forest types

Our conservation goal is to benefit a suite of species and help promote a dynamic mosaic of forest ages and cover types on our MN natural landscape.

