

Structural Retention in Michigan Clearcuts: Do the Birds Care?

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Within-Stand Retention Guidance

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Table 1. Amount to be Retained by Silvicultural System

Retention Amount	Silvicultural System
No Retention ¹	Any silvicultural system.
3%-10% of the harvest area (acreage) in retention	Clearcut with Reserves, Shelterwood with Reserves, Seed Tree with Reserves.
3%-10% of the residual basal area. ²	Single Tree Selection, Group Selection, Thinning*

*Includes "Crown", "Low", and "Systematic" thinning treatments.

¹ 'No retention' or less than 3% retention is an option that may be prescribed for use on State Forest lands, but must be justified and approved as with any prescription at compartment review.

² Unharvested patches may contribute toward retention goals in uneven-aged systems.

Note that in even-aged harvest systems retention is specified as area-based, and that retention in uneven-aged systems and intermediate thinnings retention is residual basal area-based. However, unharvested patches may contribute toward retention goals in uneven-aged systems.





MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

September 3, 2014

TO: Unit Managers, District Supervisors, Forest Planners, Timber Management Specialists, David Price, Dave Neumann, Dennis Nezych; Forest Resources Division
Doug Reeves, Wildlife Division

FROM: Debbie Begalle, Forest Planning & Operations Manager
Forest Resources Division

SUBJECT: Clarification of Within-Stand Retention Guidance for Aspen Stands

Aspen retention was identified as an opportunity for improvement during the 2012 external surveillance audit, per an observation issued by our FSC auditor and became a minor CAR (FSC 2013.1) last fall. There were two parts to the minor CAR:

1. *"Aspen retained along timber sale boundaries for the purposes of maintaining a representative portion of a stand could be confused as being part of an adjacent stand or compartment that was not recently harvested. MDNR therefore risks losing this under-represented successional stage of aspen in the FMU (Indicator 6.3.a.1)."*
2. *"Most areas include retention of trees representative of dominant species, with the exception of aspen harvests, where larger sized aspens are either not retained or are retained at harvest unit edges where they risk being taken during the harvest of an adjacent compartment/ stand. While MDNR included a discussion of options for retention based on species composition, dominance, opening size and other factors, incorporation of these retention options into MDNR guidelines for all districts was not completed by the time of the 2013 audit."*

THE IMPACT OF TIMBER HARVEST ON WILDLIFE DISTRIBUTION PATTERNS AND
POPULATION VITAL RATES:
DOES STRUCTURAL RETENTION AMELIORATE THE NEGATIVE EFFECTS OF
CLEARCUTTING?



By

Clint R.V. Otto



Using Multiple Methods to Assess Detection Probabilities of Forest-Floor Wildlife

Author(s): Clint R. V. Otto and Gary J. Roloff

Source: Journal of Wildlife Management, 75(2):423-431, 2011.

Published By: The Wildlife Society

URL: <http://www.bioone.org/doi/full/10.1002/jwmg.63>

Comparing Cover Object and Leaf Litter Surveys for Detecting Red-Backed Salamanders, *Plethodon cinereus*

Author(s): Clint R. V. Otto and Gary J. Roloff

Source: Journal of Herpetology, 45(2):256-260, 2011.

Published By: The Society for the Study of Amphibians and Reptiles

DOI: 10.1670/10-039.1

URL: <http://www.bioone.org/doi/full/10.1670/10-039.1>



Ecography 36: 001–011, 2013

doi: 10.1111/j.1600-0587.2013.00137.x

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Subject Editor: Robert P. Anderson. Accepted 23 April 2013

Improving species occupancy estimation when sampling violates the closure assumption

Clint R. V. Otto, Larissa L. Bailey and Gary J. Roloff

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PLOS ONE

Comparing Population Patterns to Processes: Abundance and Survival of a Forest Salamander following Habitat Degradation

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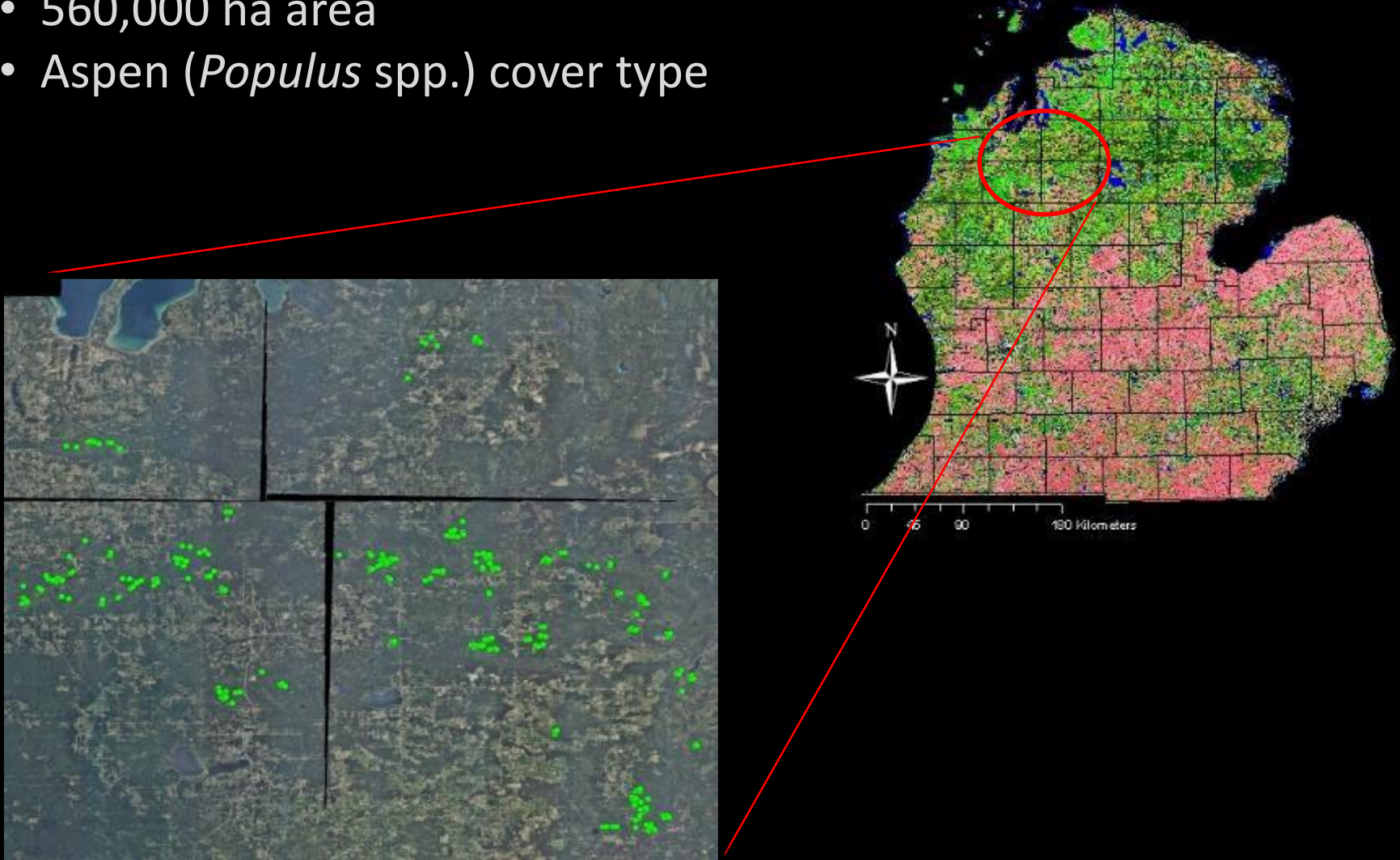
Songbird response to green-tree retention prescriptions in clearcut forests

Clint R.V. Otto*, Gary J. Roloff¹

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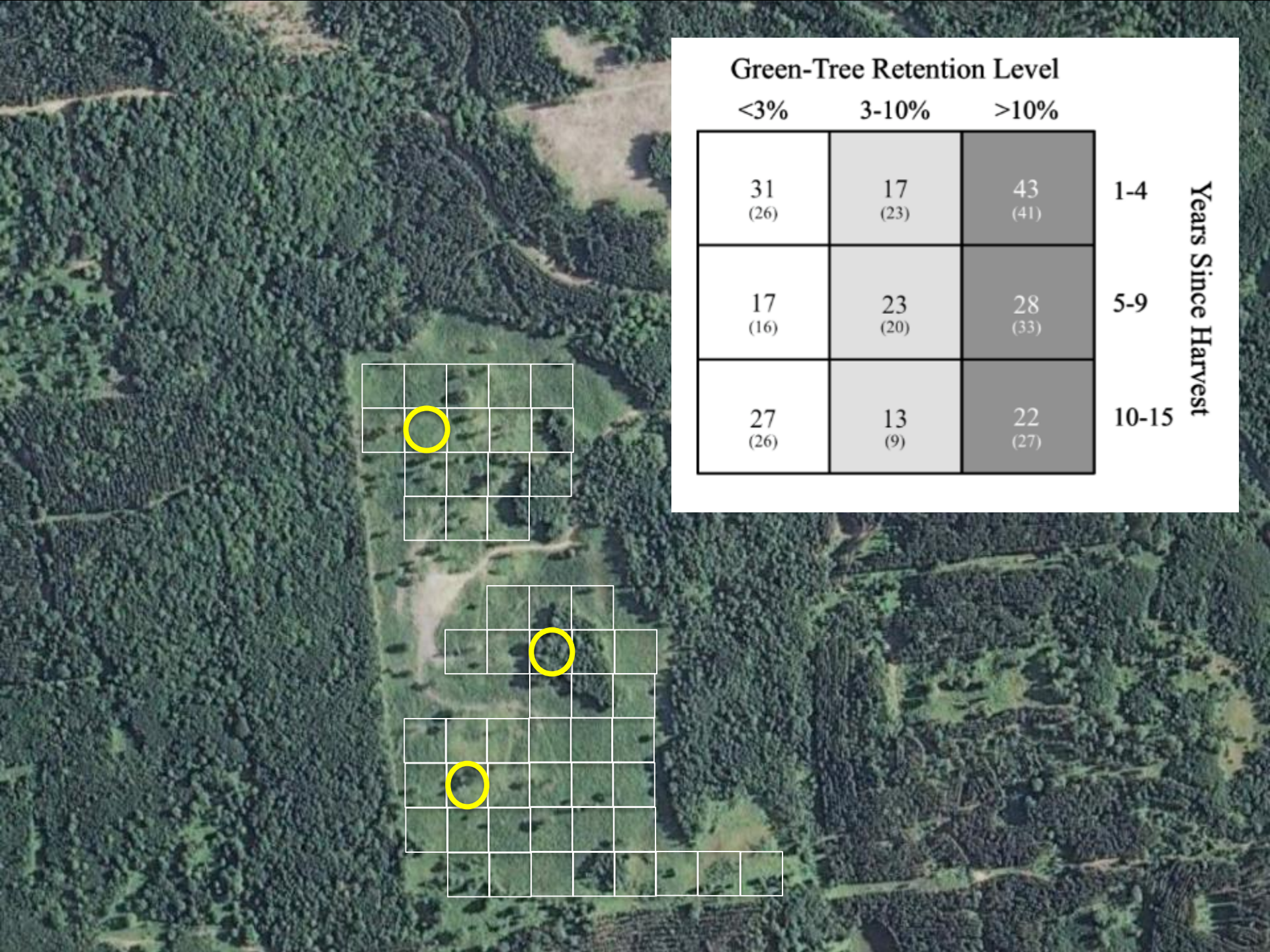


- 4 counties
- 560,000 ha area
- Aspen (*Populus* spp.) cover type









Green-Tree Retention Level

<3%

3-10%

>10%

	<3%	3-10%	>10%	
31 (26)	17 (23)	43 (41)	1-4	
17 (16)	23 (20)	28 (33)	5-9	
27 (26)	13 (9)	22 (27)	10-15	

Years Since Harvest



Results

- *66 bird species detected*
 - *20 modeled for occupancy*
 - *Detection probability 0.31 – 0.72 (3-min sub-period)*

Results

- *Interior forest birds*



Results

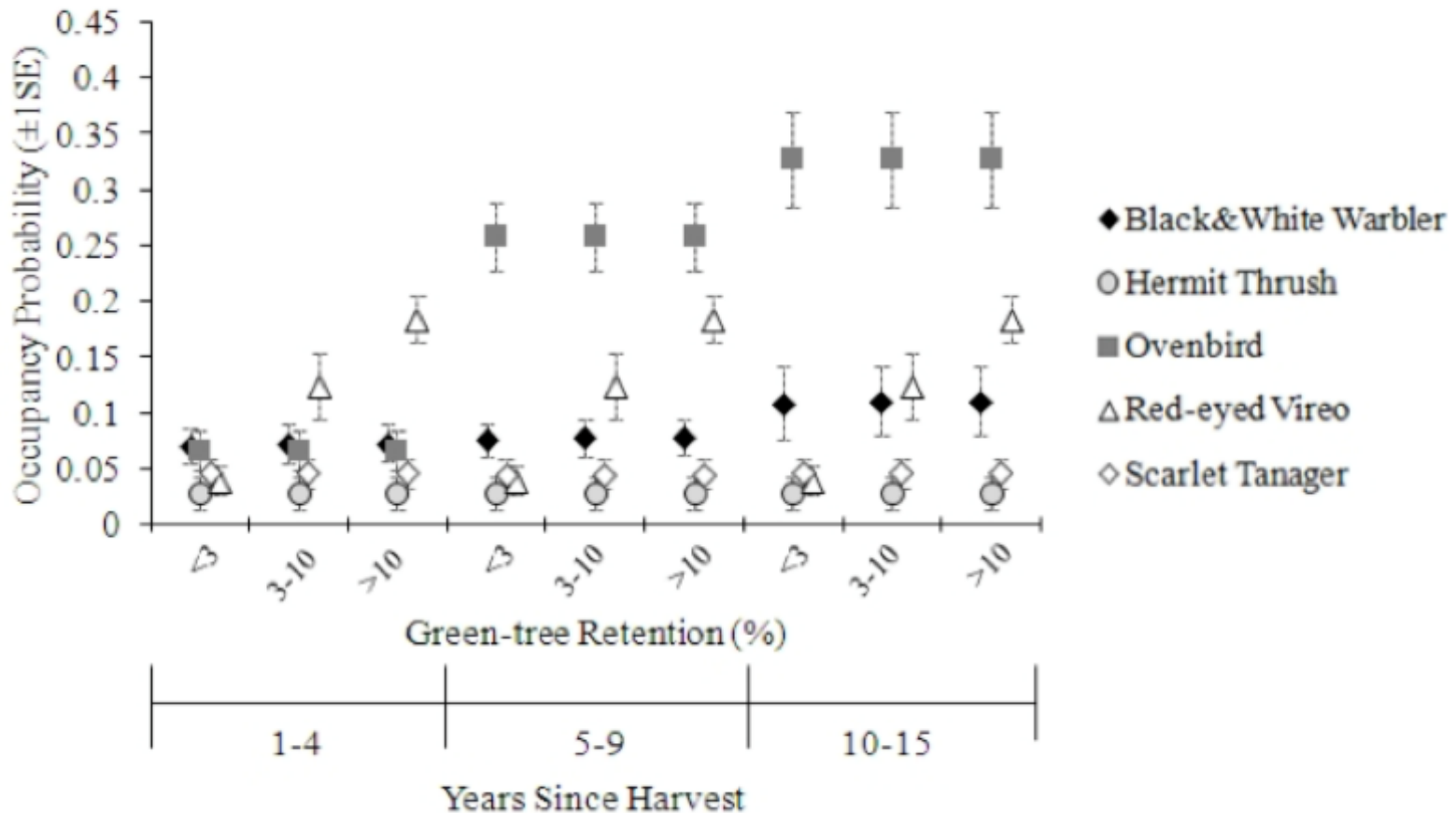
- *Interior forest birds*



- *ONLY red-eyed vireo showed positive response to retention*
- *Aspen age was positively related to ovenbird and black and white warbler*

Results

- Interior forest birds*



Results

- *Generalist birds*



Results

- *Generalist birds*



- *Generally no retention effect*
- *Some support for retention effect on Baltimore orioles and Rose-breasted grosbeaks*
- *Aspen age was important to a variety of species*

Results

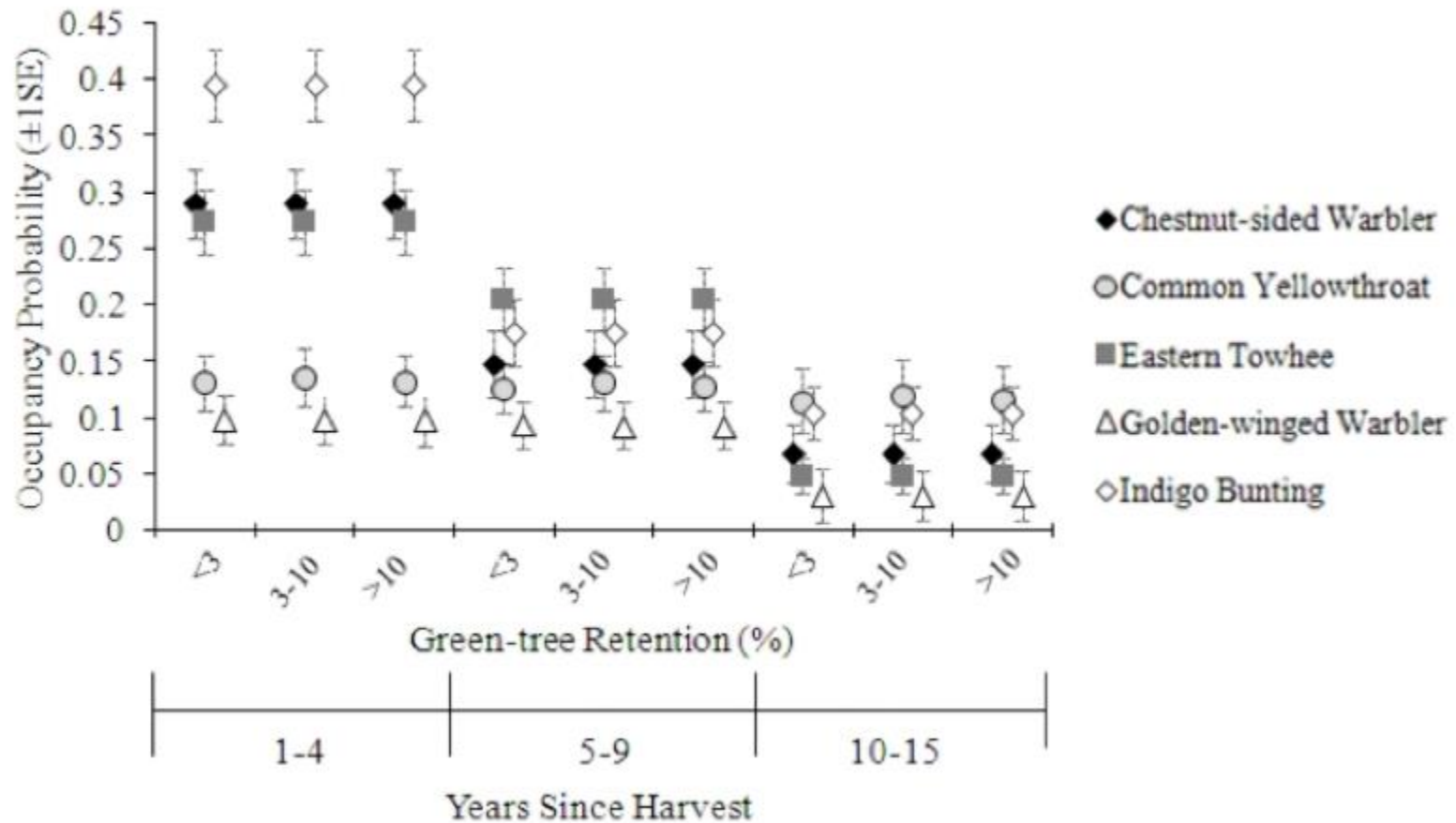
- *Early successional birds*



- *No retention effect*
- *Aspen age was important to all species*

Results

- *Early successional birds*



Retention Effect



Minimal – Why?

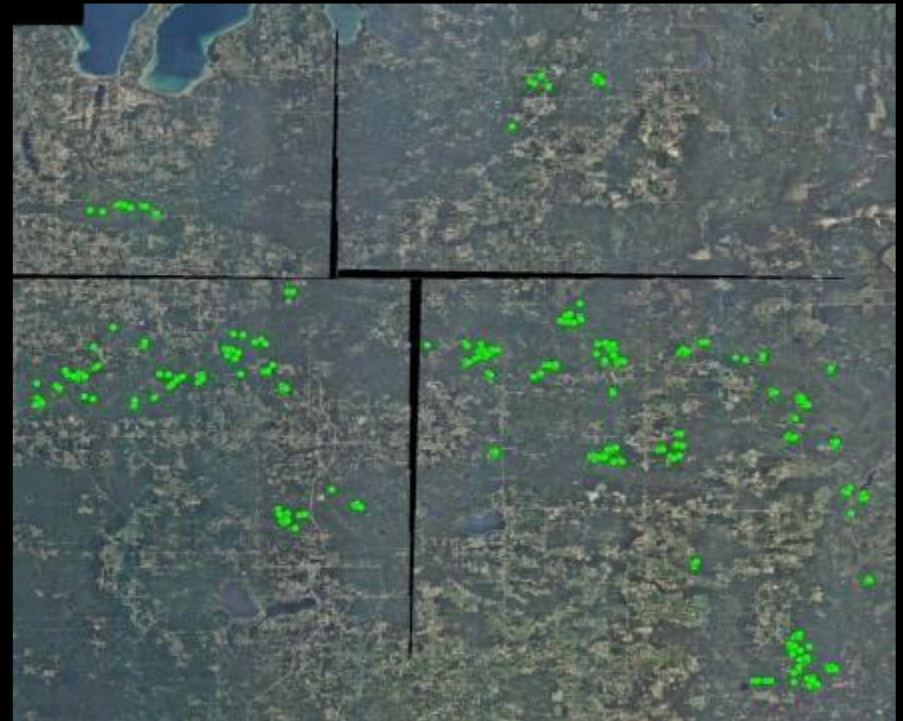
Retention Effect

- *Clearcut size and bird mobility*
 - *>8 ha (~20 ac), average 16 ha (40 ac)*



Retention Effect

- *Clearcut size and bird mobility*
 - *>8 ha (~20 ac), average 16 ha (40 ac)*
- *Landscape context*
 - *Forest matrix*



Retention Effect

- *Clearcut size and bird mobility*
 - *>8 ha (~20 ac), average 16 ha (40 ac)*
- *Landscape context*
 - *Forest matrix*
- *Stand age more important*
 - *Structural complexity*



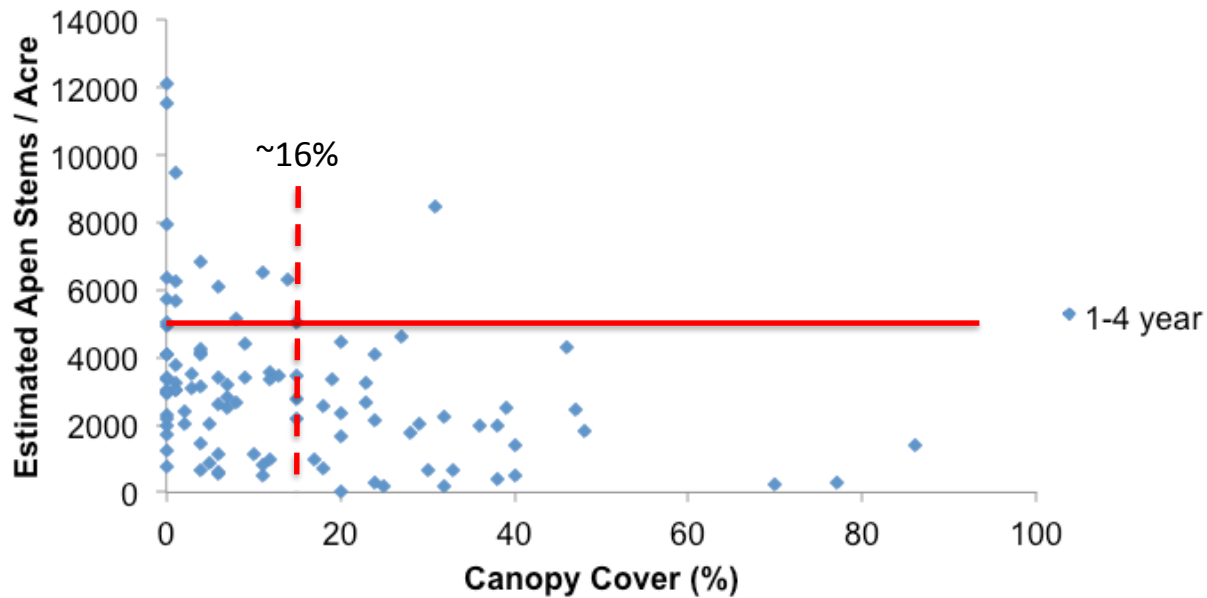
Retention – Aspen Regeneration



3

A Habitat Model for Ruffed Grouse in Michigan

JAMES H. HAMMILL and RICHARD J. MORAN



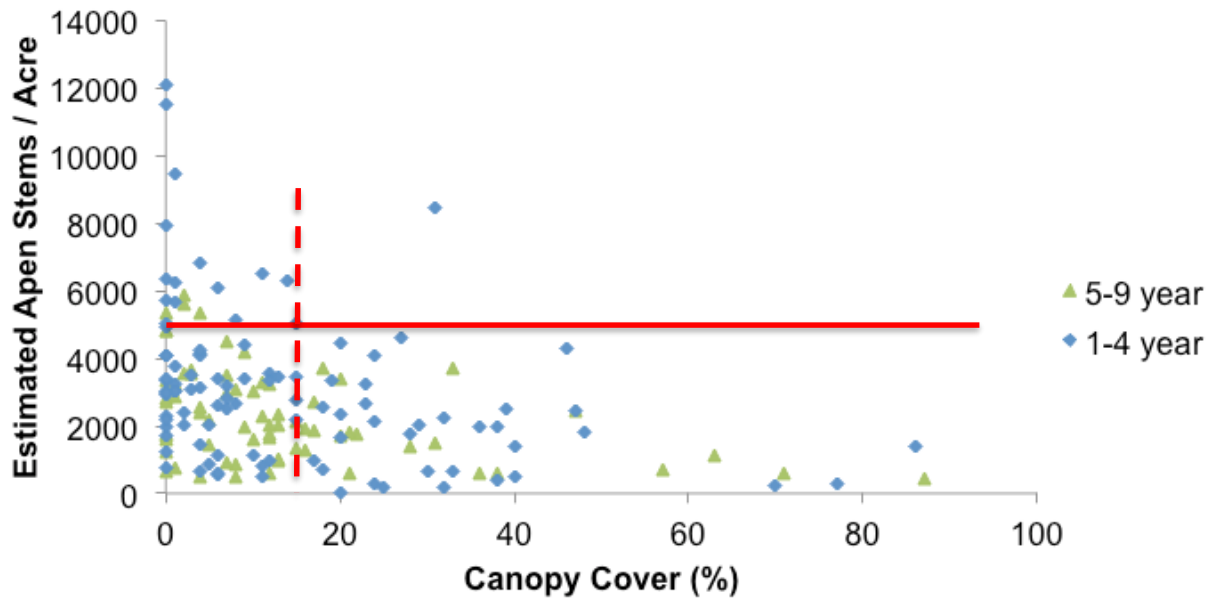
Retention – Aspen Regeneration



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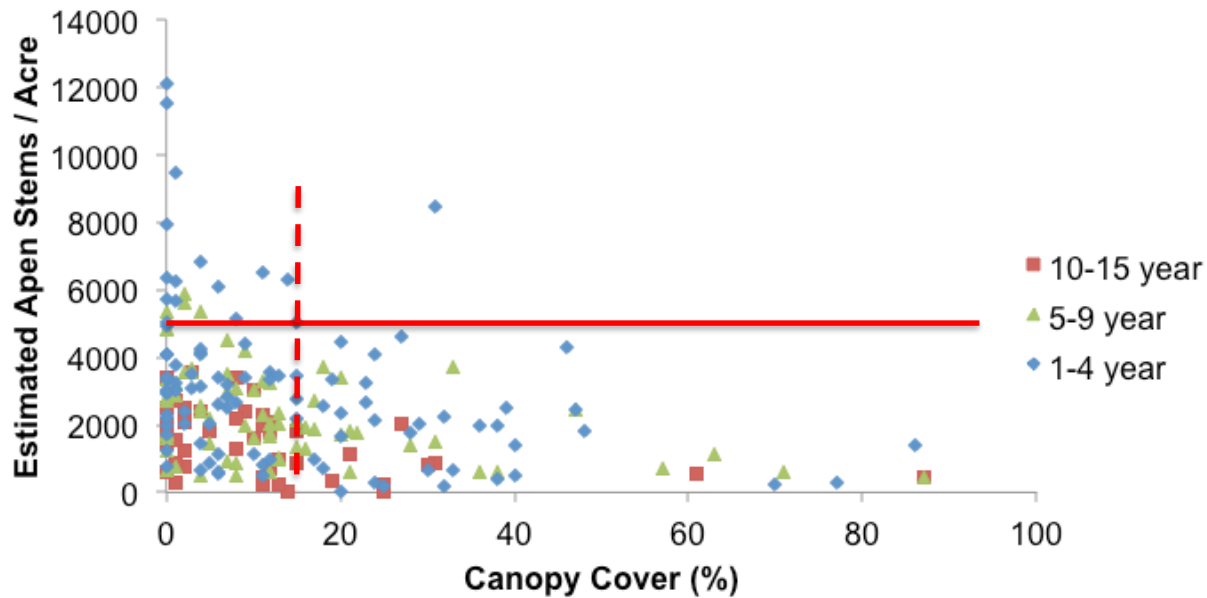
Retention – Aspen Regeneration



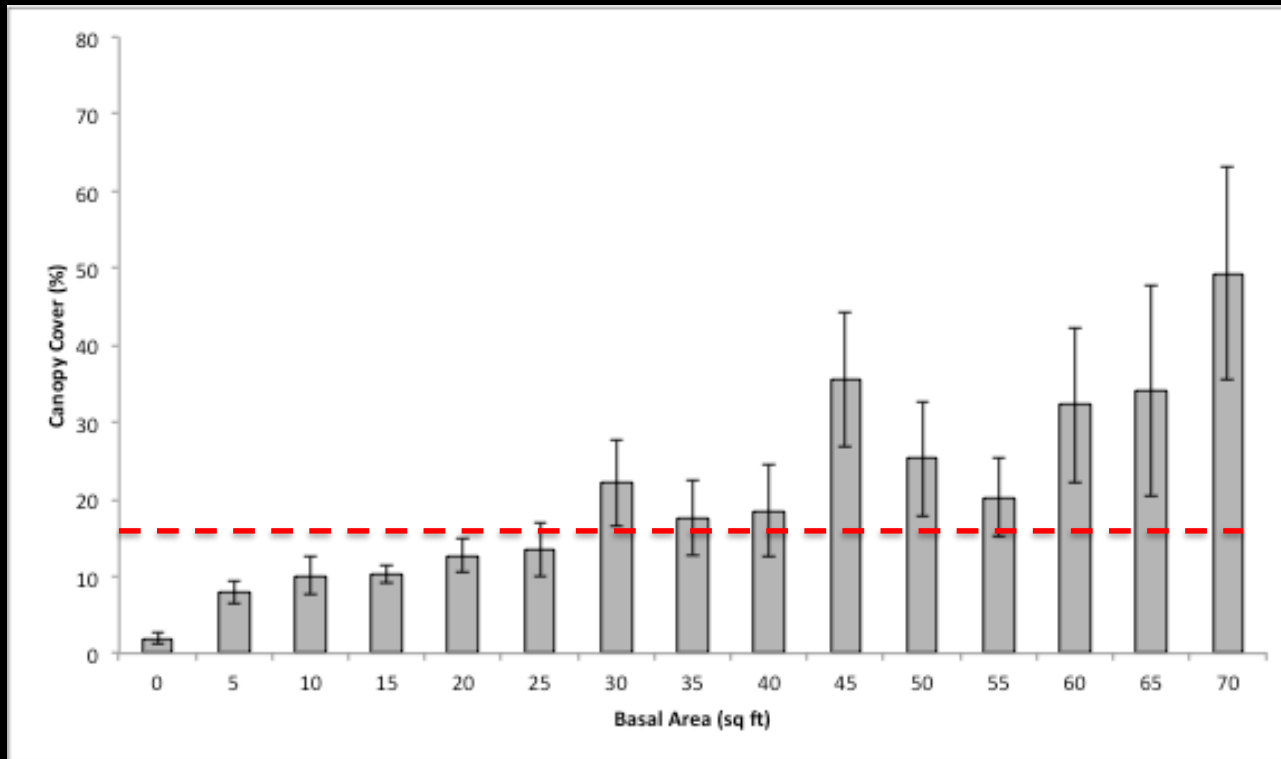
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A Habitat Model for Ruffed Grouse in Michigan

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Retention – Aspen Regeneration



Structural Retention



Structural Retention



Structural Retention



Structural Retention



Structural Retention





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