Habitat associations of the Rusty Blackbird in Nova Scotia

And opportunities for conservation within a multi-species suite

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Rusty Blackbird Symposium, AOU/COS/SCO 2014
Estes Park CO, Sep 23-28

Likely Causes of Decline in NS

- Habitat loss (wintering and breeding grounds)
- Mercury exposure
- Climate change
- Wetland drying

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Habitat Associations of RUBL in Nova Scotia

1. How similar are occupied and unoccupied sites?

Red maple flood plain, Kejimkujik National Park, no recent harvest

2. How similar are occupied sites on harvested and non-harvested lands?

Recent clear-cut in wet coniferous forest, former Resolute Forest Products land

Canada Warbler
(*Cardellina canadensis*)

Rusty Blackbird
(*Euphagus carolinus*)

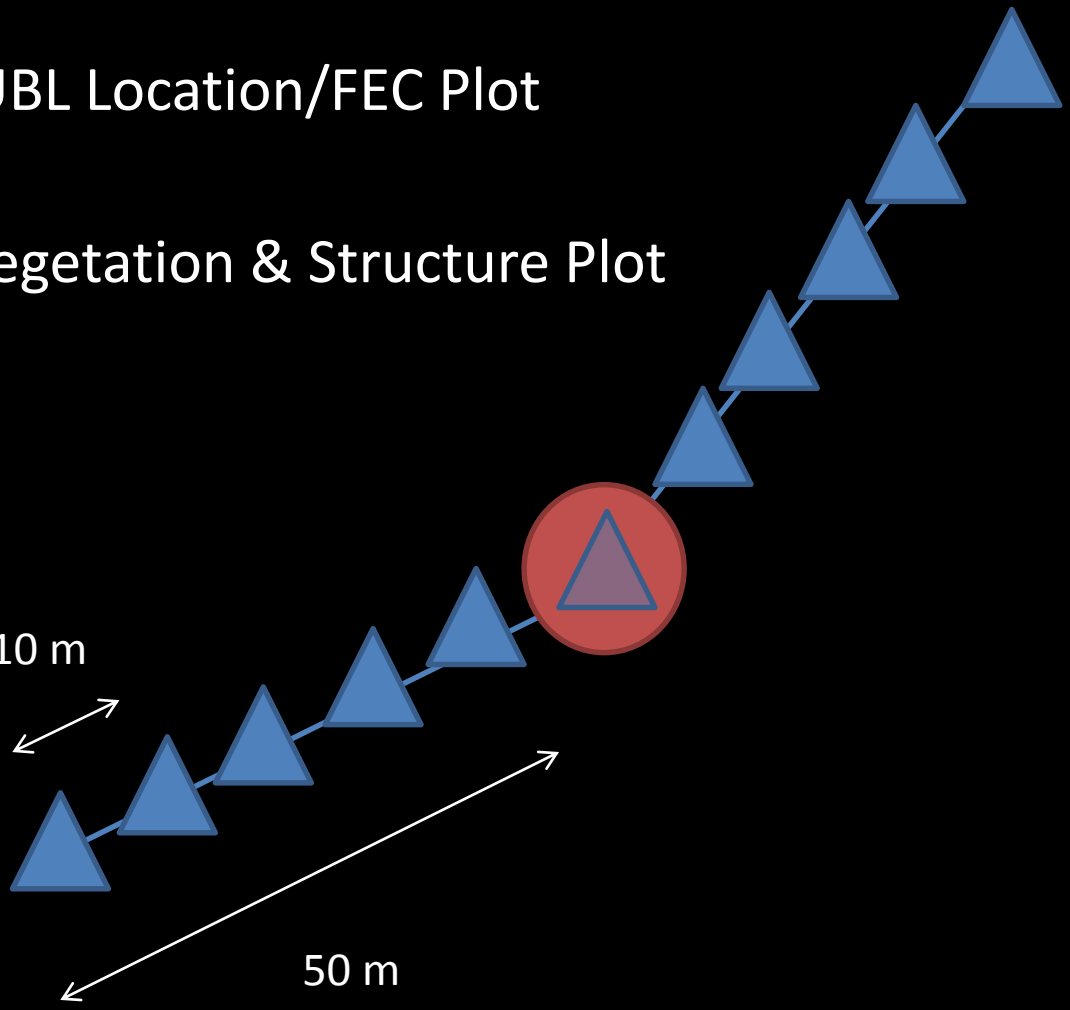
Olive-Sided Flycatcher
(*Contopus cooperi*)

3. How similar are sites occupied by RUBL, OSFL, and CAWA?

Vegetation and Forest Ecosystem Surveys

RUBL Location/FEC Plot

Vegetation & Structure Plot



Sites Sampled

Species	Total	Harvest Matrix	Non-Harvest Matrix
RUBL	37	21	16
OSFL	45	26	19
CAWA	38	18	20
Total	99	54	45

8 sites with RUBL & OSFL
2 sites with RUBL & CAWA
10 sites with OSFL & CAWA

1 site with all 3 species

Results – MRPP for RUBL Groups

Testing multivariate similarity for groups

OCCUPIED ≠ **UNOCCUPIED**

(n=37) **(n=62)**

HARVEST MATRIX = **NON-HARVEST MATRIX**

(n=21) **(n=16)**

	Occupied vs Unoccupied		Harvest vs Non-Harvest	
Variable Type	**Chance-correct within-group agreement (A)**	***p***	**Chance-correct within-group agreement (A)**	***p***
Average	0.0129	**0.0002**	0.0034	0.2539
Variance	0.0102	**0.0010**	-0.0054	0.8035

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Results– Indicator Species Analysis for RUBL (26 variables)

Occupied

Variable	Average	Variance
Water	X	X
Fern	X	
Conifers <5m	X	
Mud		X
Stand basal area		X

Unoccupied

Variable	Average	Variance
Shrub ht	X	
Picea sp.	X	
Total shrub cover	X	X
Deciduous shrub ht	X	
Deciduous shrub cover	X	X
Picea spp. ht	X	
Cinnamon Fern	X	
Alnus incana ht	X	

Results– Indicator Species Analysis for RUBL (26 variables)

Harvest

Variable	Average	Variance
Kalmia angustifolium	X	
Mud		X

Non-Harvest

Variable	Average	Variance
Conifer height (shrub layer)		X

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Results – MRPP for occupancy of 3 species

Testing multivariate similarity for groups

RUBL = OSFL

RUBL ≠ CAWA

OSFL ≠ CAWA

N

RUBL – 37
OSFL – 45
CAWA - 38

Variable Type	Chance-correct within-group agreement (A)	p-value
Average	0.0156	0.0001
Variance	0.0101	0.0028

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Results– Indicator Species Analysis by occupancy of all 3 species (26 variables)

RUBL

Variable	Average	Variance
Water	X	
Mud		X
Deciduous shrub height		X

OSFL

Variable	Average	Variance
None		

CAWA

Variable	Average	Variance
Alnus incana height	X	
Cinnamon fern	X	X
Canopy cover	X	
Total shrub ht	X	X
Deciduous shrub height	X	
Alnus incana cover	X	

1. Do RUBL-occupied and unoccupied areas differ in wet forest landscapes?

Yes.

- Generally a high variability among biologically important variables (mud, water, small conifers)
- Suggests that patchiness is a crucial consideration
- Confounding variable of habitat saturation

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2. Do RUBL-occupied wet forest areas differ in harvested and non-harvested landscapes?

No.

- Overall, not in a significant way
- Need to encourage regrowth of small conifers vs deciduous shrubs
- Should still be aware of potential ecological traps or other demographic implications

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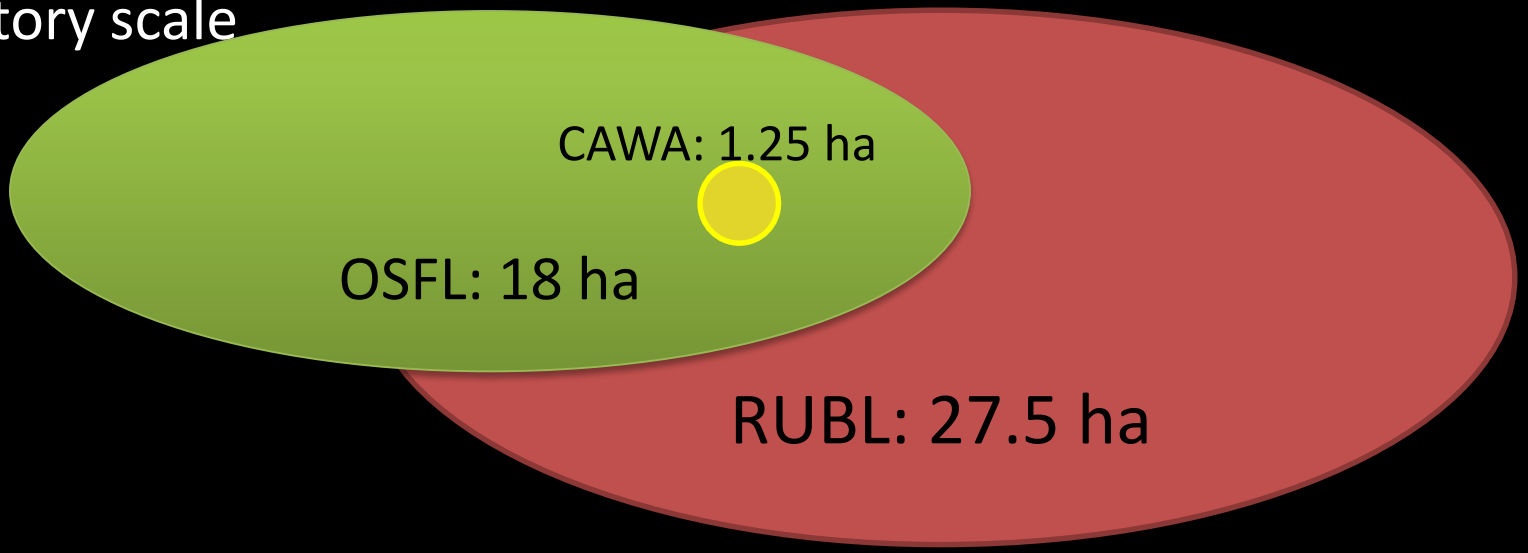
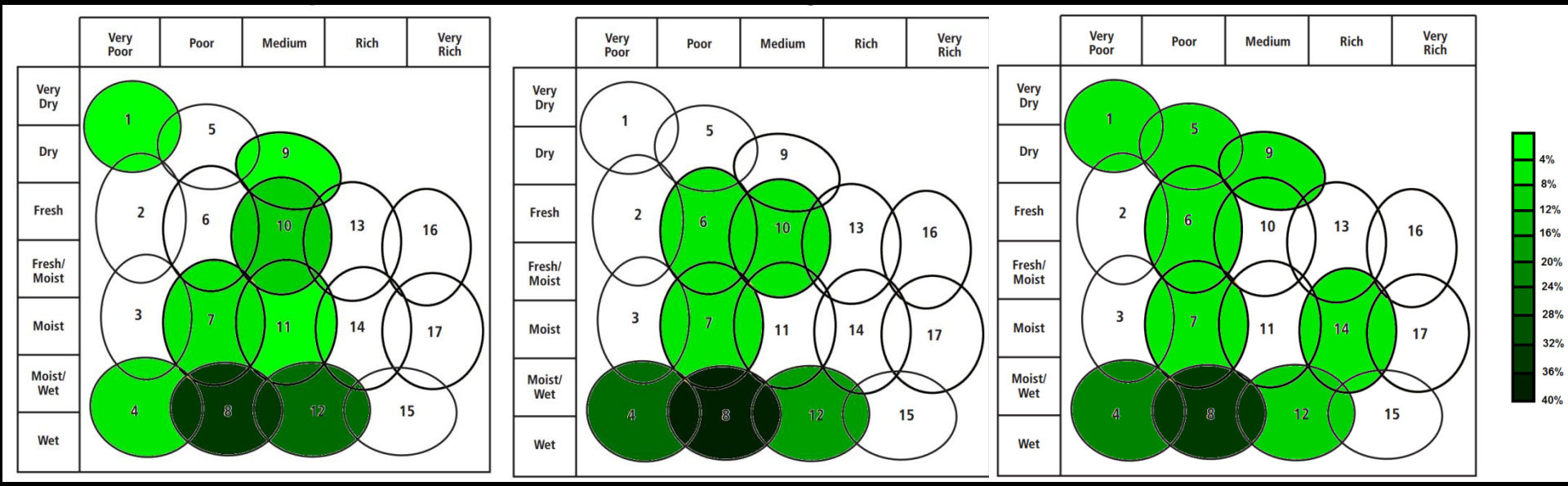
3. Do RUBL-occupied landscapes differ from that occupied by OSFL or CAWA?

Maybe.

- CAWA does significantly differ from the others, and certainly is associated with deciduous shrubs
- These differences may not be biologically meaningful on the territory scale



Ecosite



OSFL **RUBL** **CAWA**

Increased Dryness

Increased richness

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Conservation as a multi-species suite?

We will have a better idea after:

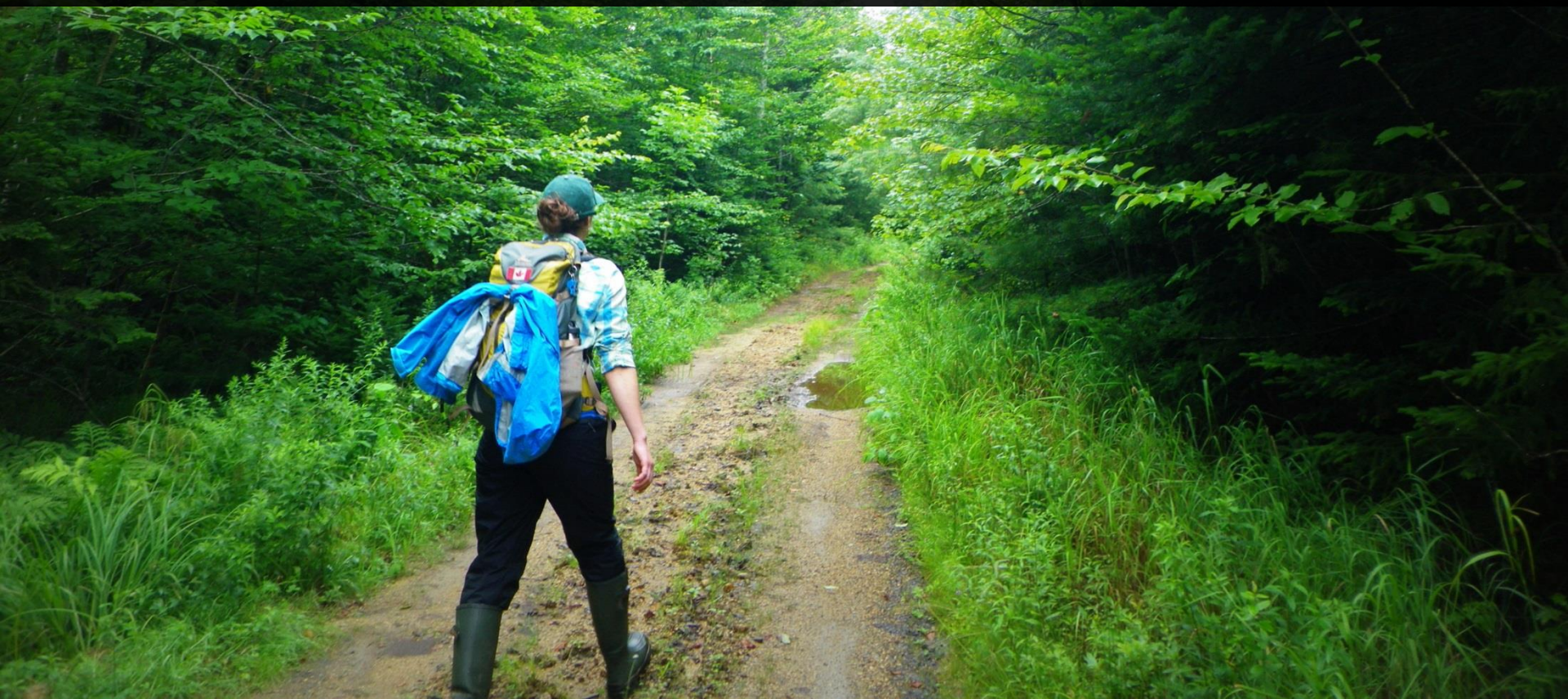
- completing rigorous ecosite evaluation
- Developing Maritimes-scale spatially-explicit models for each species, and comparing with national models (partnership with Boreal Avian Modeling Project, expected results 2015)

Overall Outcomes:

Quantifying high-quality habitat in the Maritimes

Prescriptions for on-the-ground management

Greater public awareness and participation



On The Ground

Landbirds At Risk Program

Partnership between the Mersey-Tobeatic Research Insitute and lab of Dr. Cindy Staicer

Outreach


OISEAUX EN PERIL
SEPT.9 ATELIER 19A21H
CRIBBAGE POUR VIANDE
RECOMMENCE OCT.7


Paruline du Canada
Collier noir
Gorge, poitrine et ventre jaune
Dessous de la queue blanc

Acknowledgements

This project was undertaken with the financial support of the Government of Canada.
Ce projet a été réalisé avec l'appui financier du gouvernement du Canada.

Canada

NSERC CRSNG

Parks Canada Parcs Canada

Nova Scotia Habitat Conservation Fund
Contributions from Hunters and Trappers

Dalhousie University

Field Assistance: Amanda Lavallee, Alicia Pray-Lesiey, Megan Boucher, Laura Achenbach, Jennifer Randall, Katherine Deturbide, Parks Canada Staff (Wesley Pitts, James Neish, Sarah Robear, Douglas Smith, staff at Fundy National Park)

Data: Maritimes Breeding Bird Atlas, Lab of Dr. Cindy Staicer

Volunteers: John Bottomly, Liz Campbell, Sarah Gutowsky, Luise Einfeld, Barry Leslie, Celeste Pray, Gael Reginaud, Rolanda Steenweg

Funding: NSERC, Parks Canada, Mersey-Tobeatic Research Institute, Environment Canada, Nova Scotia Habitat Conservation Fund, Nova Scotia Endangered Species Research Fund

Travel Support: AOU/COS/SCO Joint Meeting Student Travel Award, Dalhousie Association of Graduate Student Travel Grant, Dalhousie Faculty of Graduate Studies Student Travel Grant

In-Kind Support: Karen Achenbach, Alain Belliveau**,** Harold & Diane Clapp, Resolute Forest Products Ltd., Boreal Avian Modeling Project

Advice: Deborah Austin, Alain Belliveau, Peter Bush, Karen Beazley, Meghan Crowley, Raymond Jahncke, Gabrielle Leo, Marty Leonard, Dan Mazerolle, Duncan Smith, Richard Westwood, Boreal Avian Modeling Project Steering Committee