

Partial workshop summary

Jim Baker, Susan Hannon, Margaret Donnelly, Rob Rempel, Ian Thompson, Kandyd Szuba

(with help from Guy Smith, Stan Phippen and Jason Langis)

What would a forest manager want to know?

1. Are forest birds declining?
 - in general no, but some species seem to be in long term decline
 - reasons for decline are not fully understood, e.g., aerial insect foraging guild
2. Is there evidence that forest management is causing any of the declines?
 - there is no evidence and no species is of concern owing solely to FM
 - many other possible contributing factors (wintering grounds, migration mortality, ecosystem level shifts (eg., SBW), climate change)
 - trying to tease effects apart is difficult and studies are lacking, especially 'in Canada vs. outside Canada'

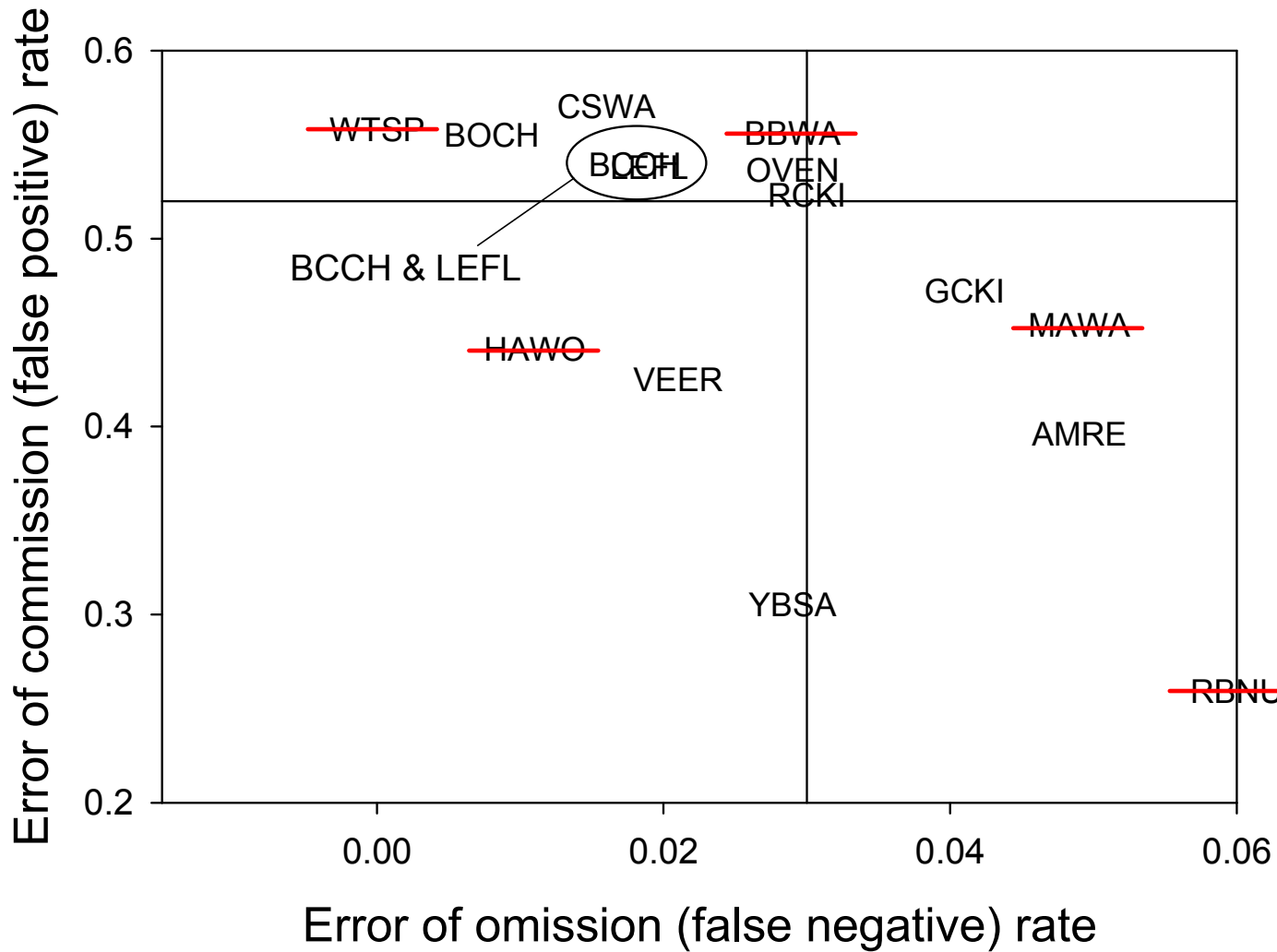
If no species is 'dropping out', what then are the concerns?

- Individual studies point to certain species or guilds of species that require study and monitoring (woodpeckers, aerial insect foragers, species with large declines, BRGR, BOCH, and possibly other residents)
- Concern that management is not maintaining all structures sufficiently
- Evidence is that thresholds do exist for most species at a local scale that, once crossed, lead to major declines
- Most of our data is based on relative abundance and is insufficient for PVA leading to 'insecurity' in our knowledge level

Do we need to change FM to better protect forest birds?

- Difficult question to answer because of our lack of full understanding
- So we need to continue an adaptive but precautionary approach
- For example, try to falsify the idea that coarse-filter management is sufficient to maintain birds
- Suggestions from this workshop that certain species need more careful consideration – e.g., BRGR, BBWO, but evidence from BBA, BBS, etc. is that these species are not in serious trouble – this needs to be reconciled
- Need for improved landscape level species models for key species

Species with low AUCs



Forest Birds
showing
Large
Declines
($\geq 50\%$ loss)

Boreal Transition	Boreal Shield	Ontario-wide
American Woodcock	Great Blue Heron	American Black Duck
Black Tern X	Northern Goshawk	American Woodcock
Common Nighthawk	Solitary Sandpiper	Black Tern
Whip-poor-will	Common Nighthawk	Common Nighthawk
Chimney Swift		Whip-poor-will
Red-headed Woodpecker		Chimney Swift
Olive-sided Flycatcher		Red-headed Woodpecker
Eastern Wood-Pewee		Brown Thrasher
Least Flycatcher		Rose-breasted Grosbeak
Tree Swallow		Evening Grosbeak
Ruby-crowned Kinglet		
Wood Thrush		Aerial foraging guild
Gray Catbird		
Brown Thrasher		
Tennessee Warbler		
Connecticut Warbler		
Scarlet Tanager		
Eastern Towhee		
Rose-breasted Grosbeak		
Purple Finch		
Red Crossbill		
Evening Grosbeak		

How to select species

- species at risk
- BCR (PIF) regional species of concern
- high stewardship responsibility
- game species
- cavity nesters
- old forest species
- keystone species
- post-fire species
- species in low abundance habitats (e.g., riparian)

Which species might be selected

- NOGO, BRCCR, BOCH, RUGR, BBWO
- Functional guilding (cavity, old forest, early fire, residents)
- Suite of species to tests if FM is having an effect
- Range of life histories and habitat use

Research on species

- Targetted research to determine cause of declines
- Examination of guild associated with a declining species
- Is FM causing a decline in any forest bird species?

Alternative approach

- Manage at coarse filter level
- Fine filter only if falsify coarse filter approach

Management actions

- Policy objectives for forest birds
- Increased use of PBs
- Plan at scale larger than FMU
- Mixedwood management to maintain species composition
- Mitigation of incidental take
- Manage to maintain structures over time including large snags
- Leave declining trees (as eventual snags)
- Selective application of herbicides to maintain some shrub cover
- Multi-cohort management
- Management for snags based on post-fire variation in snag abundance and type
- Field guide for operators for residual tree retention

Research regarding management actions

- What are key structures other than dead wood
- How many and what quality of snags do we need
- Model effects of PHS (successional trajectories)
- Gap dynamics
- Identify management actions that differ from natural processes
- Research on thresholds (bird extinction)
- Develop an understanding of proper baselines
- Incorporate climate change into FM models

Analytical Tools, Knowledge & Monitoring Limitations

How good is our knowledge?

- Test by evaluating the outcomes of past management activities (back-casting)
- Test by evaluating in other regions to determine model generalizability
- Evaluate model projections by substituting space for time

What are appropriate spatial and temporal scales to evaluate bird responses to forest management?

- Relate the extent of measurement to the extent that forest management occurs (FMU; stand)
- For larger scales, use adjacent FMU's with same planning horizons or same ecological contexts (ecoregion)

Data

- Improve use of remote sensing to directly measure habitat variables (e.g., stand age, understory (shrubs) composition, snags, DW material, soils layer)
- Incorporate LIDAR
- Centralized data management

Bird Persistence

- Need to go beyond presence/absence or abundance
- Need to measure fitness
- We need to consider demographic processes (life history parameters)

Habitat Elements

- Better model growth & yield curves
- Better understand successional pathways in burns and harvest sites
- Habitat elements (e.g, DWD, openings, tree height)

Bird-Habitat Modelling

- Need for external validation
- Corrections for detectability
- Adequate sample sizes, geog. distribution
- Longer term datasets
- Spatial modeling
- Report model sensitivity
- Use birds that respond to forest mgnt

Bird Habitat Modeling

- Need platforms that will help to explain models to public, policy makers, managers (& model outputs)
- Model multiple species and multiple value + multiple forest mgnt scenarios
- Need a standardized suite of predictive bird/habitat models (and methods) that can be used throughout Ontario.

Bird-Habitat Modeling

- Existing models based on breeding season; may need to consider other periods: dispersal, migration, and winter
- Determine the spatial extents over which we should model species? How to scale local models to regional scales.
- Need to understand the relationship between sensitive model parameters and real ecological thresholds.
- Evaluate effects of statistical & sampling approaches on modeling occupancy and thresholds

Risk

- Model thresholds
- Include climate factors
- Effects of natural variability on fire and budworm outbreaks
- Blow down
- Need to also address species that we currently have too little data to accumulate model

Riparian Area Management Approaches

Maintain Heterogeneity

In terms of

- multiple scales
- Natural pattern emulation
- composition & structure
- Serial class distribution
- Temporal & spatial concerns
- Range of sizes & shapes for buffers
- “Don’t do the same thing everywhere”

Flexibility

- A variety of management approaches & harvest prescriptions required
- Revised Legislation to enable flexibility – results based approach??
- Greater influence of science to inform appropriate actions
- Appropriate practices based on management objectives & consideration of other taxa (besides water & fish concerns)

Management objectives

- Require explicit statements of management objectives including...
 - Rationale for harvest or management within riparian areas
 - Long-term viability/values/requirements of riparian buffer to meet objectives
 - Inclusion of other considerations including terrestrial & aquatic values and species beyond concerns for water quality, flow & fisheries

Knowledge & data gaps

- Need to link riparian strategies to overall landscape design & forest mosaic, the need for heterogeneity at multiple scales & a landscape that more closely resembles a natural forest
- Need better understanding/research on functional relationships

Knowledge & data gaps

- What practices & strategies are needed or should be excluded to maintain function & process (ie. Difference between harvest & fire, what are we missing if we don't manage buffers – ie. Nutrients, CWD, mercury...)
- need to understand responses in space & time at multiple scales, for multiple species, including both aquatic & terrestrial – what species are adversely or positively affected by management activities or a lack of management practices (for example beaver ponds & associated species)

Specific questions from cards

- Can FM improve conditions for species affected by SBW decline?
- If habitat models are wrong – what are we going to use?
- How to forecast future availability of snags and other key forest structures
- Can the FRI be improved?
- Under the precautionary principle – why would managers reduce AOCs around stick nests?
- Are management models verified?