Pre-proposal to National Fish and Wildlife Foundation

Keystone Initiative - Birds - Spring 2009, Year 3

Goals:

combine research and monitoring

combine with experimental management

develop management guidelines

fill critical information gaps about GWWAs *throughout their range* (and habitats)

Statistically-based Management Guidelines

- Research Colleagues & Agencies with limited $$
  - Statistically verified models
    - Describe habitat attributes with useful confidence intervals
    - Relate habitat attributes to nesting success
  - Include landscape influence
- Verbal descriptions
  - Wildlife unit managers
  - Field crew, e.g., driver of hydro ax

Nest success varies within one habitat type
Early old field succession: source or sink?

Fledgling Success Rate: (number per nest)

	Standardized Coefficient[a]	*P*
Brood Size	0.386	0.02
Herb Cover	-0.303	0.09
Shrub Cover	0.043	NS
Tree Cover	-0.388	0.03

a. the change in a dependent variable associated with 1SD change in independent variable.

Confer, Larkin and Allen. 2003.

The Need to Assess Nesting Success, not just presence/absence

Mayfield Estimates of Survival Rates				
	Swamp Forest		Utility ROW	
GWWA	Daily Survival	Nest Survival	Daily Survival	Nest Survival
	0.983	0.703	0.957	0.408

Landscape Influence

- Oak forest around ROW
- Mast years followed by
- Chipmunk eruption years
- Low GWWA nesting success

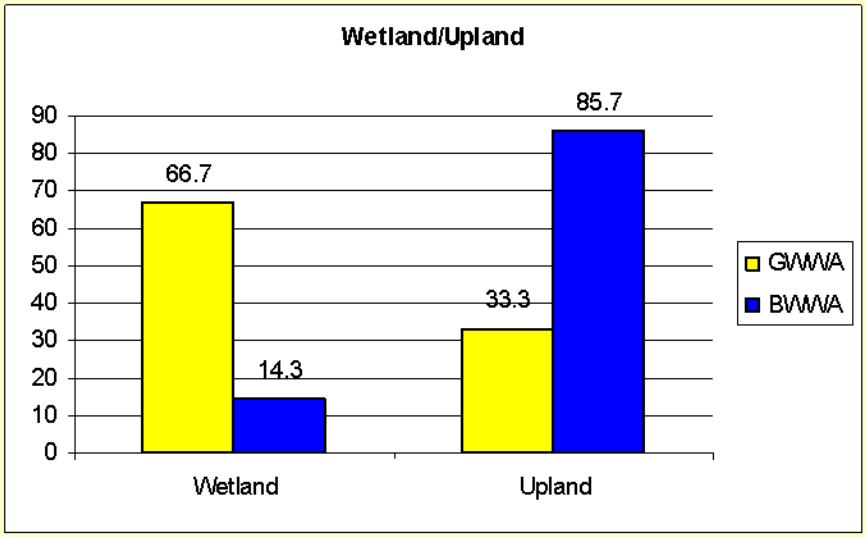
Range-wide habitat use

Critical information gaps throughout range

- **Virginia:**
  - Early succession farmland
  - None in wetlands out of 863 shrub patches
- **Sterling Forest State Park in s New York**
  - Wetlands with >70% open canopy
  - Wetlands with ~30% open canopy (source habitat)
  - Utility rights-of-ways; long term management and nesting
  - Managed, restoration habitat
- **Pennsylvania State Game Lands**
  - Managed, early succession habitat
  - Fire succession with a preponderance of black berries
- **Upstate New York, Saint Lawrence River Valley**
  - Alder swamps

Beaver Meadow with open canopy
Red Maple-Tussock Sedge Swamp Forest

NYS DEC Non-game Unit[1]:
Analyses of upstate New York *Vermivora* territories
Approximately 55 territories in 2007 and 2008



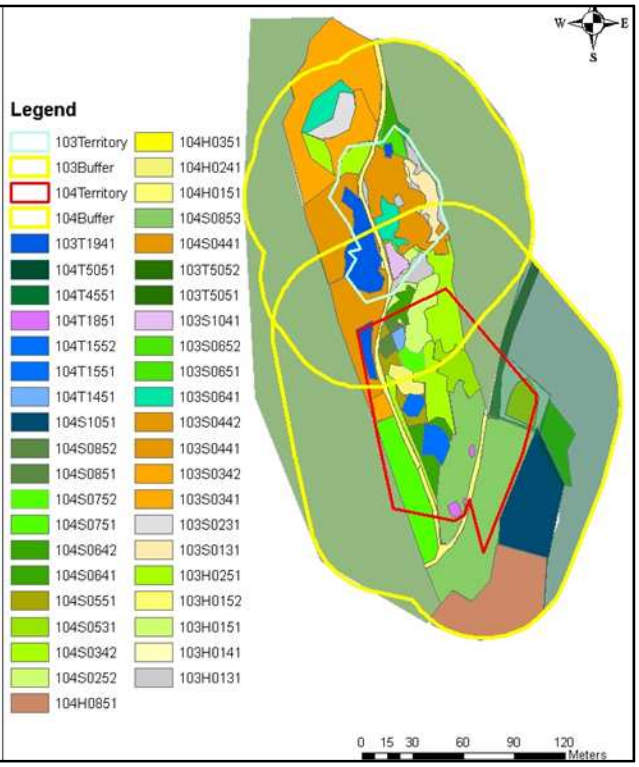
1. John Ozard, Tim Post and Theresa Rush

Utility Rights-of-Ways

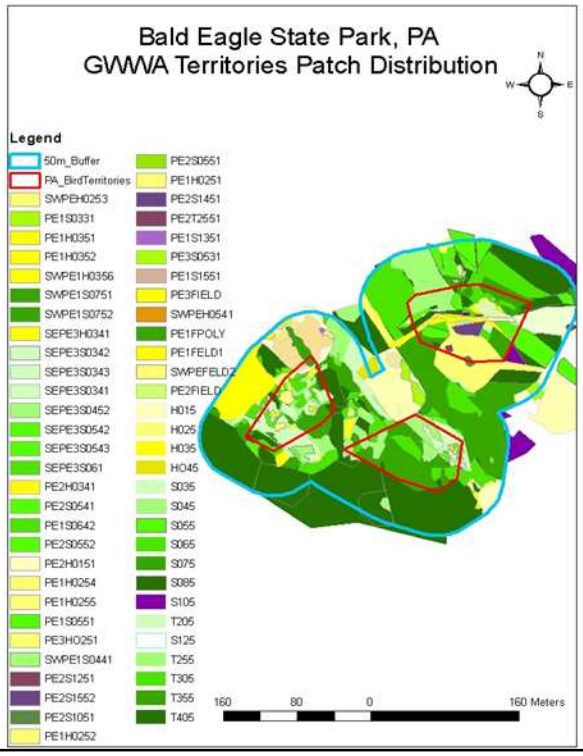
PATCHINESS:

a new criteria for Management of Golden-winged Warbler habitat.

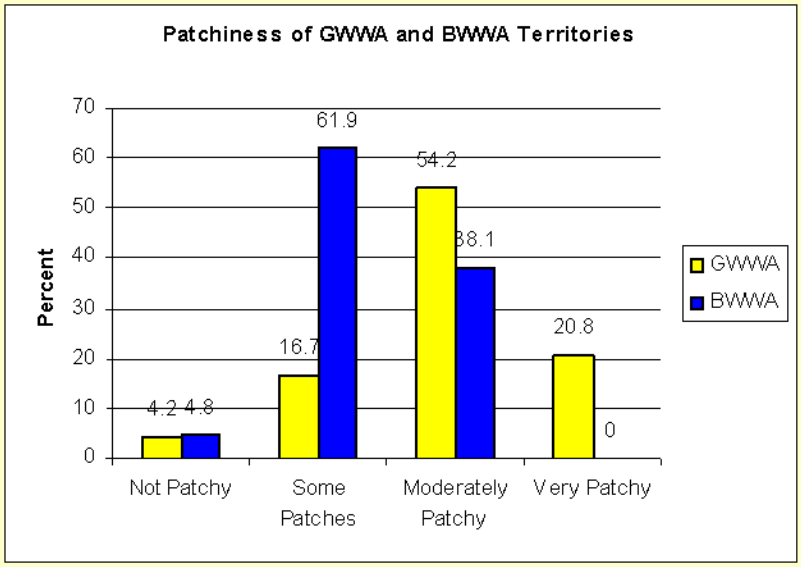
Mapped with GPS

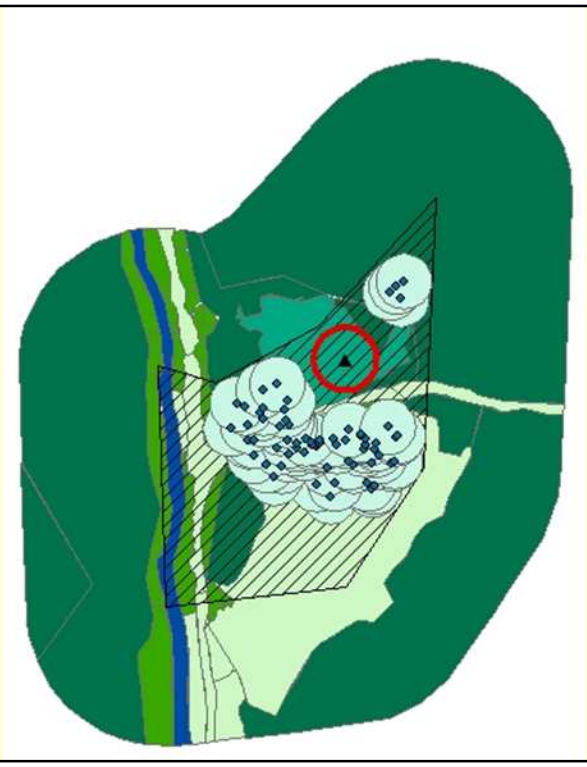


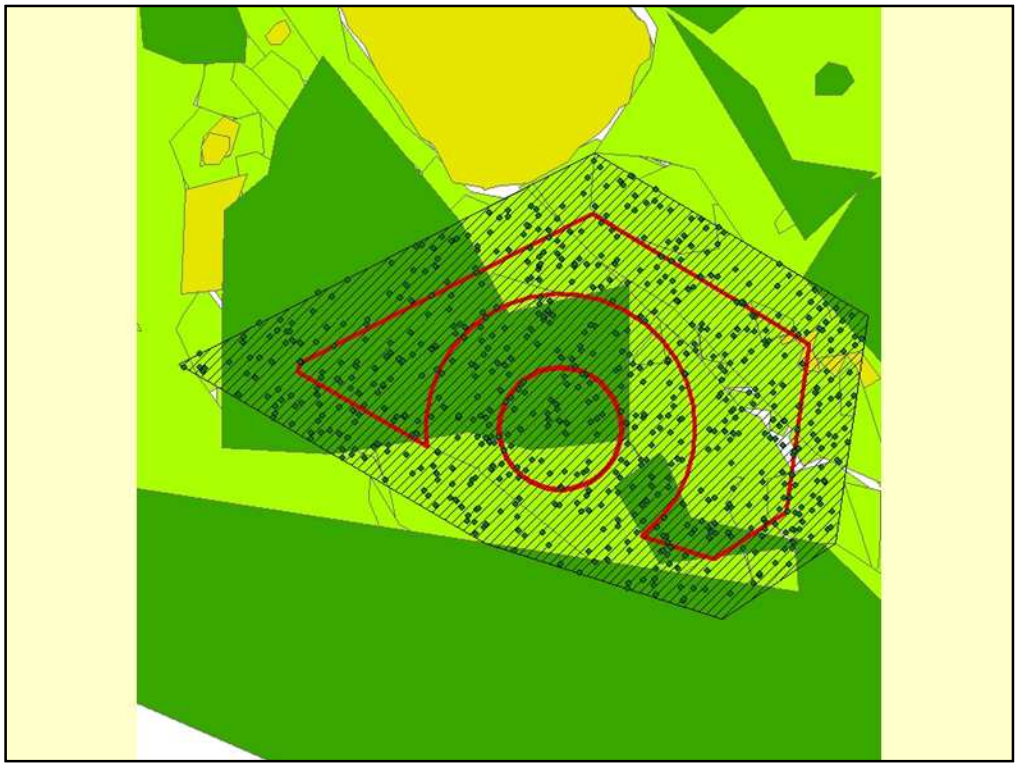
PATCHINESS
Beaver Meadow with open canopy
Red Maple-Tussock Sedge Swamp Forest

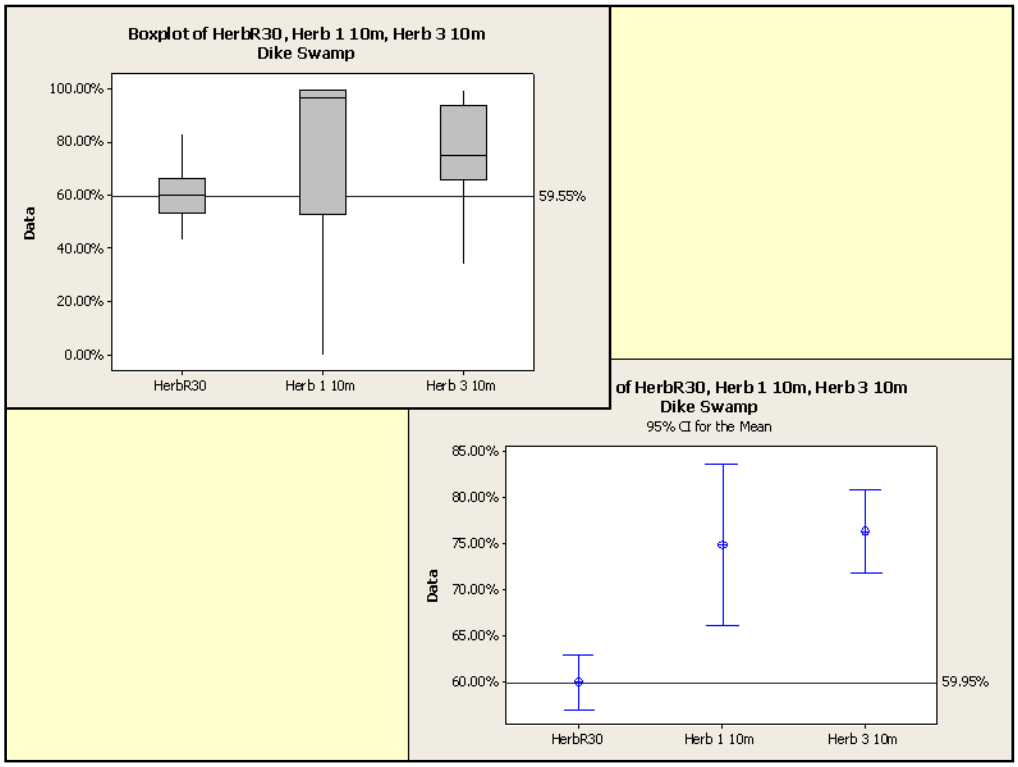

Bald Eagle State Park, PA
GWWA Territories Patch Distribution
N
W
E
S
Legend
50m_Buffer
PA_BirdTerritories
SWPEH0253
PE1S0331
PE1H0351
PE1H0352
SWPE1H0356
SWPE1S0751
SWPE1S0752
SEPE3H0341
SEPE3S0342
SEPE3S0343
SEPE3S0341
SEPE3S0452
SEPE3S0542
SEPE3S0543
SEPE3S061
PE2H0341
PE2S0541
PE1S0642
PE2S0552
PE2H0151
PE1H0254
PE1H0255
PE1S0551
PE3H0251
SWPE1S0441
PE2S1251
PE2S1552
PE2S1051
PE1H0252
PE2S0551
PE1H0251
PE2S1451
PE2T2551
PE1S1351
PE3S0531
PE1S1551
PE3FIELD
SWPEH0541
PE1FPOLY
PE1FELD1
SWPEFELD2
PE2FIELD
H015
H025
H035
H045
S035
S045
S055
S065
S075
S085
S105
T205
S125
T255
T305
T355
T405
160
80
0
160 Meters

NYS DEC Non-game Unit:
Analyses of upstate New York *Vermivora* territories
24 territories in 2008








Boxplot of HerbR30, Herb 1 10m, Herb 3 10m
Dike Swamp
Data
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
59.55%
HerbR30
Herb 1 10m
Herb 3 10m
of HerbR30, Herb 1 10m, Herb 3 10m
Dike Swamp
95% CI for the Mean
Data
85.00%
80.00%
75.00%
70.00%
65.00%
60.00%
59.95%
HerbR30
Herb 1 10m
Herb 3 10m

Predict genetic nesting success

- Statistically reliable assessment of attributes of each territory related to nesting success
  - Quantify/distinguish sink and source microhabitats
  - Wet and dry, either together or separate
  - Include landscape influence
  - Include index of patchiness
  - Plan for Blue-winged Warbler range expansion
    - 2-4 miles per year range expansion
    - Habitat segregation
- Site Managers
  - Verbal descriptions
    - Field crew, e.g., driver of hydro ax

Thanks to
David Buehler,
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Ecotours, and
All organizers

Habitat Preference According to State-wide Assessments:
A. Clearly prefers wetlands **B. Uses wetlands more than uplands**
C. No preference for wet or dry habitat
D. Uses uplands more than wetlands **E. Clearly prefers uplands**

	A	B	C	D	E
Connecticut 1990a	GW		BW		
Illinois 1989b					BW
Massachusetts 1929c		GW		BW	
Massachusetts 1993d					BW
Michigan 1958e	GW		BW		
Michigan 1991f			BW		
Missouri 1992g					BW
New Jersey 1984h					BW & GW
New York 1914i	GW	BW			
New York 1974j			GW	BW	
New York 1988k			GW		
Pennsylvania 2000l			BW & GW		
Pennsylvania 1992m	BW				
Tennessee 1990n					BW & GW
Vermont 1985o					BW
Wisconsin 1991p		GW			BW

- a. Zeranski, J.D. and T.R. Baptist, eds. 1990
- b. Bohlen, H.D. and W. Zimmerman, eds. 1989
- c. Forbush, E.H. 1929
- d. Veit, R.R. and W.R. Peterson, eds. 1993
- e. Berger, A.J. 1958
- f. Payne, R.B. 1991 (R. Brewer et. al., eds.)
- g. Robbins, M.B. and D.A. Easterla, eds. 1992
- h. Leck, C.F., ed. 1984
- i. Eaton, E.H. 1914
- j. Bull, J. 1974
- k. Confer, J. L. 1988. (R. F. Andrle and J. R. Carroll, eds.)
- l. Brauning, D.W. 2000
- m. Gill, F.B. 1992 (D.W. Brauning ed.)
- n. Robinson, J.C., ed. 1990
- o. Clark, D.B. 1985 (S.B. Laughlin and D.P. Kibbe, eds.)
- p. Robbins, S.D. Jr., ed. 1991

Equal fertility of all *Vermivora* crosses, north central New York

(unpublished data of Confer and Larkin)

Pairing	n	Clutch	Fledge
GW x GW	73	4.4	2.6
BW x BW	28	4.1	2.2
GW x BR	11	4.6	2.6
BR x BR	1	5	2