

Objectives & Goals

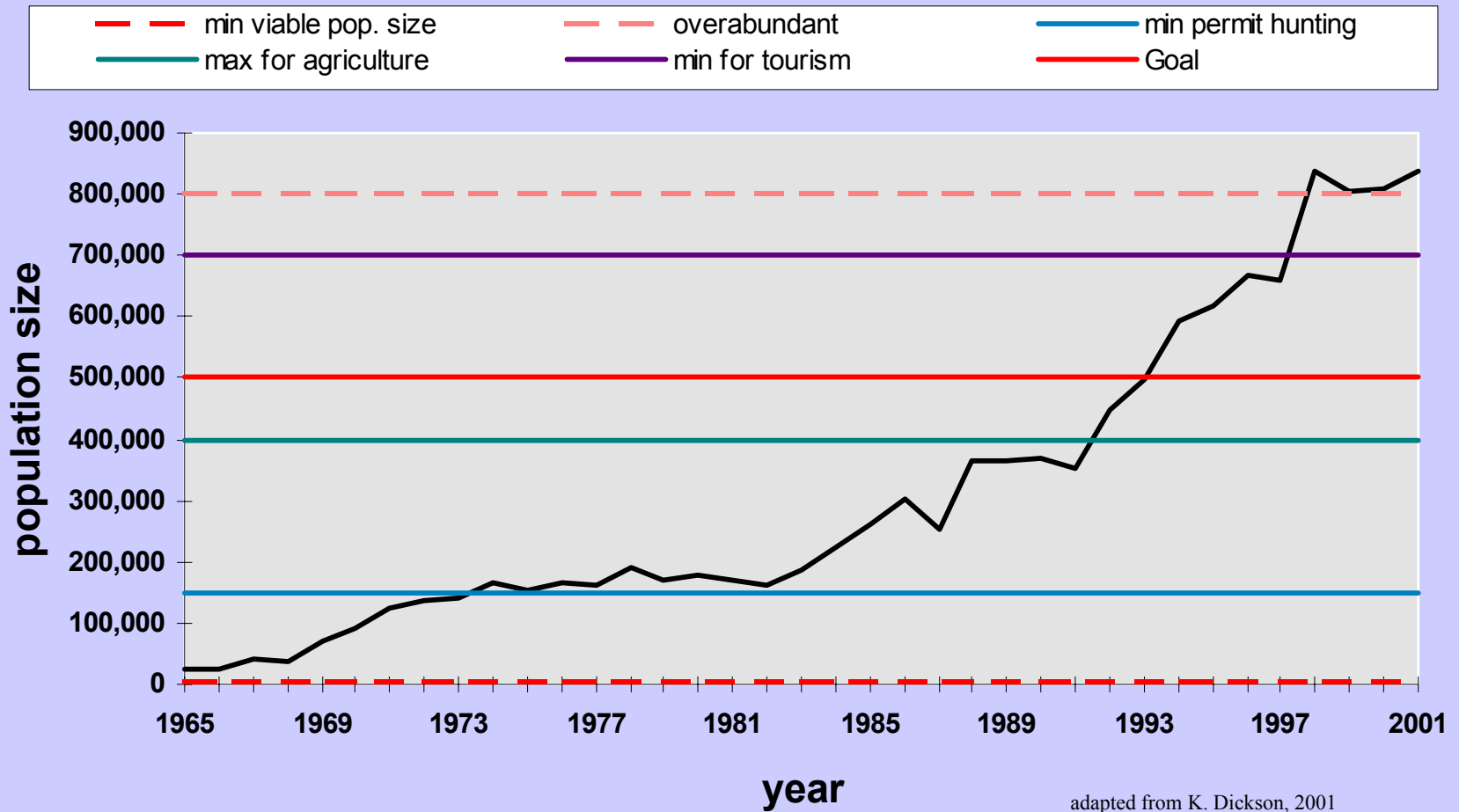
Overall Vision / Goal:

Distribution, diversity and abundance of native populations and habitats are sustained at current levels or recovered to recent historical levels

or is it...

Viable populations of all native landbird species are sustained in Ontario BCR13

**Example - a hypothetical eastern goose population demonstrates the importance of social input
- and you can't satisfy everyone!**



adapted from K. Dickson, 2001

Population Objectives

Why?

Marketing tools – Motivate Action

Performance Indicators

Basis for establishing other program objectives
such as habitat objectives

Characteristics of Useful Objectives

Easy to Communicate - Understandable

Easy to Measure and Assess Progress

Easily Translated into Action

Linked to overall Goal / Vision

Scope

All Species? Priority Species?

Goal is to Conserve All Species

Practicalities May Dictate Focusing on a Few

Doubt that any one or suite of species really indicates health of other species

Timeframe

Current or Historic Start Point?

1960s/1970s reference years? (NAWMP, PIF)

Base on Habitat History? (D. Pashley)

- e.g. 1960 in SW, 1980 in Prairie, Current in Boreal, Taiga and Arctic

Exceptions for severe past declines? (BCR13 all bird workshop, 2001) or where not feasible to maintain current pop'n? (eastern grasslands?)

Types of Objectives

Many Possibilities

- Numerical Population Targets
- Indices of Abundance
- Population Trend Objectives
- Distribution Objectives
- Demographic Objectives
- Multi-species Objectives
- Habitat Objectives

Numerical Population Targets

Examples from Allegheny Plateau

Grassland habitat suite

Focal species	BBS Population	% Loss (1966)	Population Target
Henslow's Sparrow	2,500	> 50%	5,000
Upland Sandpiper	240	> 50%	500
Bobolink	274,000	stable	275,000

Objective: 300,000 ha of grassland; 6,600 ha in >200 ha patches for Upland Sandpiper, and 2,500 ha managed for Henslow's Sparrow

Estimating Population Size from BBS Data [from J. Bart]

$$\text{Population size} = \sum_i A_i \left(\frac{y_i}{x_i} \right) \left(\frac{r_{1i} r_{2i}}{f_i g_i} \right)$$

Where

i refers to strata

A is the area

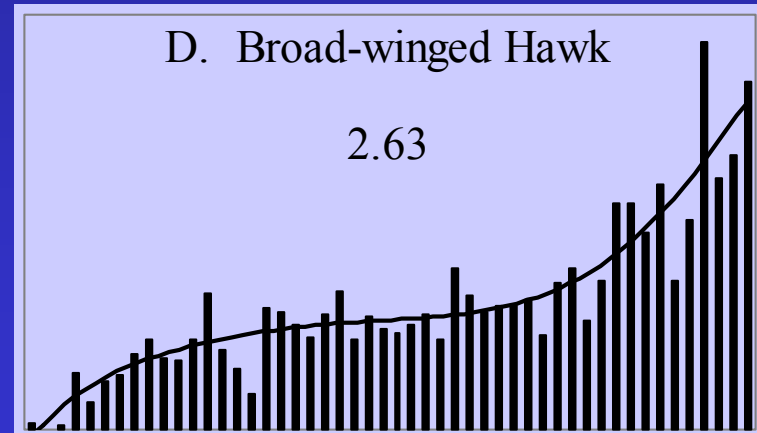
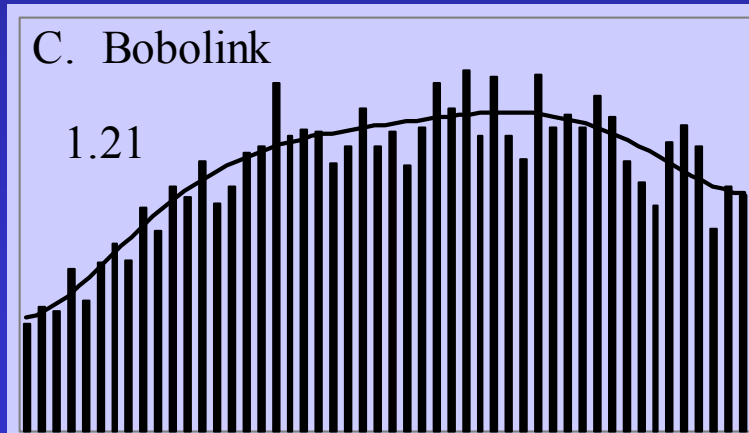
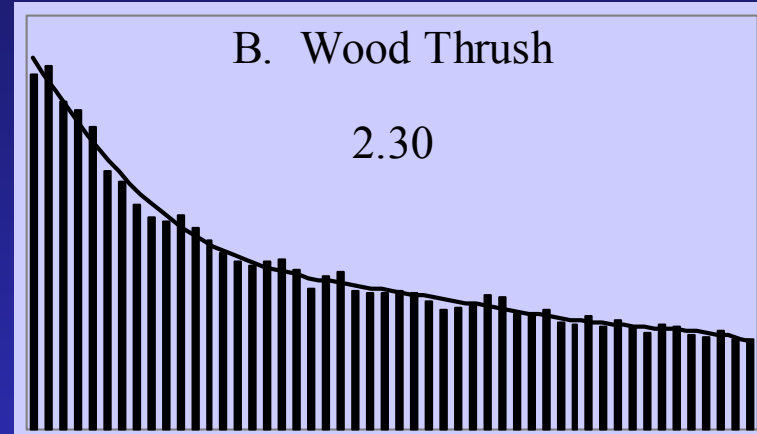
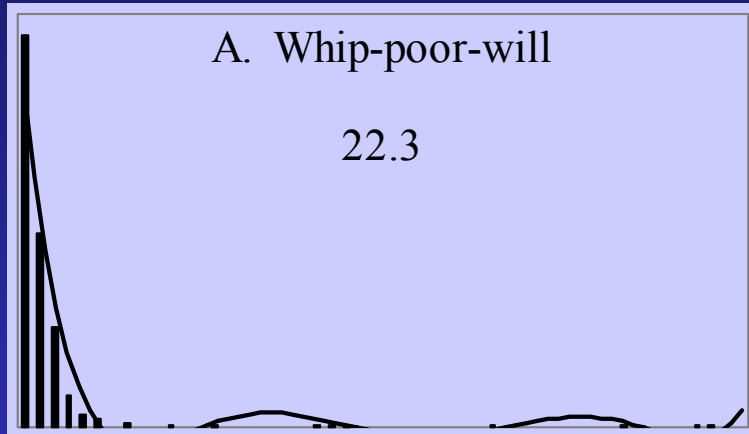
y is the number of birds recorded

x is the area surveyed

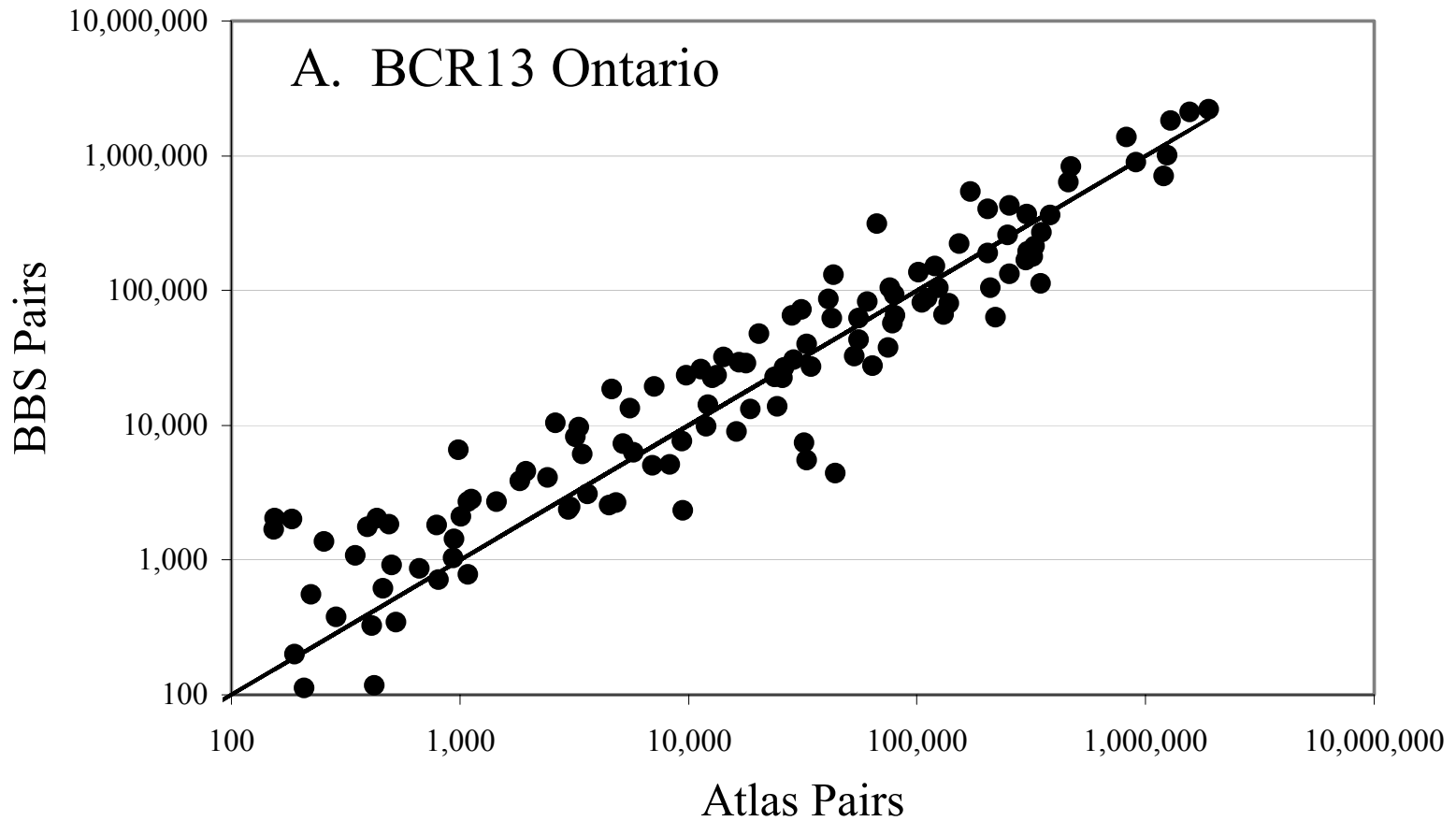
r 's are corrections for roadside sampling

f and g are corrections for not detecting all birds present

Corrections – e.g. Time of Day



Comparisons

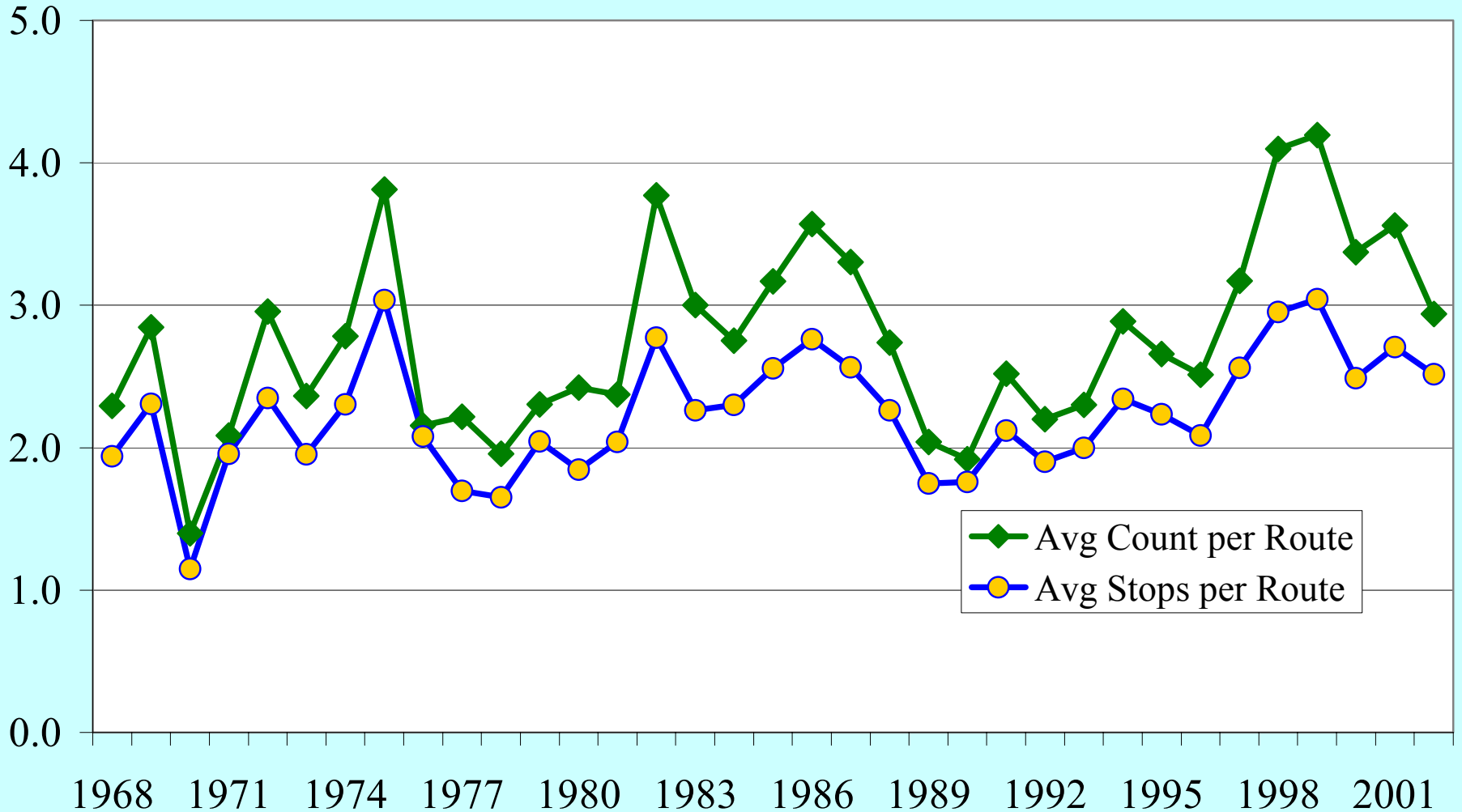


Available for Most Species

Species		Population Estimate	SE	BBS Rtes	BBS Average	Detection (m)	Time of Day Adj
Henslow's Sparrow	Br	304	304	1	0.01	200	1.66
Short-eared Owl	Wi						
Golden-winged Warbler	Br	4,946	2,040	12	0.14	200	1.32
Blue-winged Warbler	Br	2,383	746	11	0.07	200	1.21
Cerulean Warbler	Br	1,268	917	2	0.01	125	1.35
Wood Thrush	Br	171,656	27,482	54	2.8	200	2.30
Willow Flycatcher	Br	54,474	10,180	41	1.6	200	1.25
Yellow-throated Vireo	Br	5,294	1,488	17	0.16	200	1.21
Indigo Bunting	Br	122,004	16,206	55	3.3	200	1.36
Black-billed Cuckoo	Br	42,876	5,860	50	1.1	200	1.39
Bobolink	Br	1,457,233	229,545	59	44.5	200	1.21
Long-eared Owl	Wi						
Baltimore Oriole	Br	189,796	19,196	58	6.2	200	1.13
Rose-breasted Grosbeak	Br	110,323	12,758	57	3.7	200	1.09
Field Sparrow	Br	74,464	10,290	52	2.6	200	1.07
Eastern Meadowlark	Br	158,417	14,216	58	19.8	400	1.19
Belted Kingfisher	Br	19,830	2,814	47	0.6	200	1.28
Northern Flicker	Br	109,715	7,383	58	3.4	200	1.19
Northern Harrier	Br	5,072	733	47	0.6	400	1.29

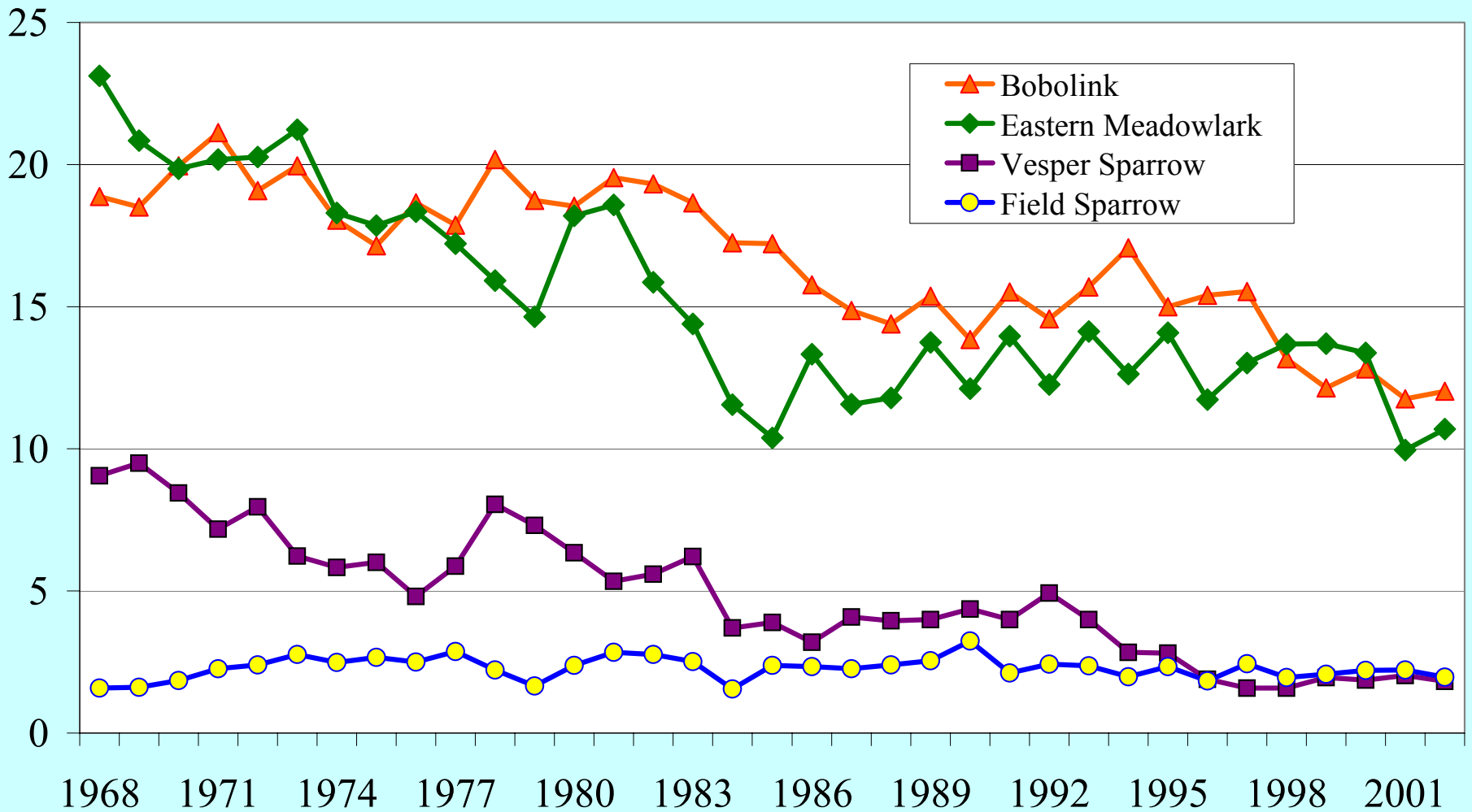
Population Indices

Wood Thrush Counts on BBS routes - BCR 13 Ontario



Population Indices

Stops per BBS route - BCR 13 Ontario



Population Trends

example of trend objectives

PIF Bird Conservation Plan - Upper Great Lakes Plain (Physiographic Area 16)

"Increase Henslow's Sparrow and Greater Prairie-Chicken populations by 3%/yr in USFWS Region 3 from 1980-2010, based on BBS data."

"Monitor populations of other grassland species to ensure that population trends are stable or increasing through 2010."

Population Trends

Species	Trend	95% C.I.s	N	Rts
Ruby-crowned Kinglet	-12.2 *	-21.9 -1.4	17	
Whip-poor-will	-9.1 *	-16.4 -1.1	16	
Ring-necked Pheasant	-8.1 *	-13.7 -2.0	40	
Chimney Swift	-5.7 *	-8.2 -3.2	54	
Bank Swallow	-4.4 *	-7.6 -1.1	63	
Eastern Meadowlark	-3.7 *	-4.9 -2.4	73	
Brown-headed Cowbird	-3.6 *	-5.8 -1.5	74	
Black-billed Cuckoo	-3.6 *	-6.7 -0.5	66	
Bobolink	-3.2 *	-5.1 -1.3	74	
Vesper Sparrow	-3.1 *	-4.9 -1.3	70	
House Sparrow	-2.8 *	-4.0 -1.5	74	
Northern Flicker	-2.7 *	-4.0 -1.4	73	
Brown Thrasher	-2.4 *	-4.1 -0.6	70	
Belted Kingfisher	-2.3 *	-3.8 -0.7	64	
Savannah Sparrow	-2.2 *	-3.3 -1.1	74	
Eastern Wood-Pewee	-2.1 *	-3.8 -0.3	73	
Red-winged Blackbird	-1.9 *	-3.2 -0.6	74	
Barn Swallow	-1.8 *	-3.5 -0.1	74	
European Starling	-1.1 *	-2.0 -0.2	74	
American Goldfinch	0.9 *	0.3 1.6	74	

Species	Trend	95% C.I.s	N	Rts
House Finch	17.8 *	4.4 33.0	66	
Turkey Vulture	16.3 *	4.6 29.4	53	
Pine Warbler	15.2 *	7.9 22.9	28	
Common Raven	15.0 *	5.5 25.4	26	
Evening Grosbeak	11.3 *	0.7 23.1	20	
Eastern Bluebird	10.3 *	7.0 13.8	63	
Red-breasted Nuthatch	8.5 *	2.3 15.1	42	
Black-capped Chickadee	8.0 *	6.4 9.7	72	
Black-throated Green Warbler	6.5 *	0.4 13.0	47	
Black-and-white Warbler	5.5 *	1.5 9.7	56	
Swamp Sparrow	5.4 *	2.6 8.4	64	
Northern Waterthrush	5.4 *	1.5 9.5	49	
Yellow-bellied Sapsucker	4.7 *	0.9 8.7	50	
Northern Cardinal	4.5 *	1.4 7.7	63	
Ruby-throated Hummingbird	4.0 *	0.6 7.5	62	
Red-eyed Vireo	3.7 *	1.8 5.7	73	
Blue Jay	3.6 *	2.8 4.4	74	
Mourning Dove	3.6 *	2.2 5.0	74	
Warbling Vireo	3.6 *	2.3 5.0	73	
White-breasted Nuthatch	3.4 *	0.3 6.6	68	
Chestnut-sided Warbler	3.0 *	0.3 5.9	63	
Cedar Waxwing	2.6 *	0.6 4.5	74	
American Crow	1.5 *	0.6 2.3	74	
Eastern Phoebe	1.5 *	0.2 2.9	74	
Chipping Sparrow	1.3 *	0.3 2.2	74	
American Robin	1.1 *	0.3 1.8	74	

**BBS Trends – CWS
BCR13 in Canada
1968-2002**

Distribution Objectives

e.g. from Breeding Bird Atlas data

Species	Number of Atlas Squares			
	1981-85	2001-03	Change	%
Red-headed Woodpecker	688	193	-495	-72%
Great Blue Heron	929	481	-448	-48%
Blue-winged Teal	771	330	-441	-57%
Great Horned Owl	892	471	-421	-47%
Chimney Swift	779	362	-417	-54%
Bank Swallow	872	473	-399	-46%
Common Nighthawk	573	210	-363	-63%
American Woodcock	882	523	-359	-41%
Vesper Sparrow	934	577	-357	-38%
Purple Martin	744	397	-347	-47%
Green Heron	863	525	-338	-39%
Spotted Sandpiper	1023	688	-335	-33%
Upland Sandpiper	653	323	-330	-51%
Northern Rough-winged Swallow	859	540	-319	-37%
Horned Lark	866	579	-287	-33%
American Black Duck	511	230	-281	-55%
Brown Thrasher	1034	757	-277	-27%
Common Snipe	753	491	-262	-35%
American Kestrel	995	735	-260	-26%
Least Flycatcher	939	681	-258	-27%
Whip-poor-will	452	196	-256	-57%
Belted Kingfisher	1013	764	-249	-25%
Ruffed Grouse	866	627	-239	-28%
Veery	959	722	-237	-25%
Cliff Swallow	731	495	-236	-32%

Species	Number of Atlas Squares			
	1981-85	2001-03	Change	%
House Finch	187	674	487	260%
Wild Turkey	19	440	421	2216%
Canada Goose	620	842	222	36%
Eastern Bluebird	478	691	213	45%
Cooper's Hawk	176	332	156	89%
Red-bellied Woodpecker	115	257	142	123%
Common Raven	145	286	141	97%
Black-throated Green Warbler	370	496	126	34%
Pine Warbler	261	382	121	46%
Merlin	42	152	110	262%
Sandhill Crane	18	118	100	556%
Carolina Wren	39	138	99	254%
Black-throated Blue Warbler	139	236	97	70%
Northern Cardinal	750	824	74	10%
Ring-billed Gull	95	168	73	77%
Magnolia Warbler	238	309	71	30%
Northern Mockingbird	125	196	71	57%
Mute Swan	17	88	71	418%
Blue-headed Vireo	85	154	69	81%
Hooded Merganser	181	246	65	36%
Bald Eagle	14	76	62	443%
Osprey	241	302	61	25%
Hermit Thrush	249	308	59	24%
Caspian Tern	42	100	58	138%
Sharp-shinned Hawk	360	414	54	15%

Objectives at finer resolution? – maintain Distribution in Atlas Regions?

Vesper Sparrow

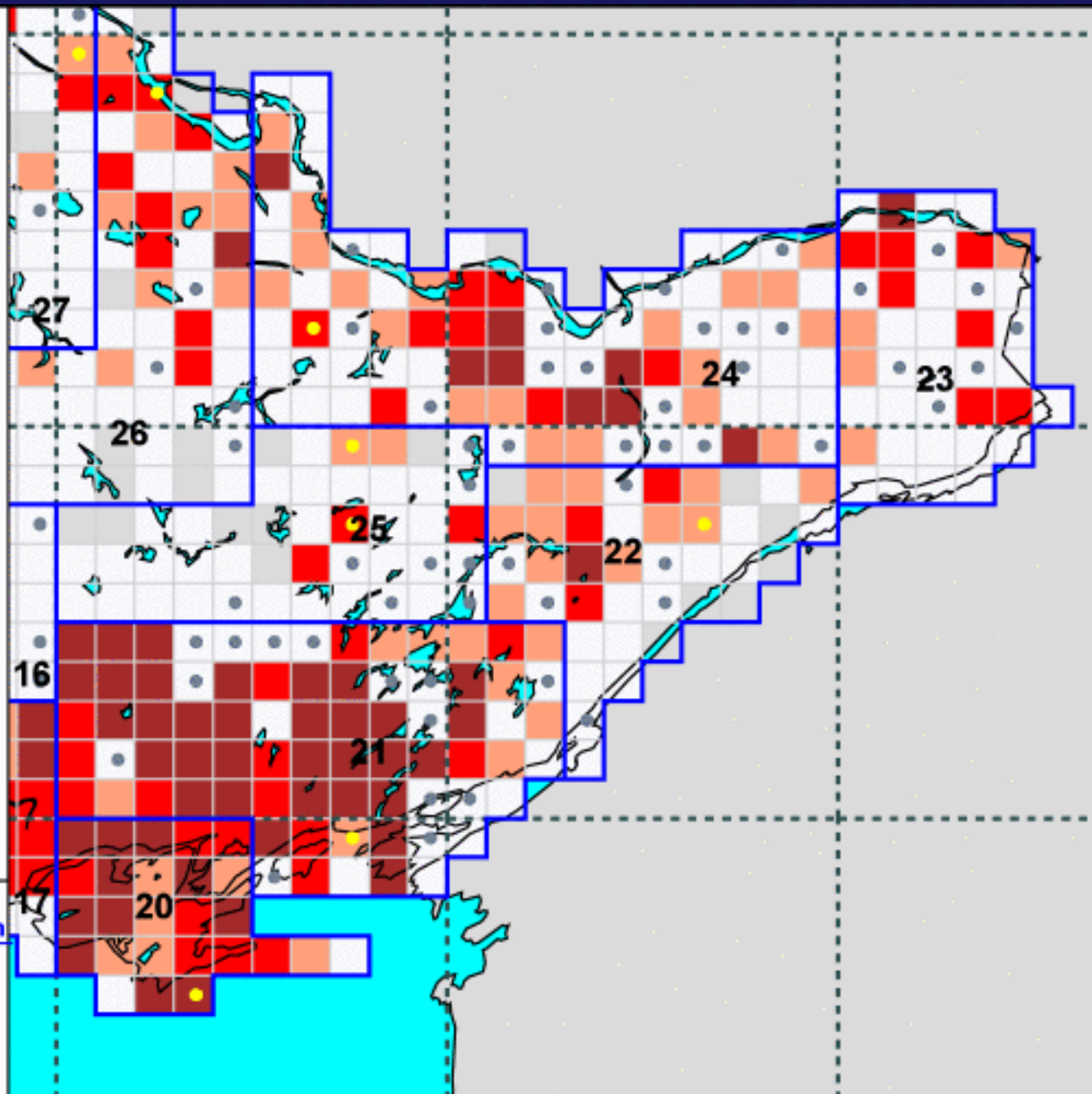
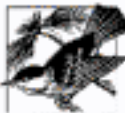
Breeding Evidence

DRAFT Updated 14-OCT-2003

-  Possible
-  Probable
-  Confirmed
-  No Data Submitted
-  Not Observed
-  Atlas Regions
-  Atlas Blocks
-  Found in second Atlas, but not in first
-  Found in first Atlas, but not yet in second, with 20+ hours effort

Map produced
by Bird Studies
Canada

Ontario
Breeding
Bird Atlas



KEY
MAP

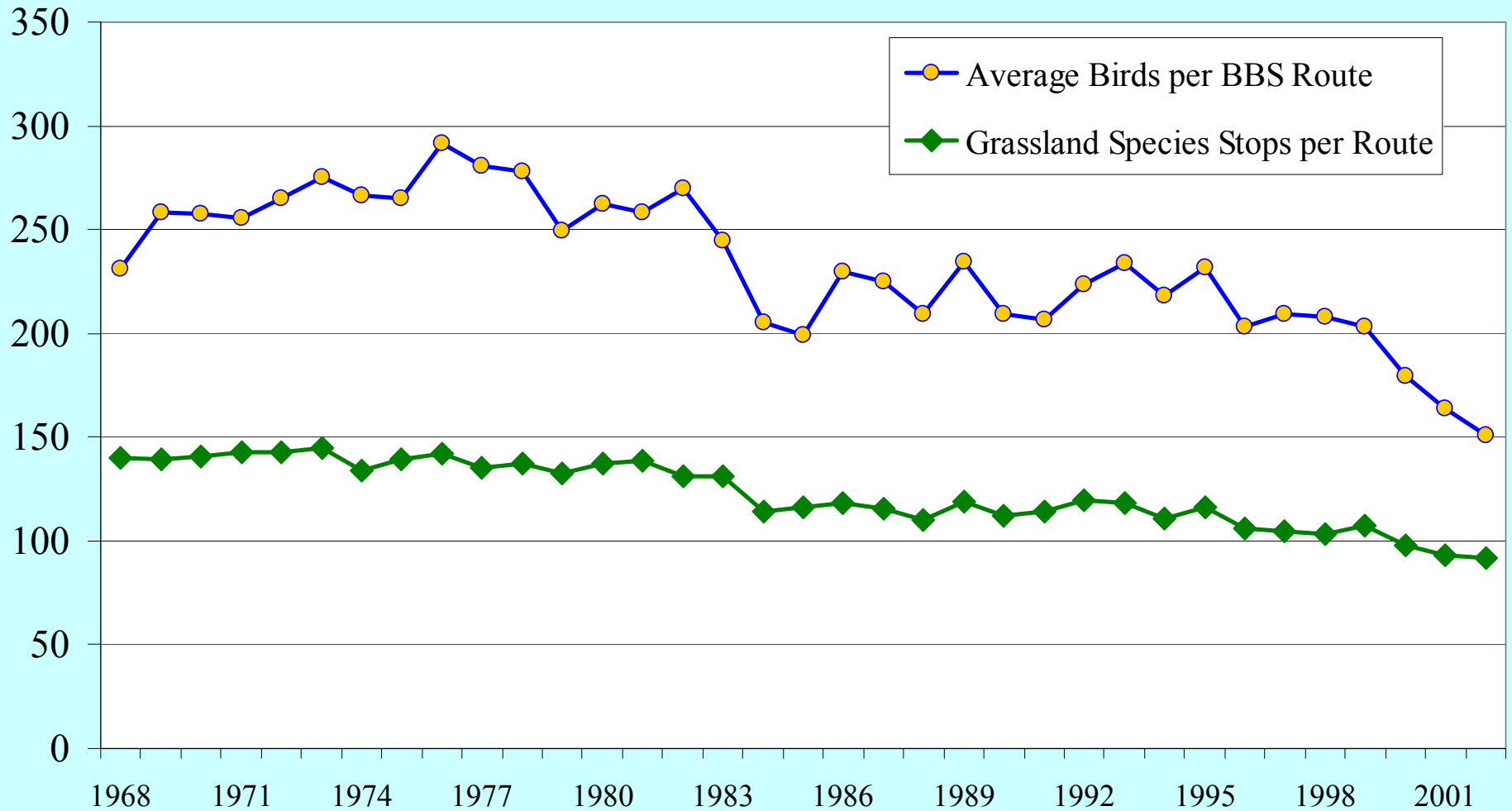
Zoom to:
[Full](#) [North](#) [South](#)

Zoom to adjacent:



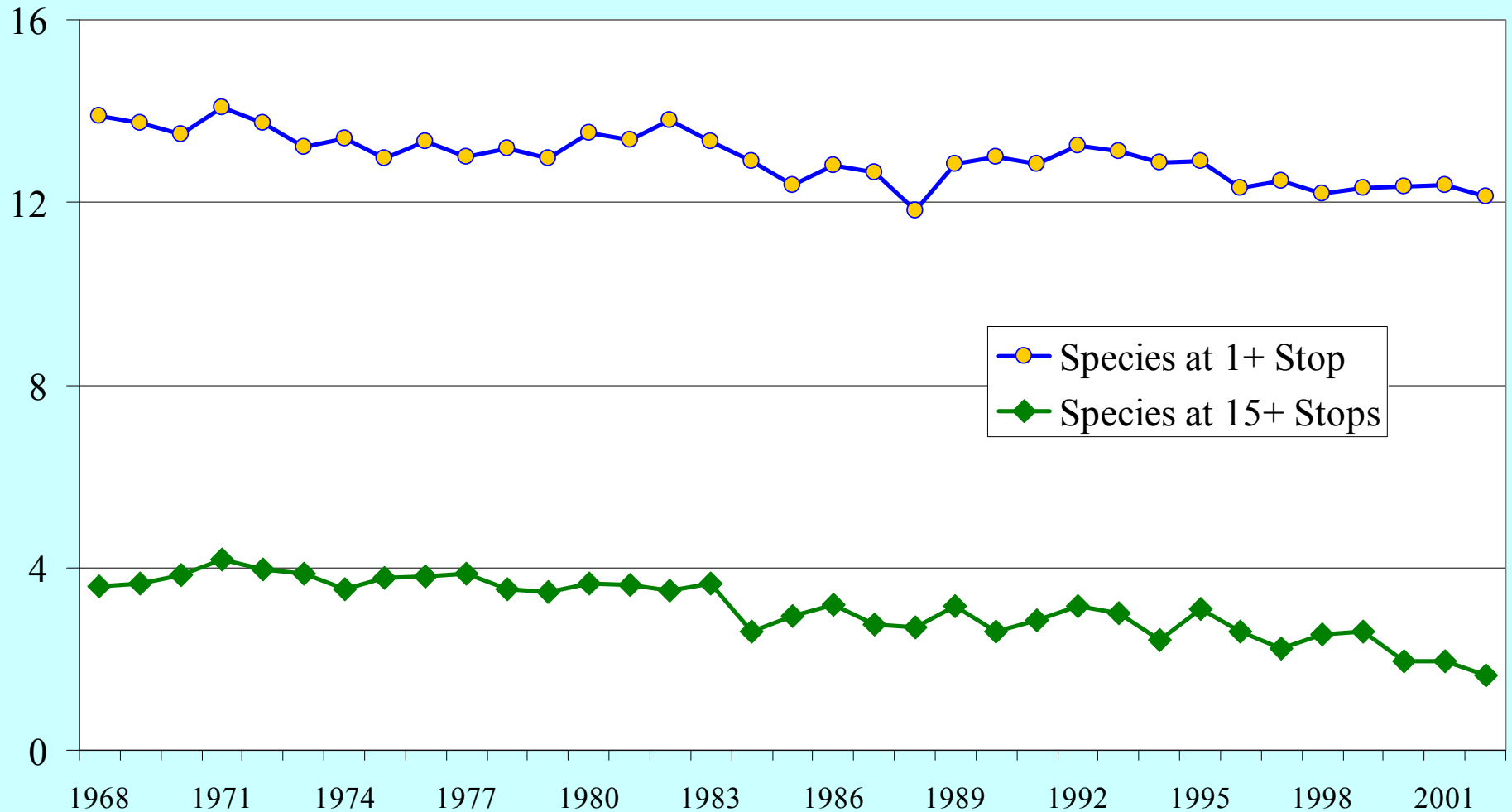
Multi-Species Objectives

Grassland Birds Numbers - BCR 13 Ontario



Multi-Species Objectives

Grassland Species per BBS route



Habitat Objectives examples

Based on Bird Population Objectives:

"Roughly 775,000 ha of grassland to support entire species suite (e.g. 680,000 prs Bobolinks), with 100,000 ha in large patches (for 7,600 prs Upland Sandpipers), and 2,000 ha intensively managed (for 1,000 prs Henslow's Sparrows) in New York and Ontario" [PIF Plan, St. Lawrence Plain]

or Not:

"Restore grasslands to > 30% of the landscape in 3 ecoregional subsections of PIF16 by 2020." [PIF Plan, Upper Great Lakes Plain (Physiographic Area 16)]

BCR 13 All bird meetings, 2001

Population / Habitat Goals

No objectives set but:

- general comfort with "maintain current populations and distribution throughout BCR"
- exceptions for species that have declined severely
- first step is to halt declines

<u>Objective</u>	<u>Easy to Measure?</u>	<u>Communicate?</u>	<u>Translate to Action?</u>	<u>Link to Goal?</u>
Population Target	Easy to calculate But poor precision	Yes	Yes - magnitude of action	Abundance, Recovery
Population Index	Yes	No	Not easily	Abundance, Recovery
Trend Targets	Statistician's help Statistical validity	So-So	Not easily	Abundance, Recovery
Distribution Target	Yes	So-So	Yes - location	Distribution
Guild Targets	Yes	So-So	Yes - ecological need is defined	Abundance, Diversity
Habitat Targets	Depends on Target	Yes	Yes - habitat action	Habitat Indirect link to Birds
Monitoring Targets	Statistician's help	No	Yes- monitoring not conservation	Indirect