Rusty Blackbirds: A really long-term decline?

WINTER PLUMAGE

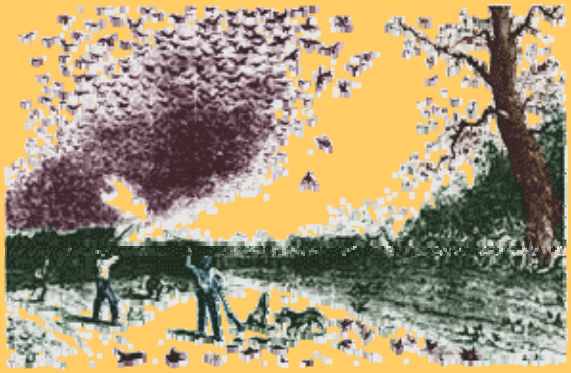
A Rusty Blackbird Primer

- Breeds Across Boreal Forest
- Winters throughout Southeast U.S. in wooded wetlands
- Numbers and distribution vary between and within winters – a lot.
- Feeds on invertebrates (mainly) at the edge of small puddles by flipping leaves and matted vegetation -- a forest shorebird

Primer continued

- Highly neophobic
- Often quiet –easy to miss
- Often forages in single species flocks
- Different from most other blackbirds

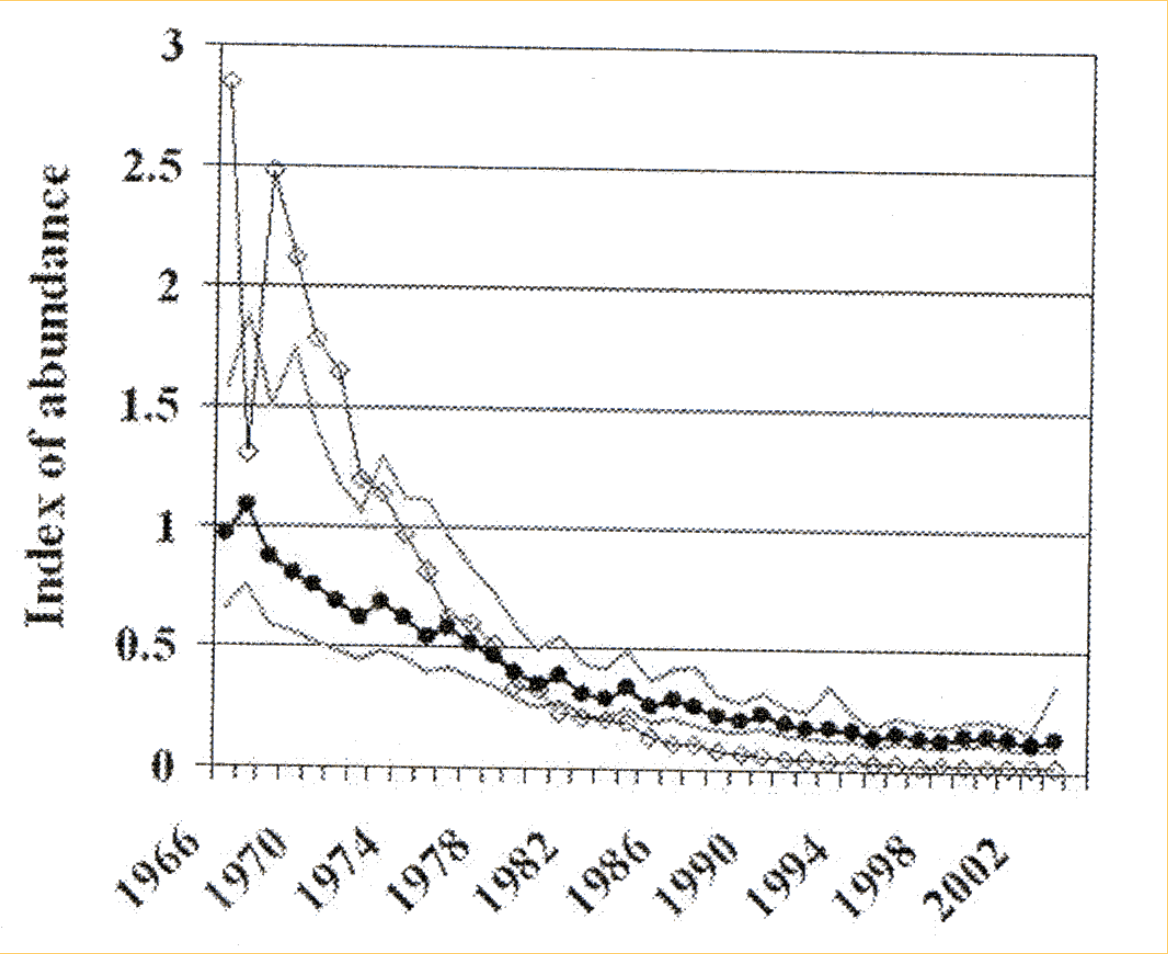
Common Birds Go Extinct



“The time to protect a bird is when it is still common”

Willard Van Name coined and
Rosalie Edge popularized

Rusty Blackbird: The decline as we think we know it



“On the first day of May 1880, as I stood on an iron bridge crossing a sluggish stream of Tonwanda Swamp, I saw the Rusty Grakles constantly trooping by in immense numbers…The sombre wave, this constantly rolling on, must have carried hundreds of thousands over this highway in a day….on being alarmed, either in the fields or in the bushes, these Grakles would rise in a dense, black cloud, and with a rumbling sound like that of distant thunder”

J. H. Langille
As quoted in Beadslee and Mitchell (1965) Birds of the Niagara Frontier region

One of the most familiar sights to the New England schoolboy, and one which assures him that spring is really at hand, is a tree full of blackbirds, all facing the same way and each one singing at the top of its voice. These are rusty blackbirds

…

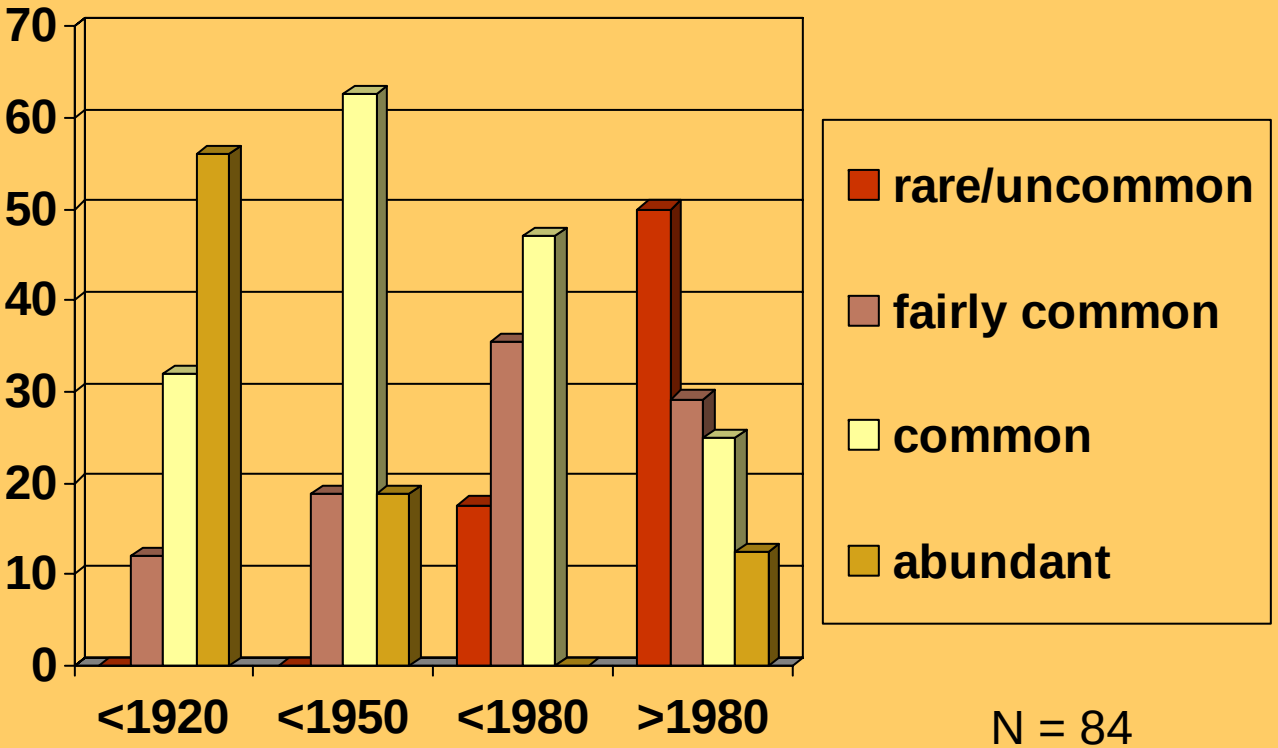
In their migration they are seen in immense numbers, especially in the Mississippi Valley.

F. E. Beal (1890). Food of the bobolink, blackbirds and grackles.

An enormously abundant migrant…The thousands of Grackles have been increased to tens of thousands. They blacken the fields and cloud the air. The bare trees on which they alight are foliated by them. Their incessant jingling songs drown the music of the Meadow Larks and produce, dreamy, far-away-effect, as of myriads of distant sleigh bells

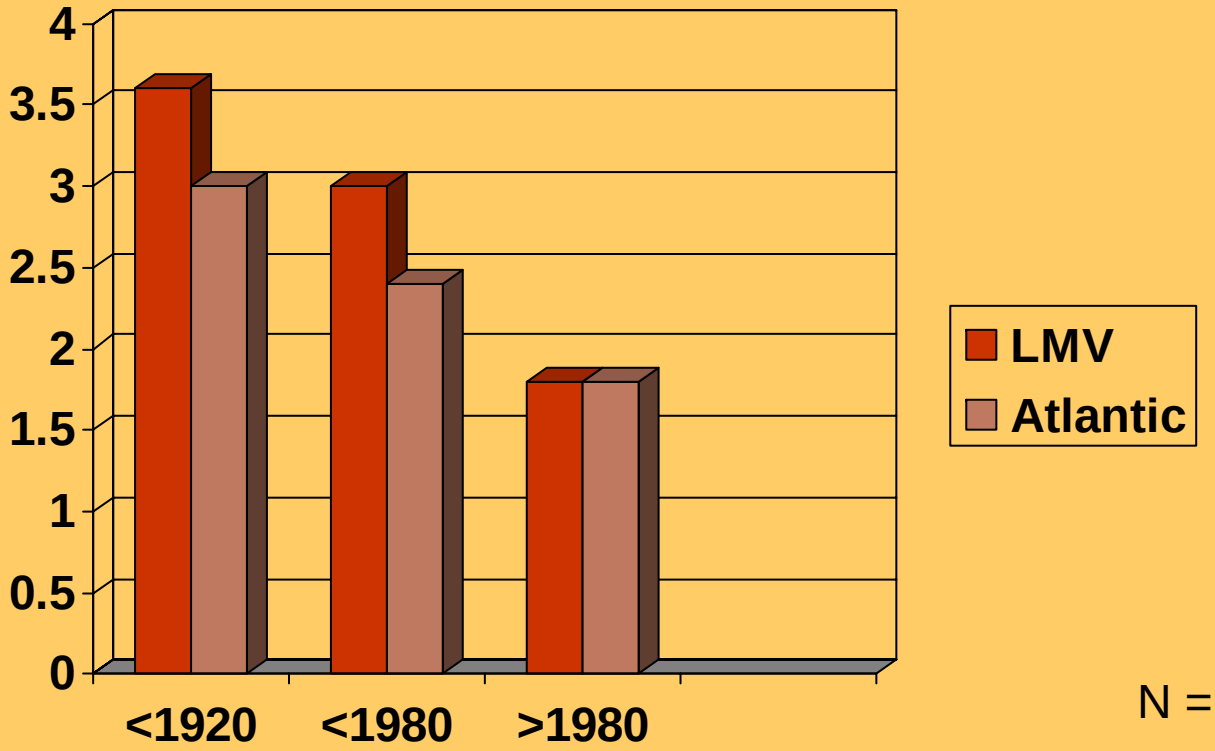
E.E. Thompson (1891) Birds of Manitoba

Change in Abundance Class State Accounts



N = 84

Geography of Long-term Winter Declines



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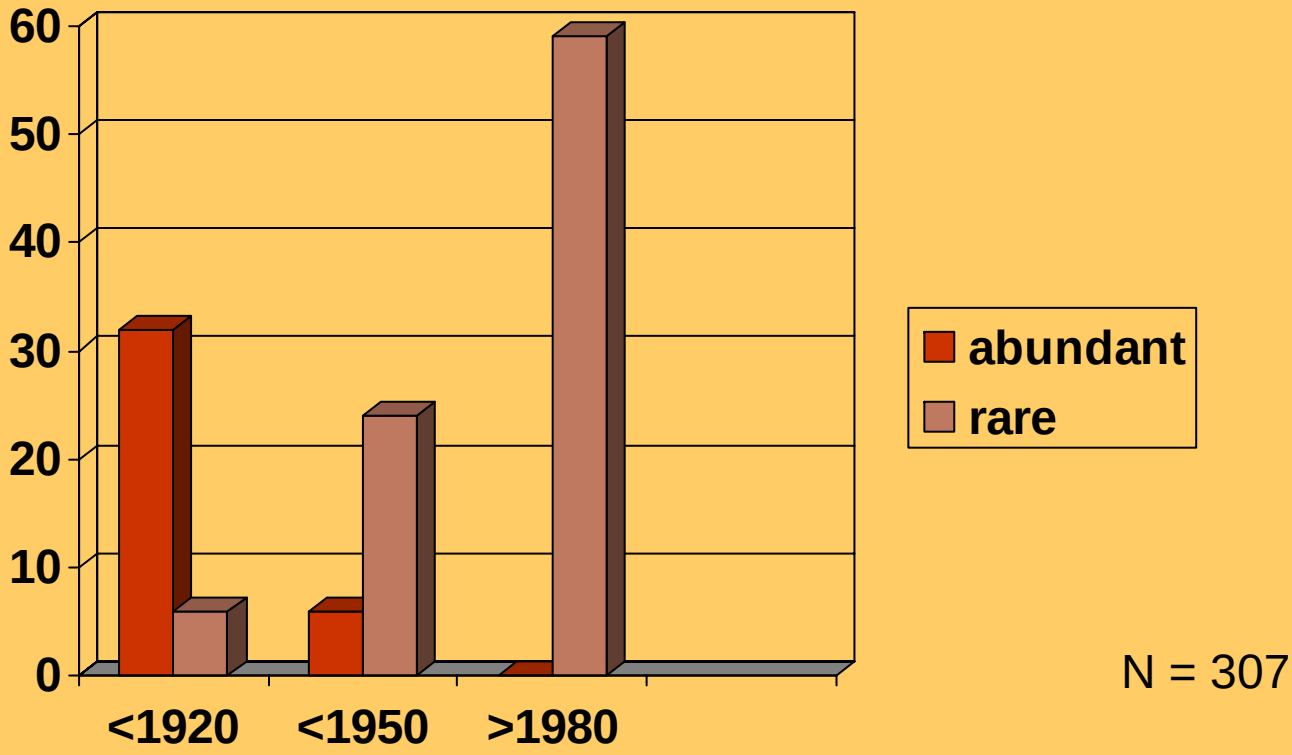
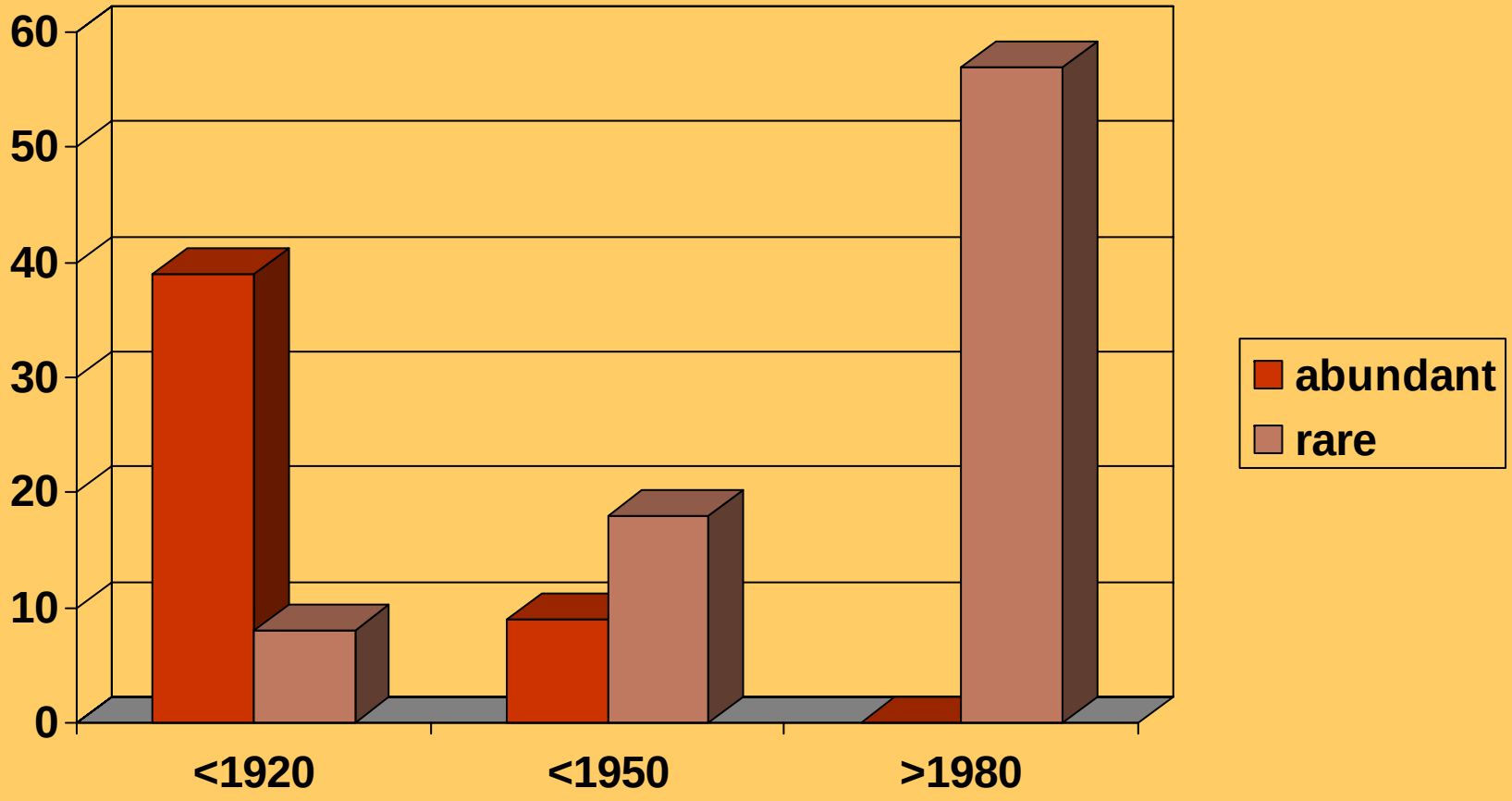
Spring Migration Checklists



N = 307

Autumn Migration Checklists



N = 307

Possible Causes for Trends

Really Long Term

- Loss of Winter Habitat

Pretty Long Term

- Degradation of Breeding Habitat
- Blackbird Control
- Industrial Contamination
- Loss of Winter Habitat

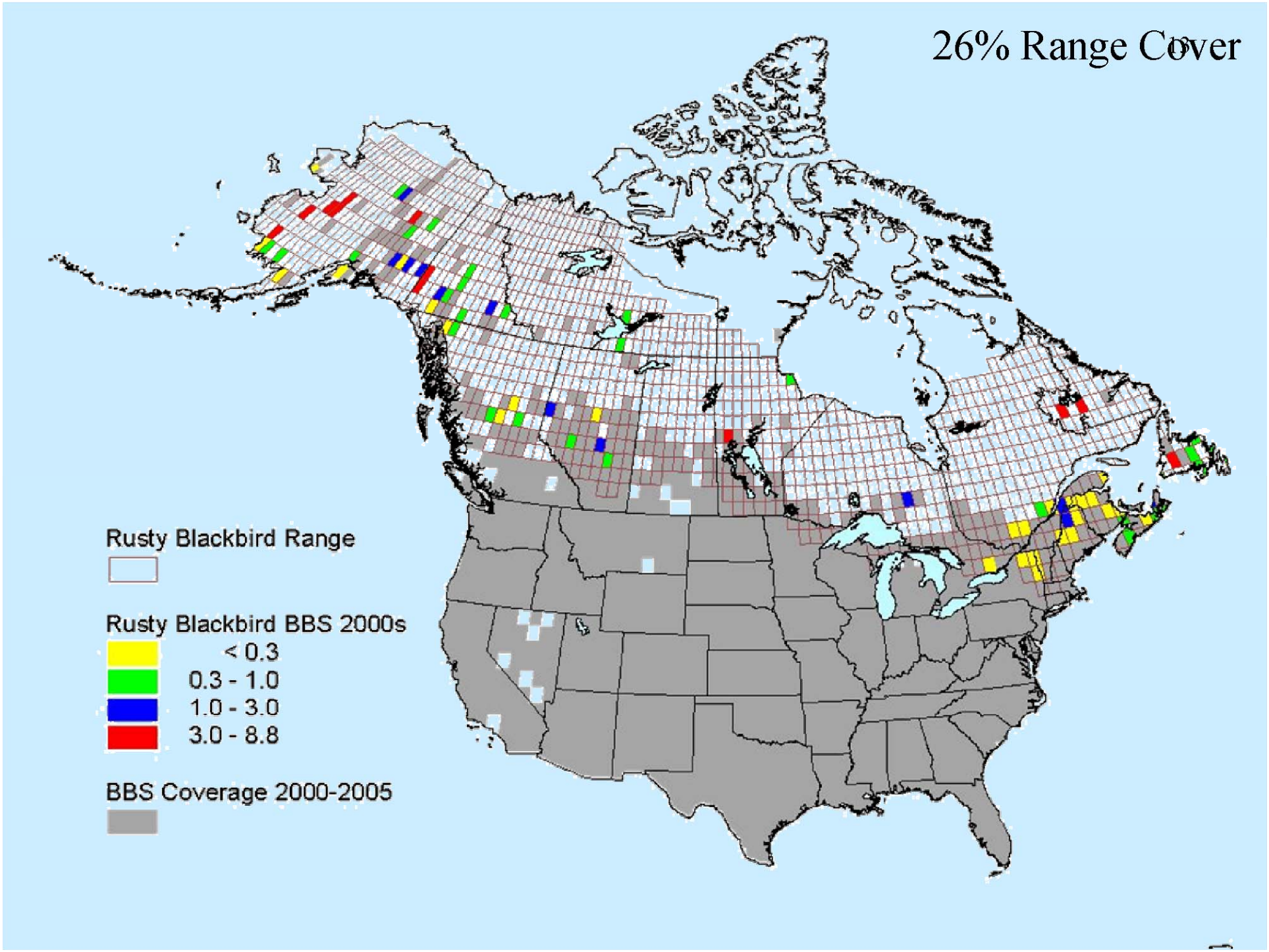
Take Home Message

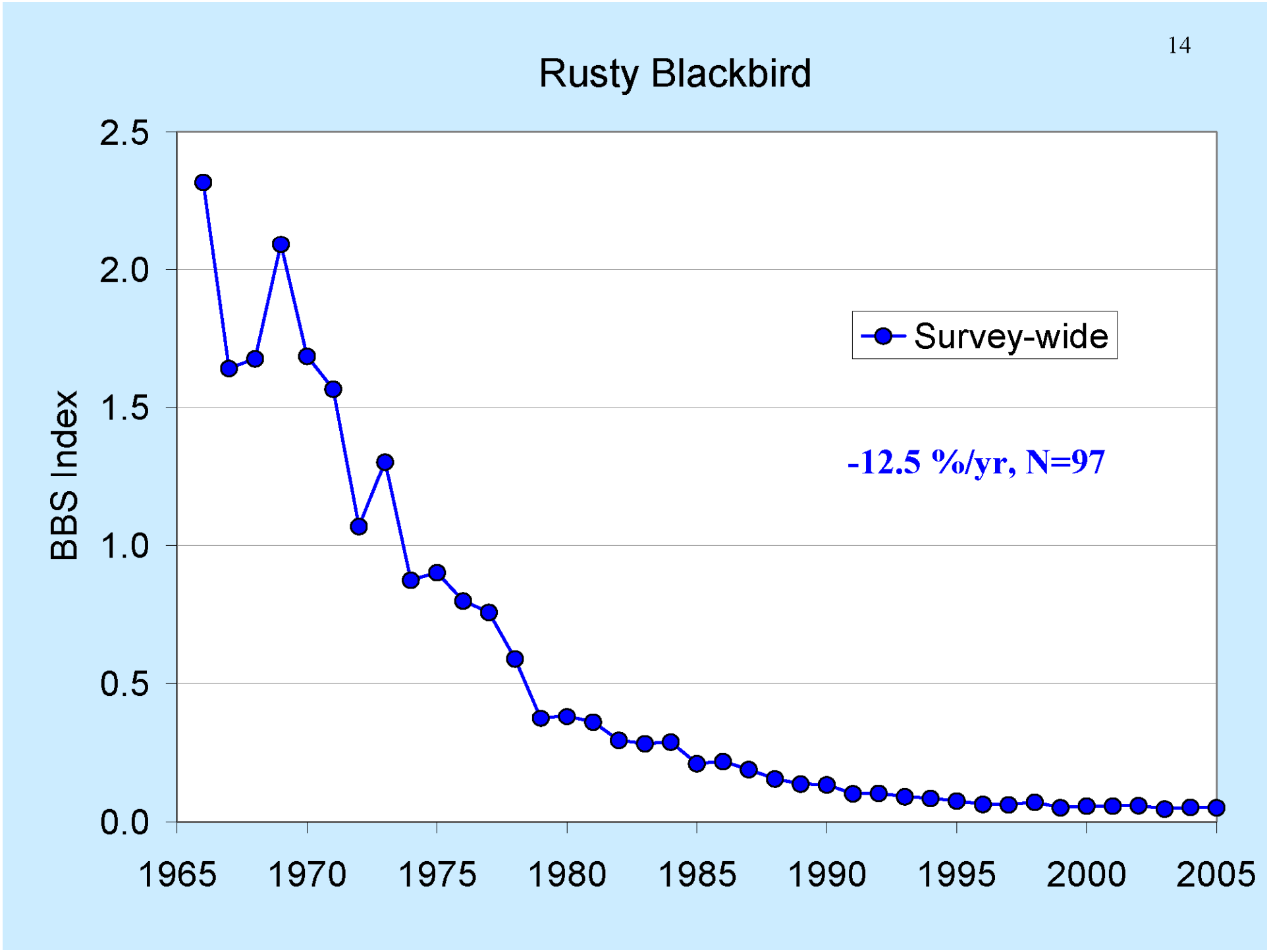
By the beginning of the 80-90% decline estimated by BBS and BBC,

the Rusty Grakle had apparently already gone from abundant to uncommon in most areas

Monitoring Data

What the BBS has to say

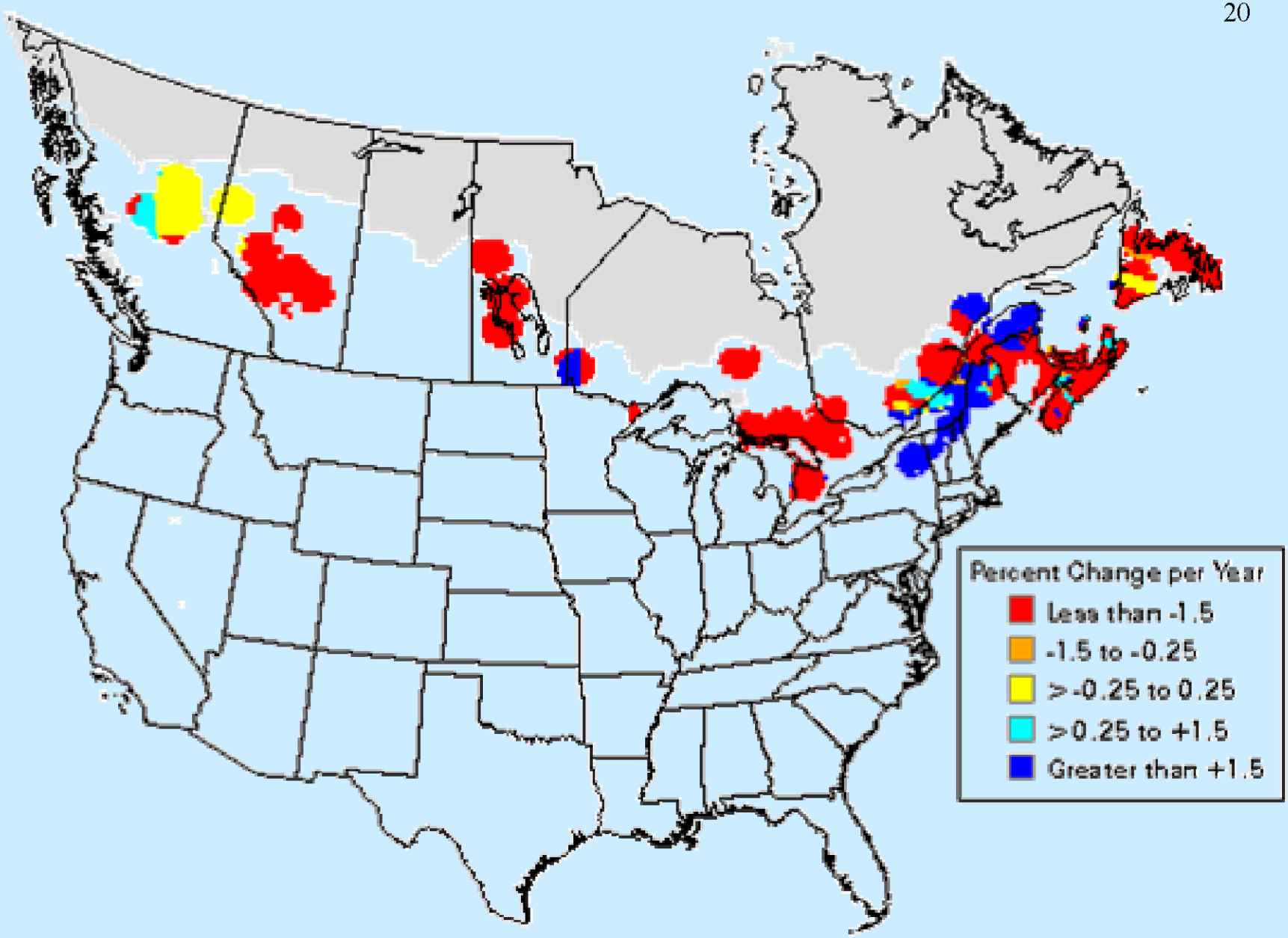

26% Range Cover
Rusty Blackbird Range
Rusty Blackbird BBS 2000s
< 0.3
0.3 - 1.0
1.0 - 3.0
3.0 - 8.8
BBS Coverage 2000-2005


Rusty Blackbird
BBS Index
2.5
2.0
1.5
1.0
0.5
0.0
1965
1970
1975
1980
1985
1990
1995
2000
2005
Survey-wide
-12.5 %/yr, N=97

BBS Trends

Region	USGS 1966–2005 Trend	P	N	CWS 1968–2005 Trend	P	N
Survey-wide	**-12.5**	**	**97**			
	(**-19.0**	*	**103**)			
Canada	**-12.8**	**	**74**	**-10.6**	*	**211**
Alaska	6.3		28			
Yukon	**-9.6**	**n**	**7**			
British Columbia	-33.0		7	**-18.1**	*	**22**
Alberta				-15.0		21
Ontario	**-14.9**	**	**11**	**-19.7**	**n**	**29**
Quebec	**-9.8**	**	**15**	-4.9		35
New York	2.5		7			
New Hampshire	-0.2		6			
Maine	28.0		9			
New Brunswick	**-9.3**	**	**17**	**-14.0**	*	**24**
Nova Scotia	-3.8		20	**-7.8**	*	**26**
Newfoundland & Labrador	**-11.1**	*	**16**	-7.1		24

n P<0.1; * P<0.05; ** P<0.01



Rusty Blackbird Trends 1966-2003

Rusty Blackbird Summary

BBS Trends:

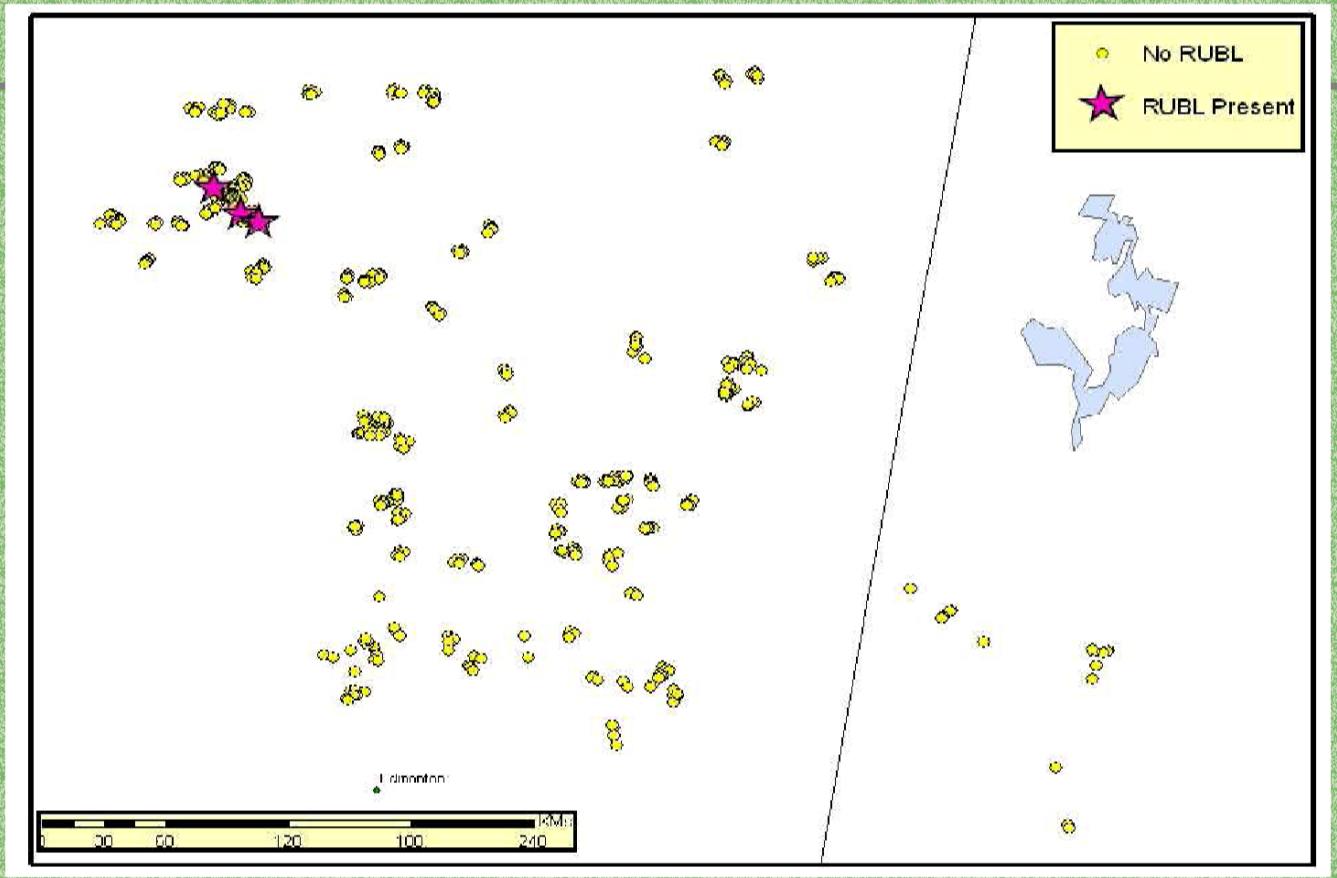
- Declines in all regions
- BBS covers <1/3 Range
- Low trend precision
- Observer improvement?

PIF Pop'n Estimates:

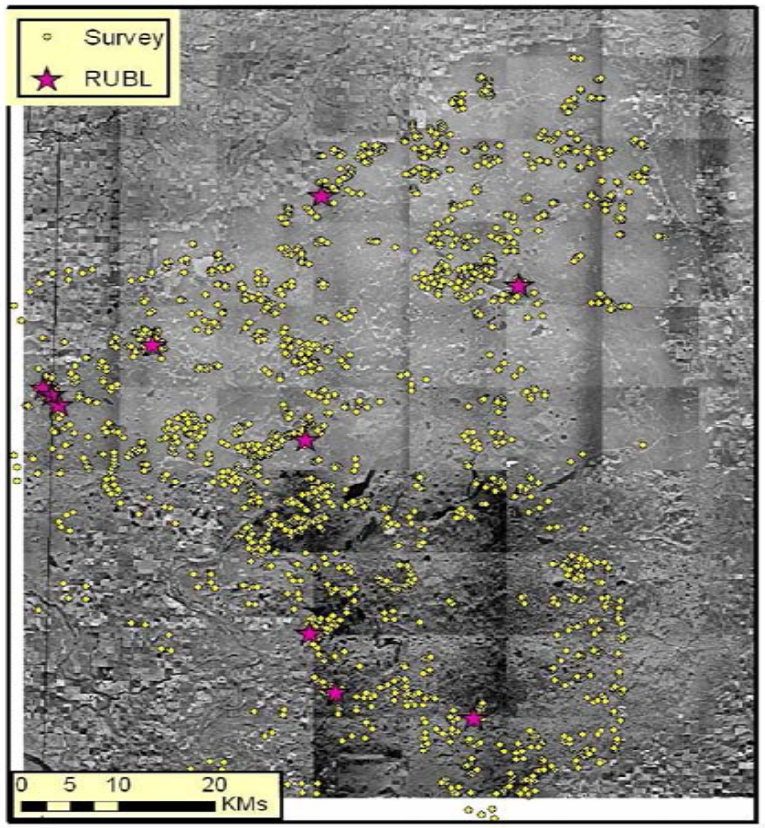
- Revised down to 1.3 M
- Rough 'ballpark' only

Ontario Atlases:

- Decline in % squares occupied in parts of Ontario
- No change in Lowlands
- 88% birds in Lowlands, not sampled by BBS
- Estimated 0.5 M birds in Ontario



18 370 detections for all species combined (2002-2004)
4 RUBL detections



2500 surveys between 1997-2006 ~ 42000 detections for all species

RUBL occurrences – 6 riparian; 4 other

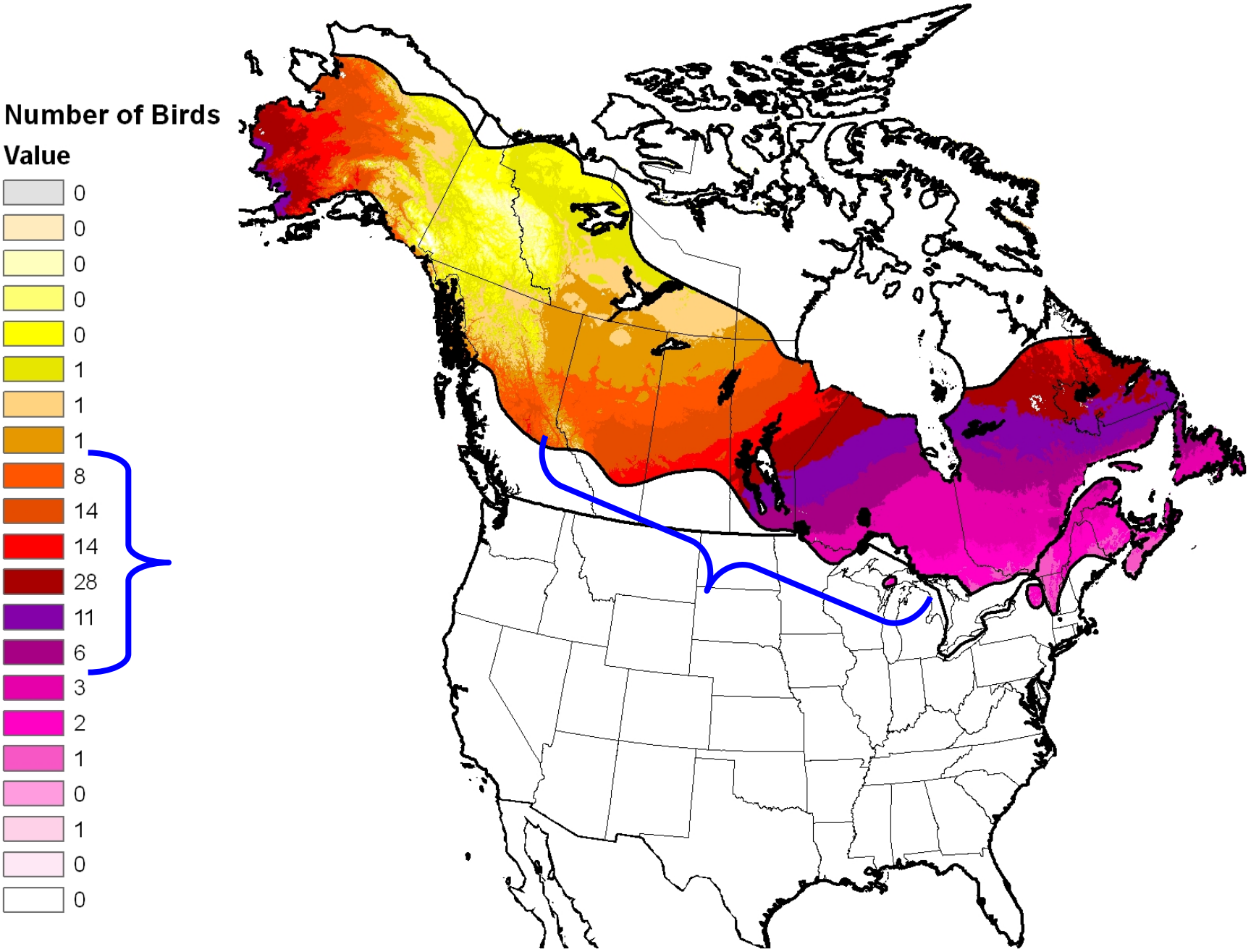
Breeding Season Overview

- Sharp decline in BBS data
- No ability to discern geographic structure
- Biased coverage
- Local range contractions and disappearances from southern boreal
- Some evidence of stability in northern boreal
- Possible population cycles

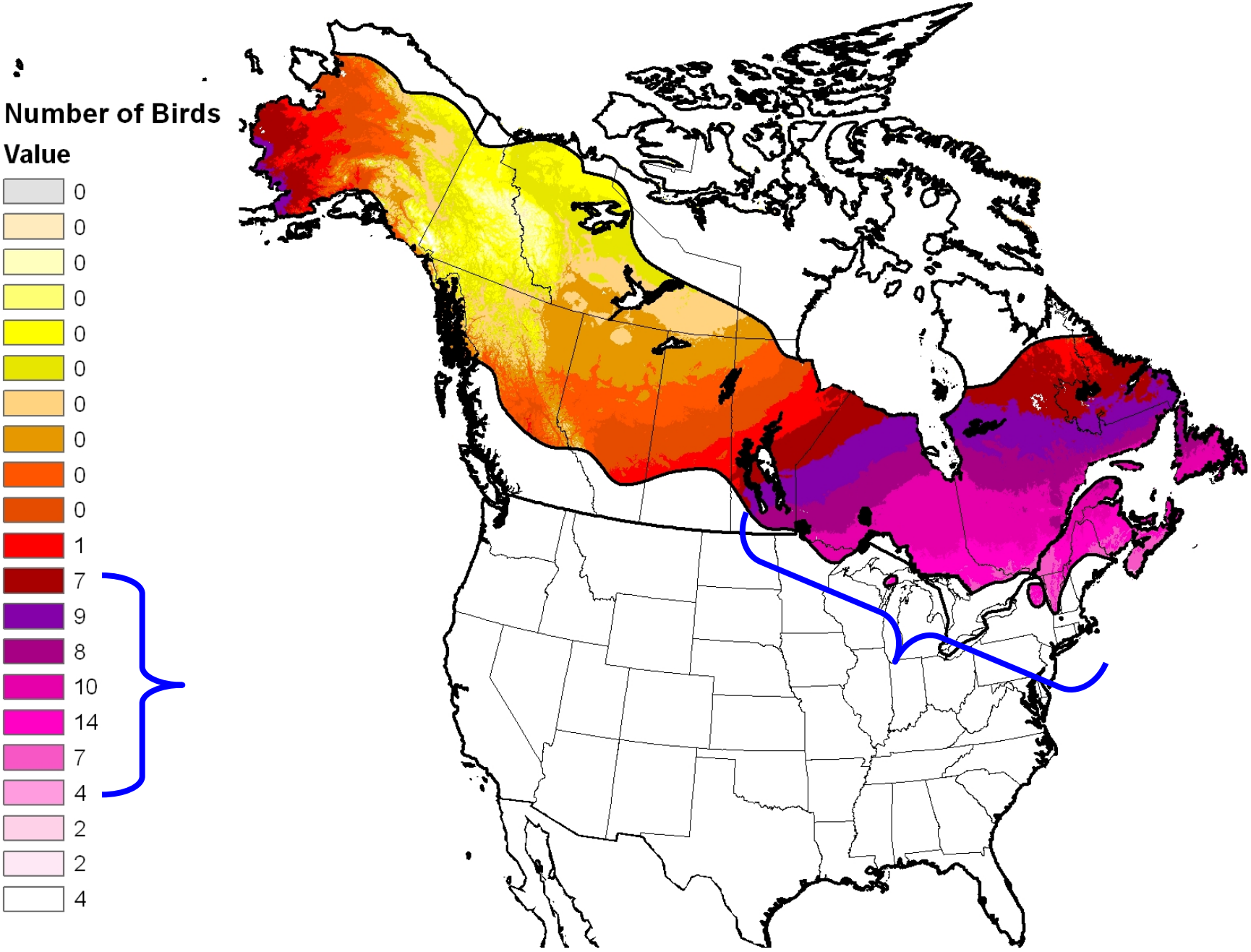
What part of the boreal do Atlantic Coastal birds come from????

Deuterium Isotope Data from recent and historical samples

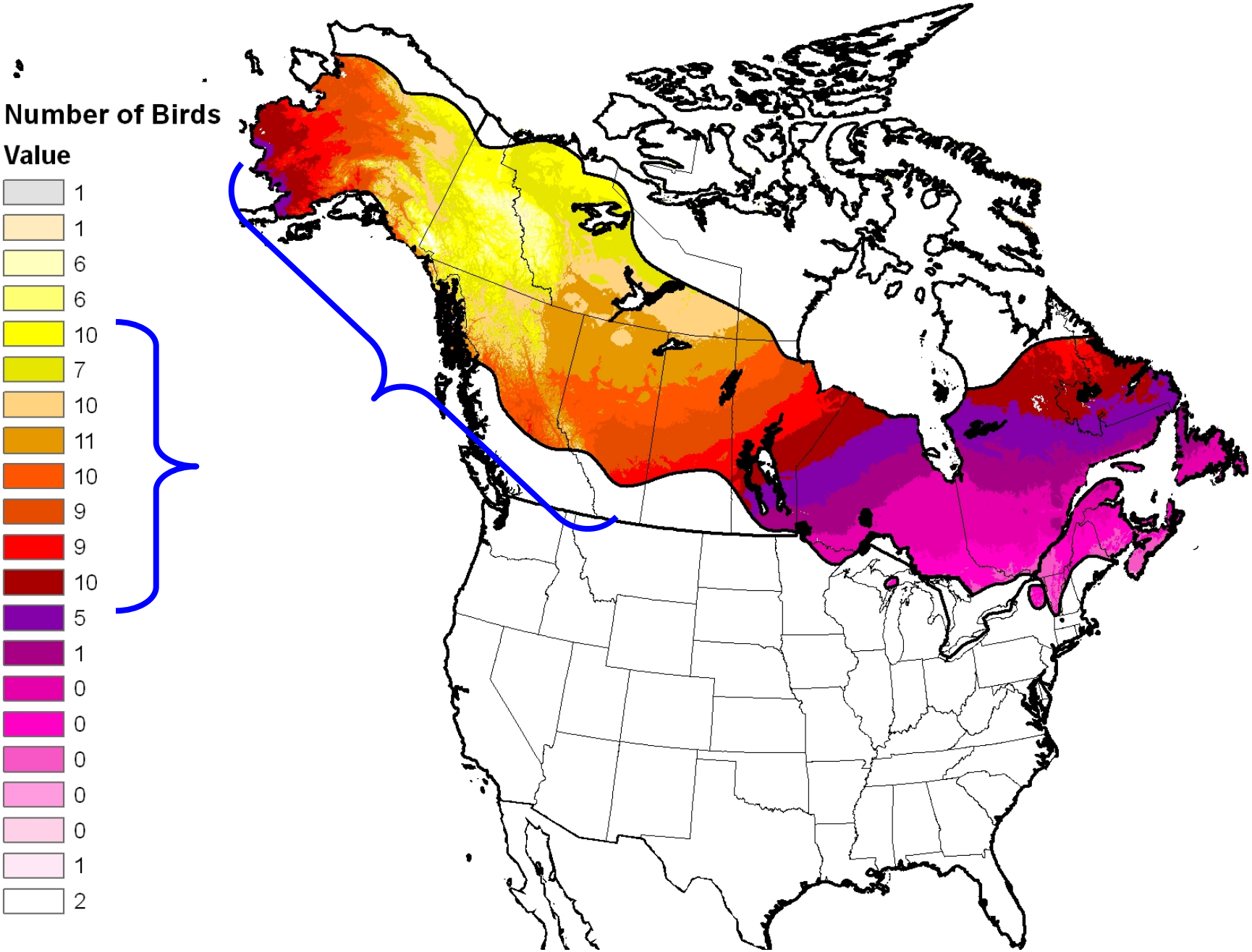
Coastal Plains – Historic Distribution



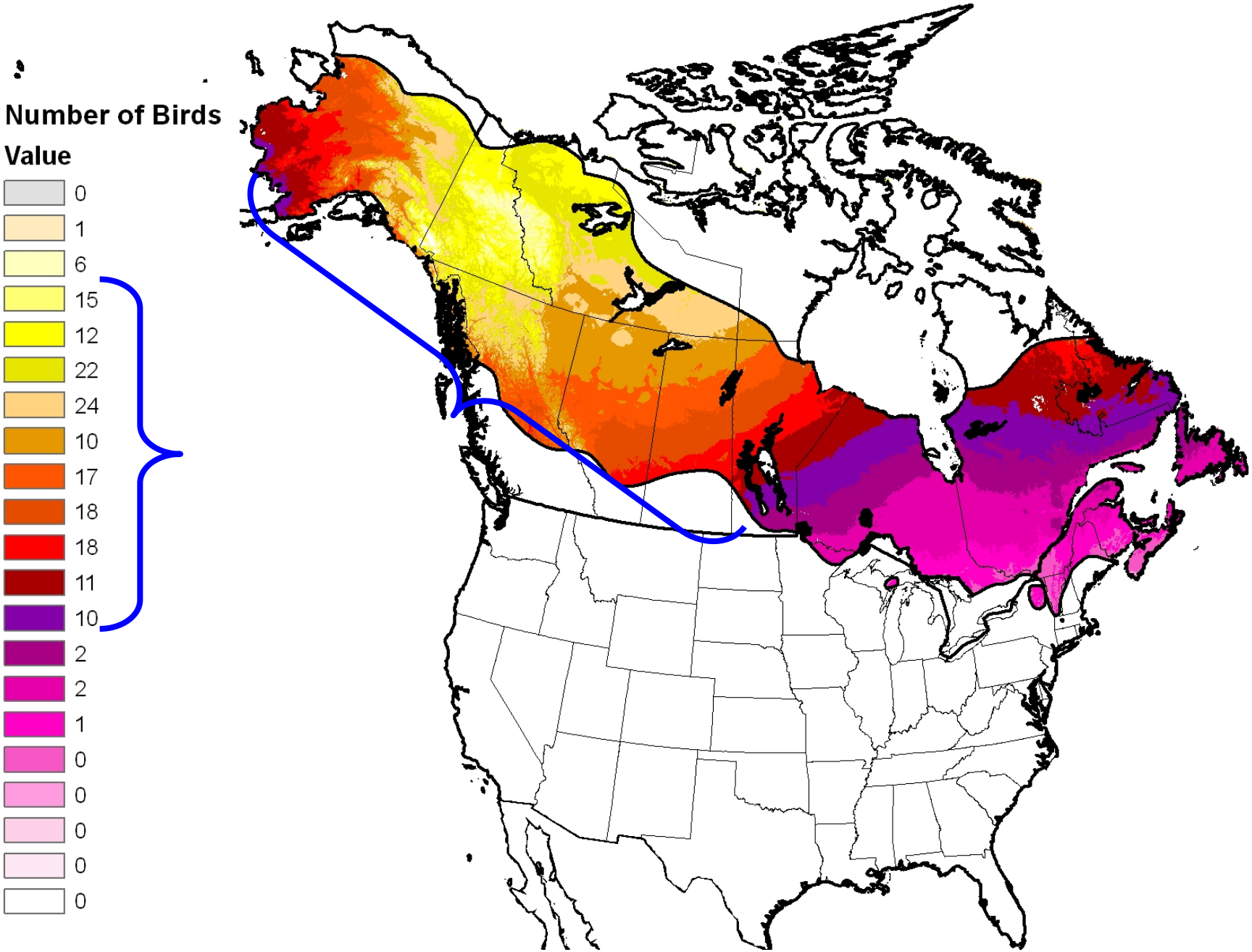
Coastal Plains – Current Distribution



MV – Historic Distribution



MV – Current Distribution



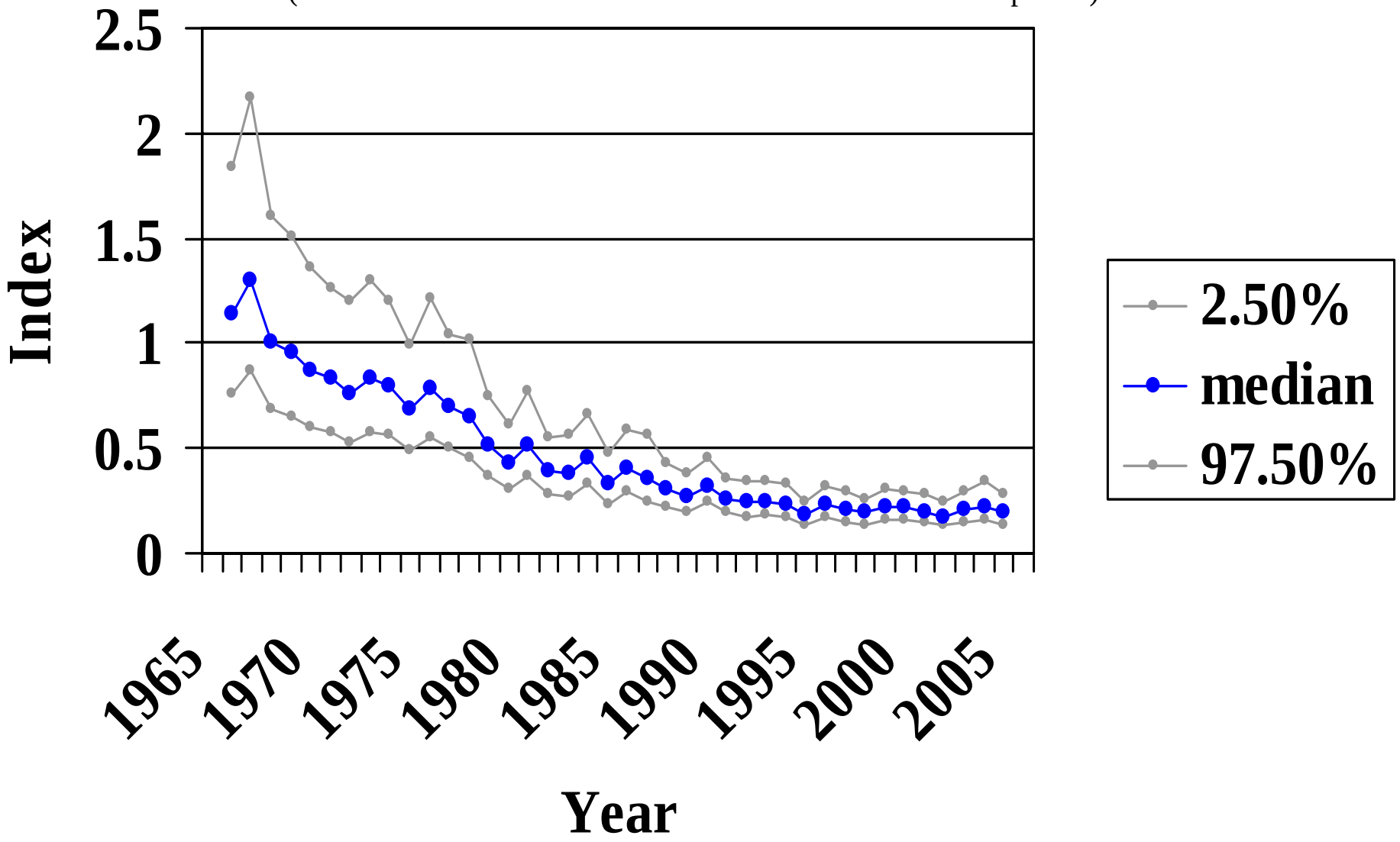
What is happening on the wintering grounds?

Insights from Christmas Bird Count Data

Rusty Blackbird

Composite Index, counts 66-105

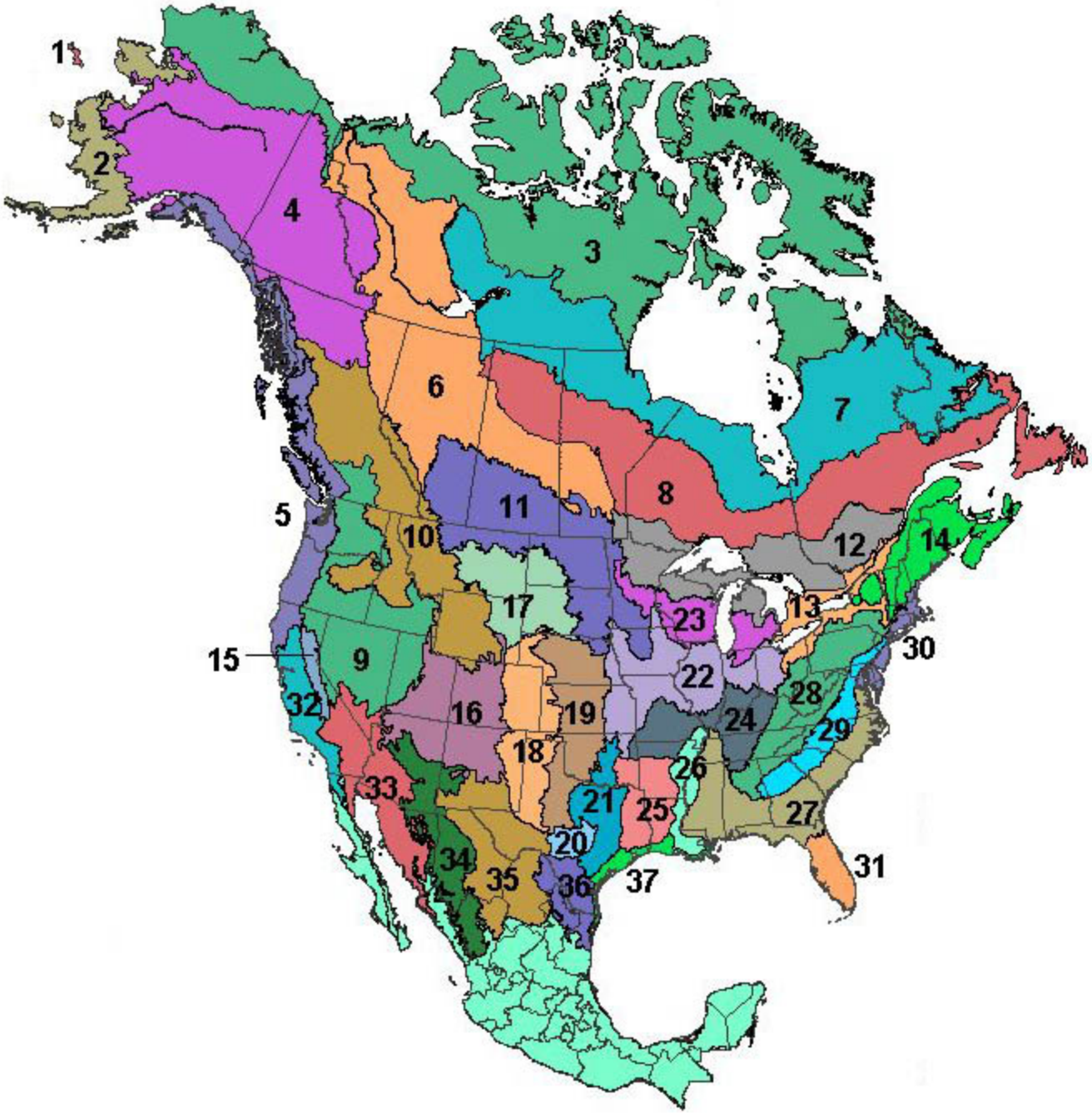
(includes data from all BCRs where 4+ CBCs recorded the species)



Rusty Blackbird BBS vs. CBC Trends

Survey-wide, 1966-2005

Survey	Trend (% change/yr)	2.5% CI (% change/yr)	97.5% CI (% change/yr)	Variance	P	N	R.A.	Range Covered
CBC	**-4.5**	**-5.7**	**-3.3**	**0.363**		**1611**	**0.48**	**100.0**
BBS	**-12.5**	**-18.8**	**-6.2**	**10.295**	**0.0002**	**97**	**0.26**	**27.31**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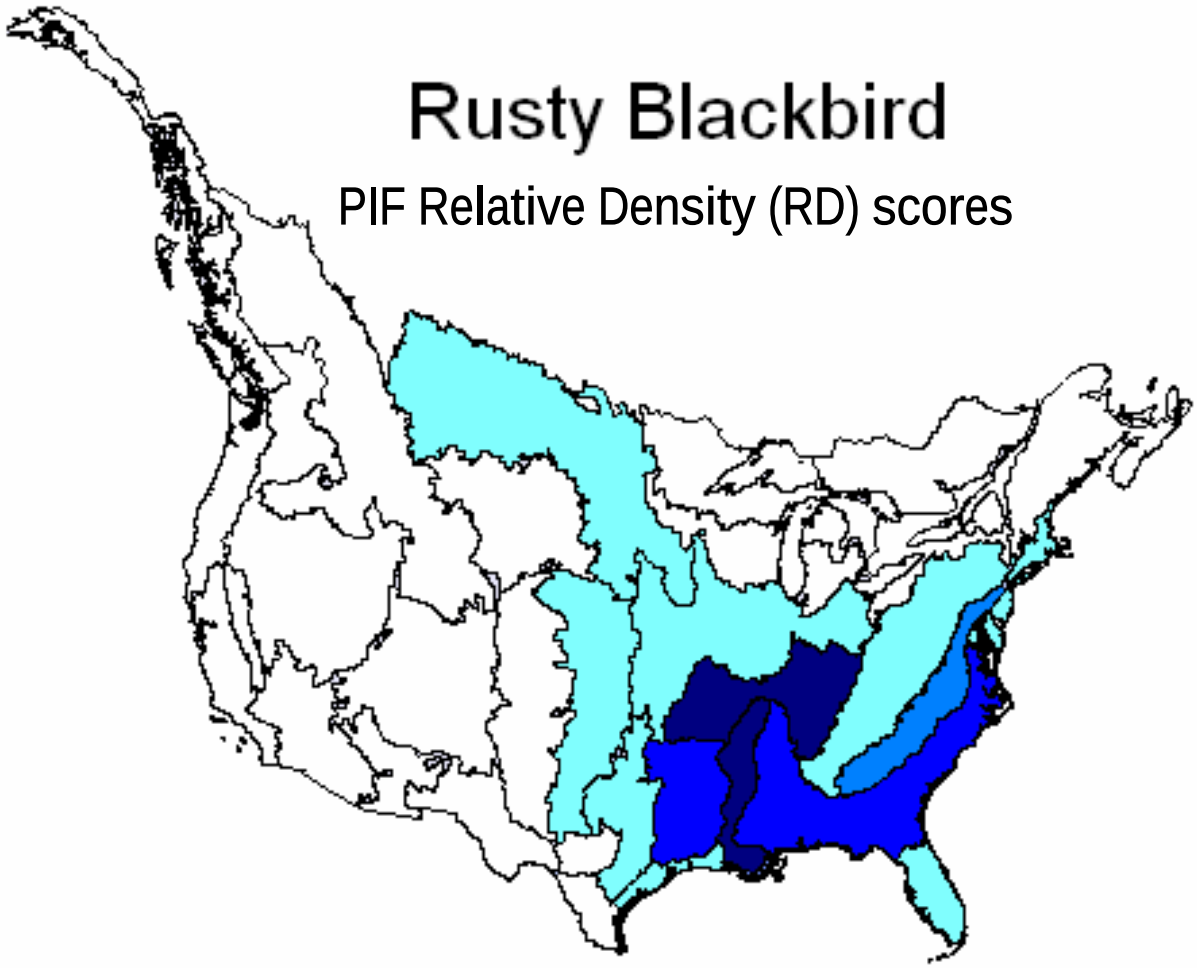
Rusty Blackbird CBC Trends

40-yr trends in core of early-winter range; where RD scores > 1

BCR	Name[+]	Trend (% change/yr)	2.5% CI (% change/yr)	97.5% CI (% change/yr)	N	Median abund.	RD
11	Prairie Potholes	-4.7	-7.2	-1.8	85	0.20	3.3
19	Central Mixed-grass Prairie	-5.2	-10.1	-0.3	44	0.57	9.4
21	Oaks and Prairies	-5.1	-9.2	-1.3	35	0.35	5.8
22	Eastern Tallgrass Prairie	-2.1	-4.1	-0.3	191	0.46	7.5
24	Central Hardwoods	-4.9	-7.6	-2.0	83	3.40	56.8
25	Western Gulf Coastal Plain / Ouachitas	-5.3	-8.8	-1.4	44	1.85	30.2
26	Mississippi Alluvial Valley	-4.9	-8.0	-1.8	41	5.99	100.0
27	Southeastern Coastal Plain	-3.7	-5.5	-1.4	112	2.94	48.4
28	Appalachian Mountains	-3.8	-6.0	-1.4	167	0.24	4.0
29	Piedmont	-5.9	-8.5	-3.3	92	1.13	18.4
30	New England / Mid-Atlantic coast	-4.4	-6.1	-2.6	131	0.29	4.9
31	Peninsular Florida	-15.6	-19.9	-11.6	51	0.36	5.8
37	Gulf Coastal Prairie	-10.0	-13.1	-6.5	40	0.34	5.5

Rusty Blackbird

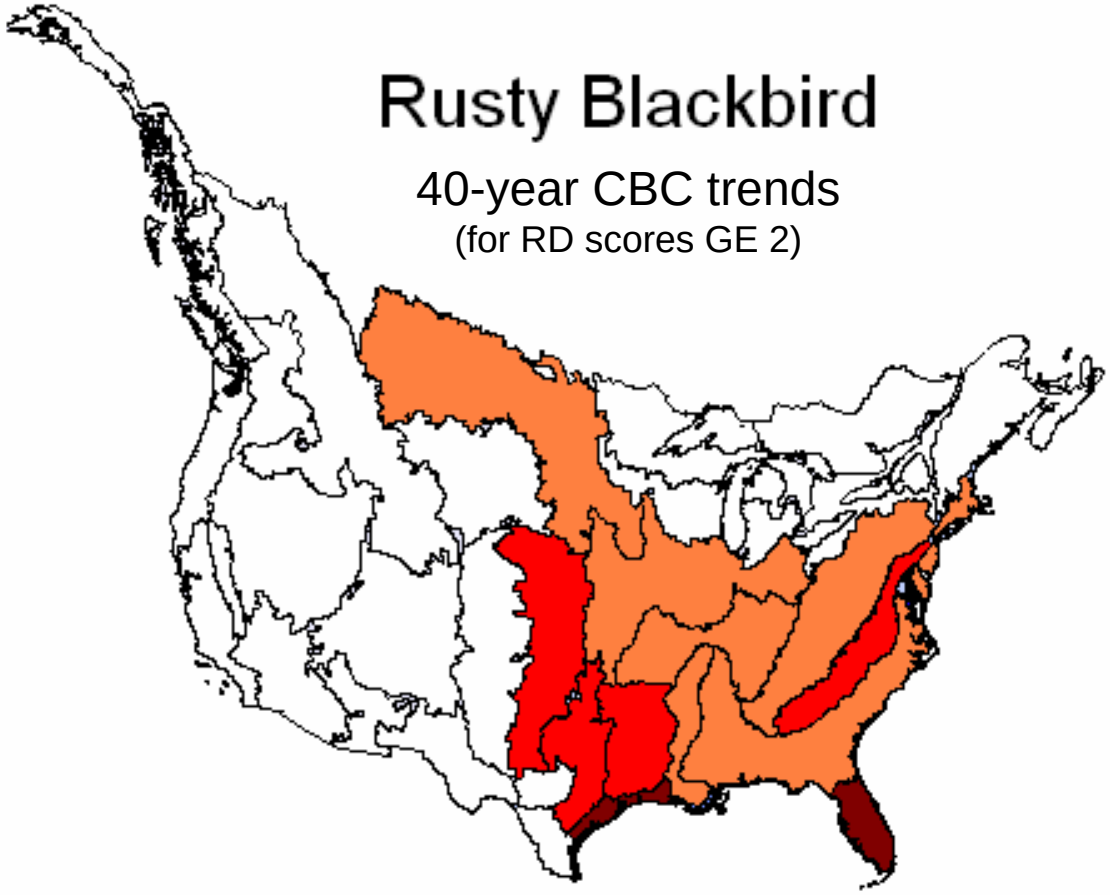
PIF Relative Density (RD) scores



Rusty Blackbird

40-year CBC trends

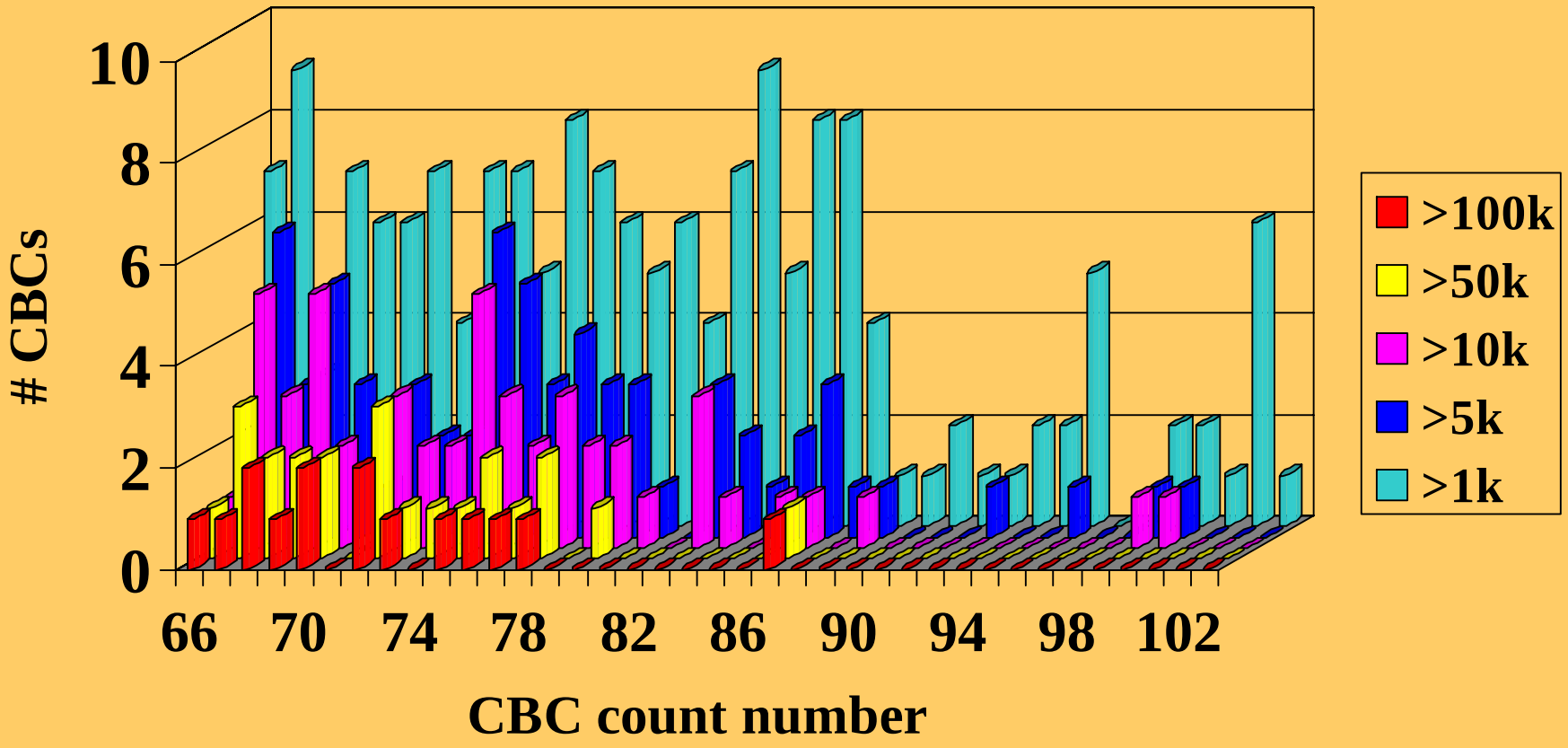
(for RD scores GE 2)



Annual declines of:

- GE 10% per year
- 5 – 10% per year
- 2 – 5% per year

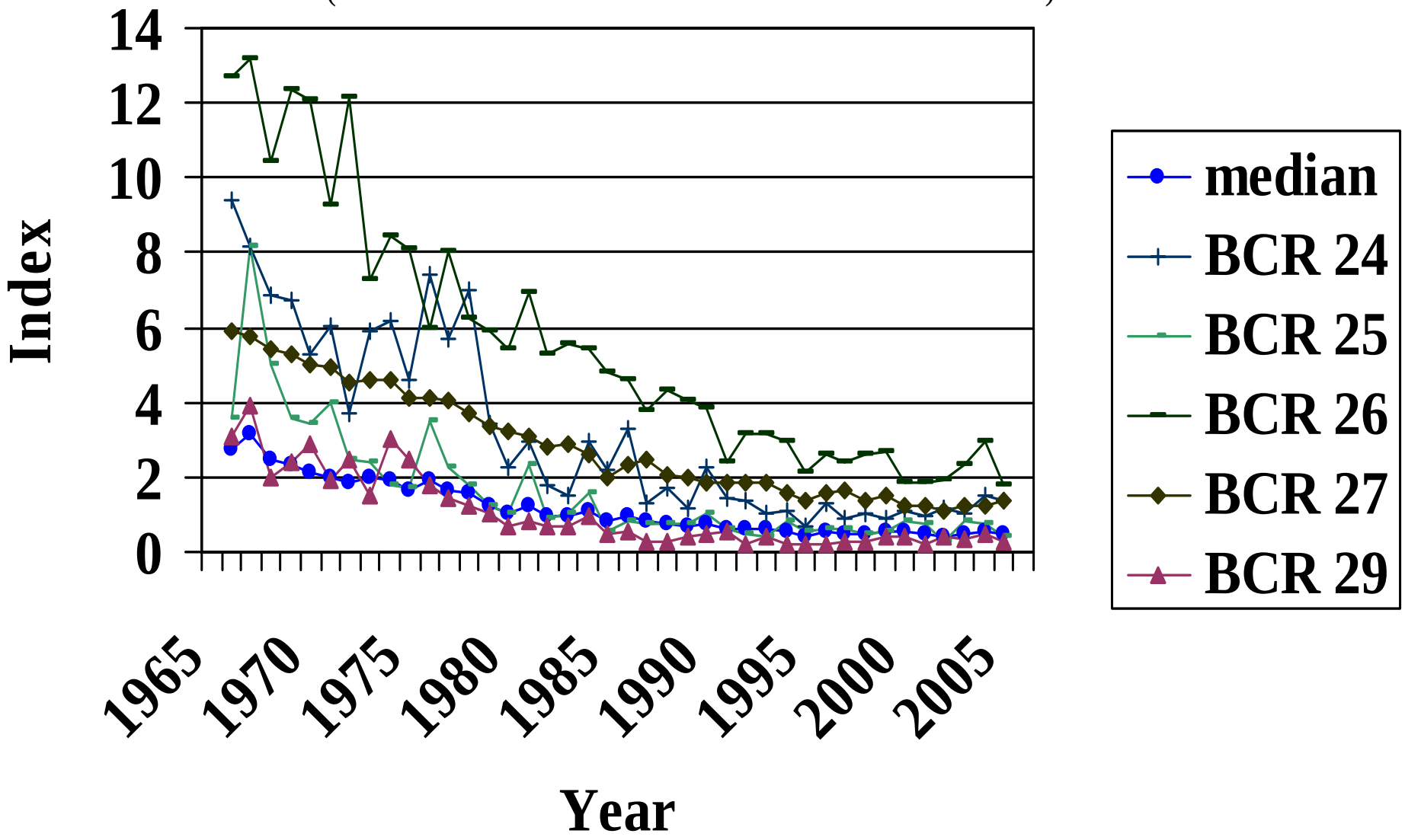
Rusty Blackbird



Rusty Blackbird

Composite Index, counts 66-105

(data from BCRs where 4+ CBCs recorded RUBL and RD>1)



CBC Overview

- CBC data shows steep decline –not as steep as BBS
- Accelerated decline in early 1970s
- Little geographic structure to decline

The Decline: Hypotheses and Predictions

Winter habitat loss	**Abundance correlates with de- and afforestation. Predictions can be refined as details of habitat quality are developed from studies. Should include changes in hydrology and forest composition.**
Blackbird control	**Mortality from formal and informal control efforts is sufficient to have an impact on population processes. Geographic and temporal pattern in declines correlates with major blackbird control efforts.**

The Decline: Hypotheses and Predictions

Hypothesis	Prediction
Breeding habitat loss	**Steeper decline in areas where habitat has been converted.**
Wetlands drying	**Steeper declines, lower fitness, and lower food availability in wetlands with the strongest effect of drying (e.g., smaller bodies of water).** **Fitness correlates: Low chick growth rate and fledging mass.**
Methyl mercury & wetland acidification	**Steeper declines and low fitness in regions with higher MeHg contamination or acidification.** **High levels of MeHg in tissues from these regions.** **Fitness correlates: low adult survival and chick growth rates, high nest failure and other reproductive anomalies. For acidification, egg shell thinning and skeletal deformities in chicks.**

Key Points of Management Control

- Increase habitat universe (wooded wetlands)
- Increase the quality of wooded wetlands through: management for mast trees; manipulation of water levels
- Decrease disturbance and depradation on roosts