
Rusty Blackbird Connectivity

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Acknowledgments

- Russ Greenberg (Smithsonian)
- Claudia Metke-Hoffman (Smithsonian)
- Steve van Wilgenburg (GIS)
- Pam Sinclair (CWS)
- Len Wassenaar (Stable isotope lab)
- Numerous museums!
- All who have contributed feathers
- Western Boreal Conservation Initiative



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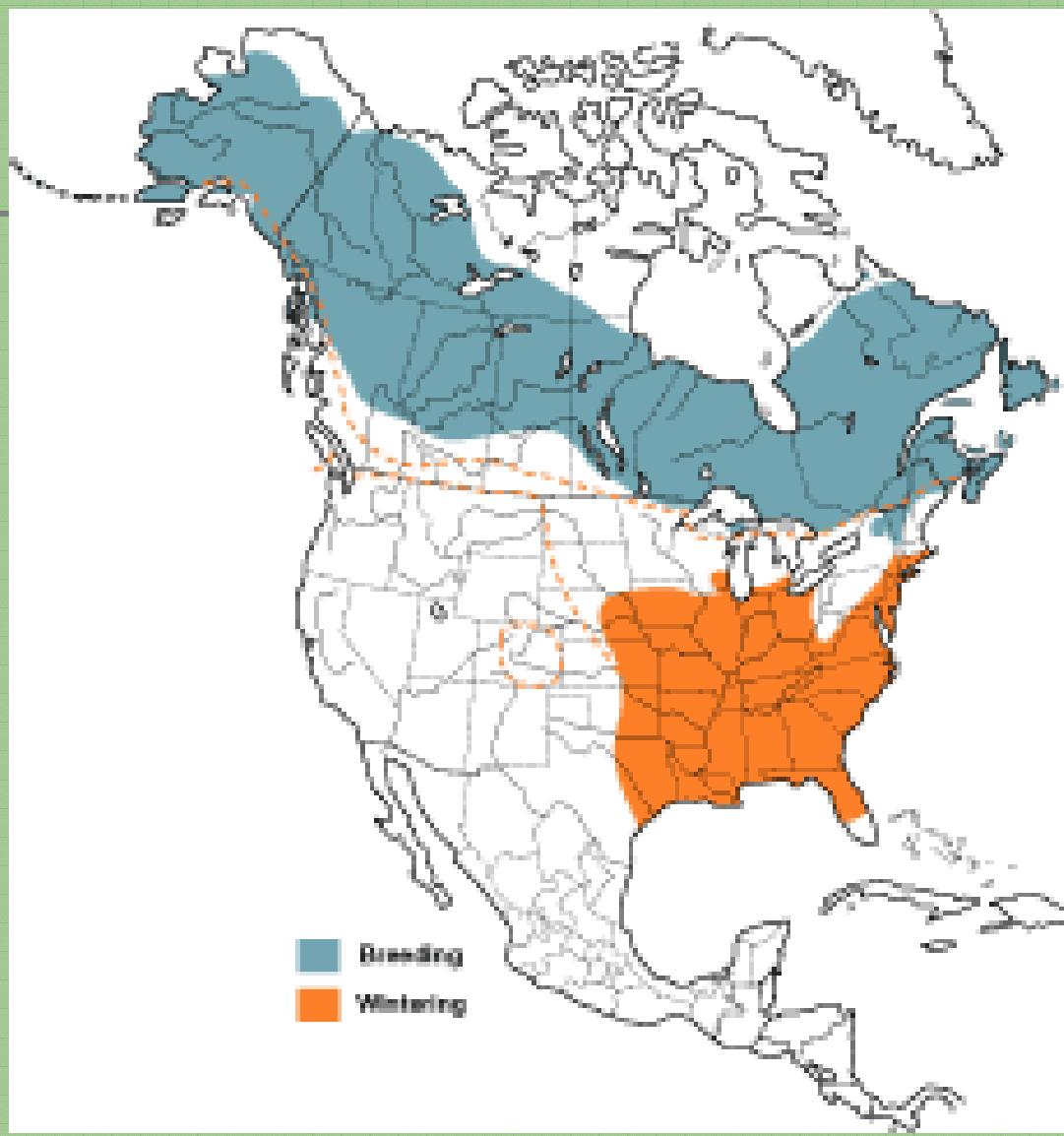
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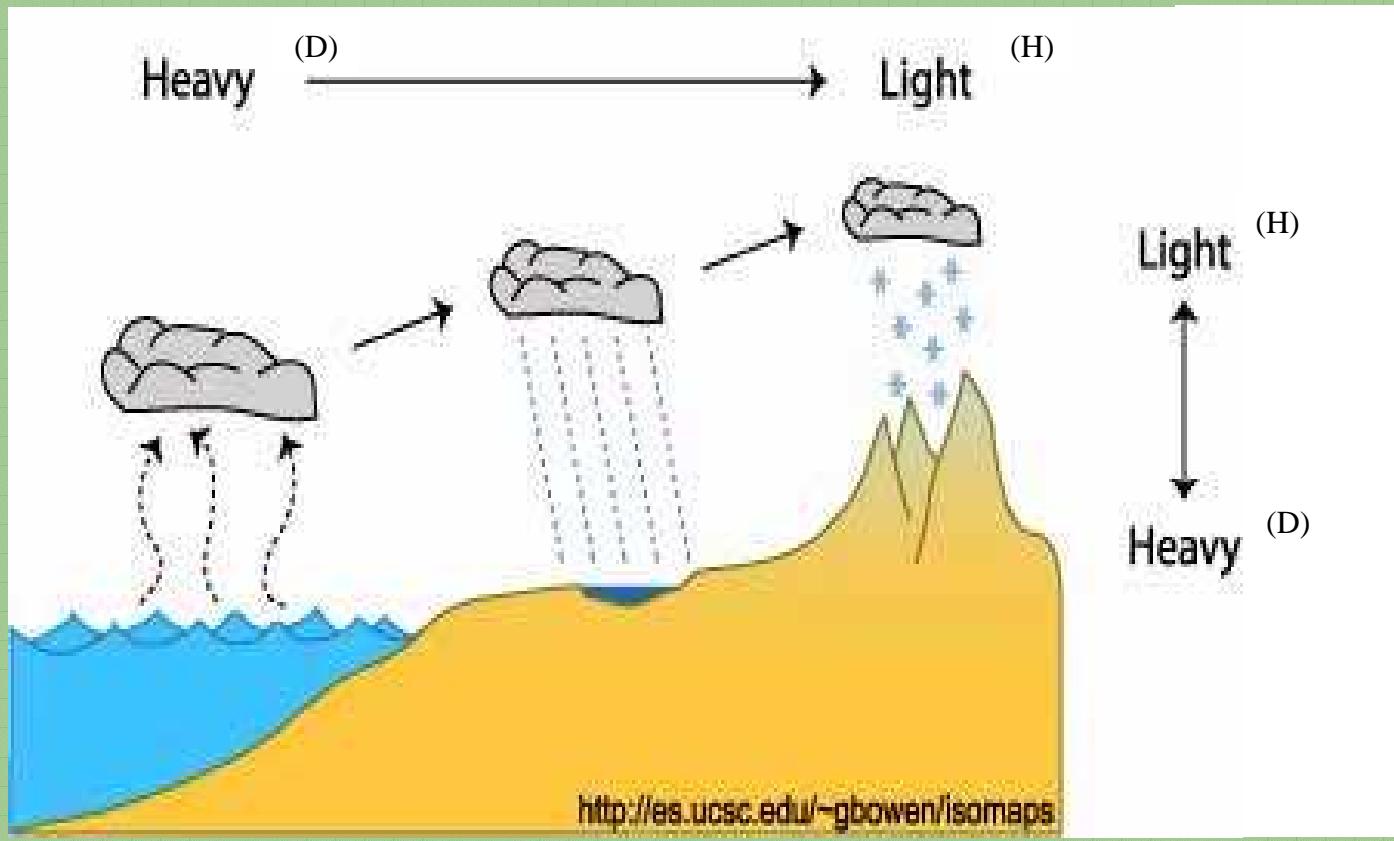
Connectivity

- Degree to which individuals in a breeding population winter together ...
 - *Important in order to understand regional population trends and demography*

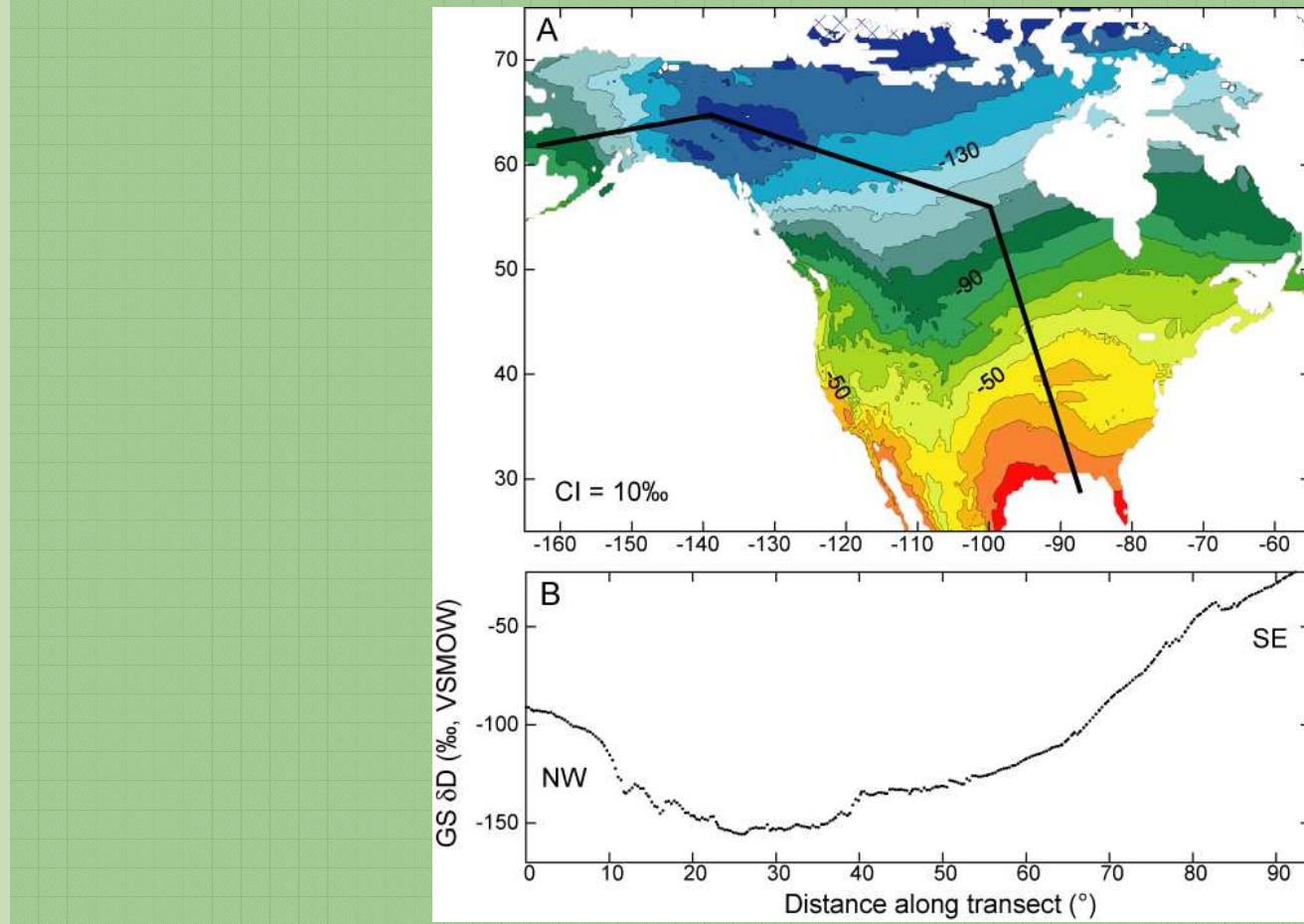




How we get patterns in deuterium:

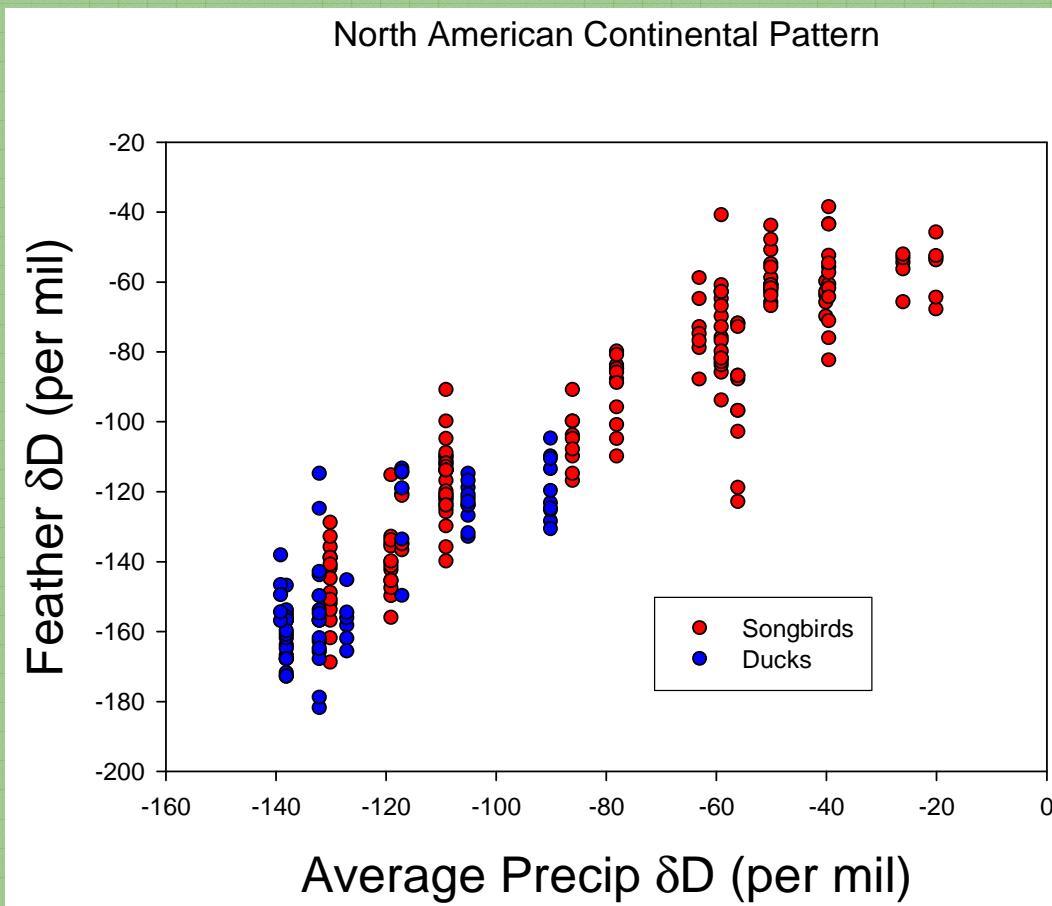


Based on the 40+ year IAEA (GNIP) dataset:



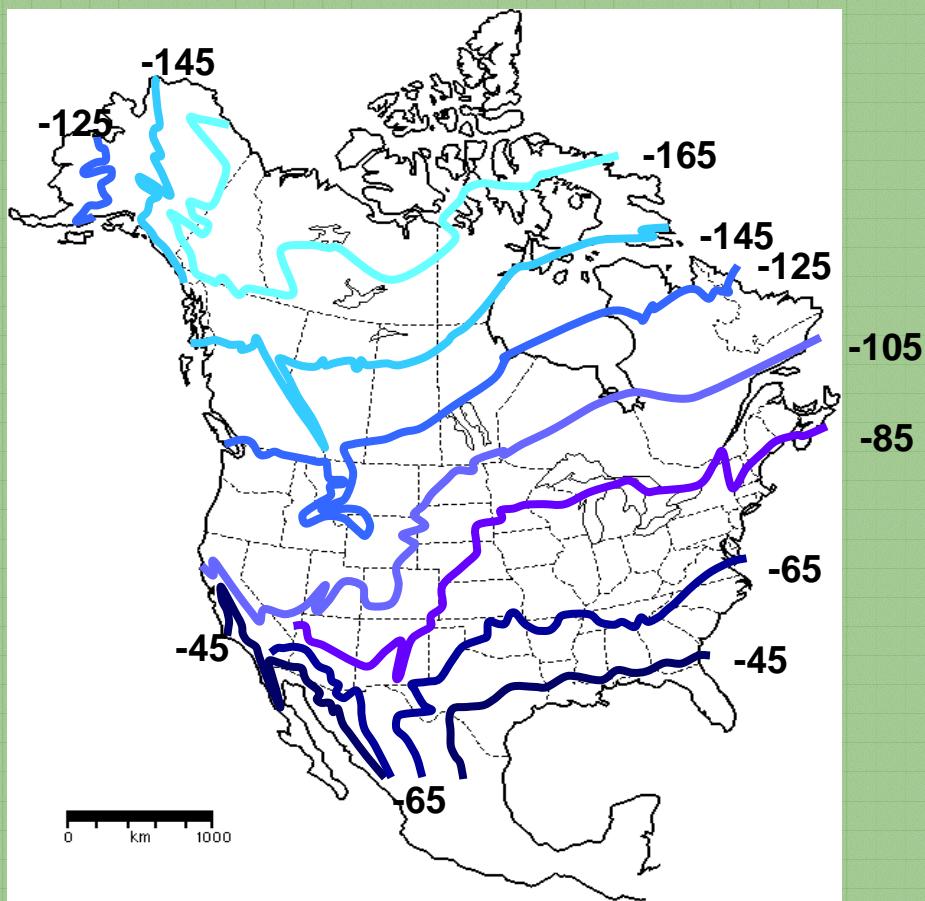
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Does this pattern appear in bird feathers?



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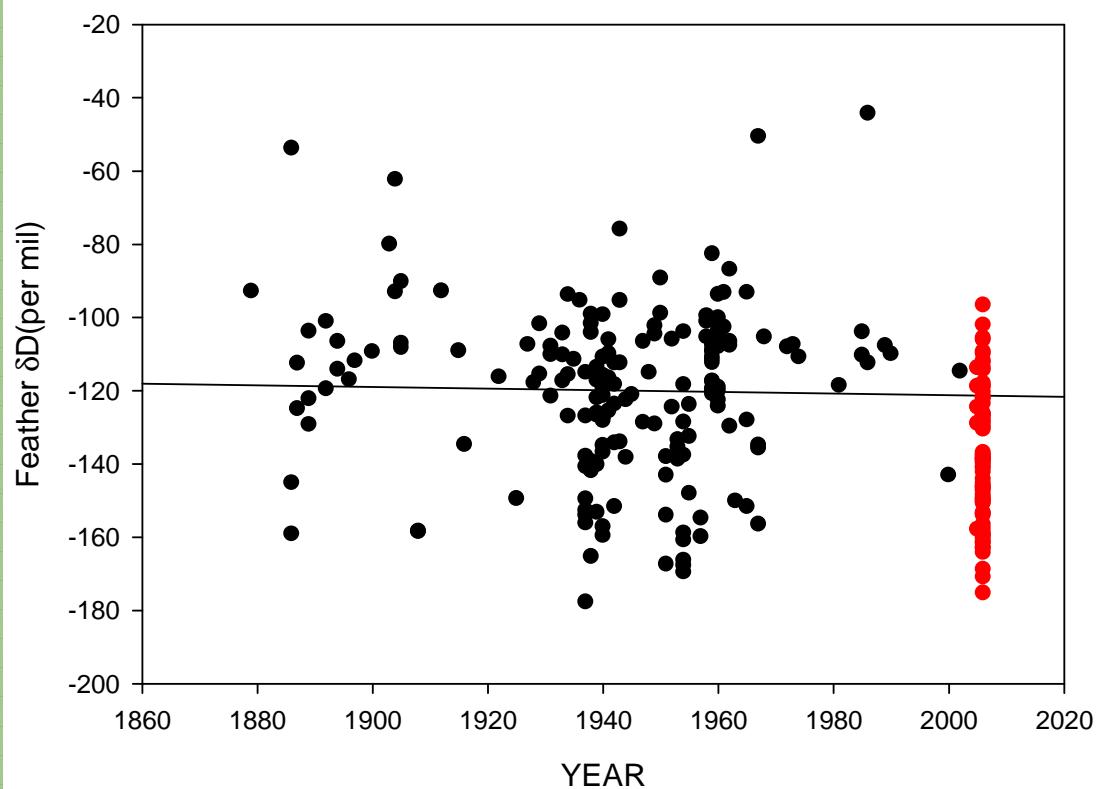
Passerine picture ...



Museum sample

Location	No	Collection dates	Museum
Georgia	13	1933-1974	Georgia, MVZ
Mississippi	43	1925-1967	Jackson Museum, Oxford
Missouri	2	1886	Philadelphia
North Carolina	8	1887-1897	Philadelphia, MVZ
Pennsylvania	1	1889	Philadelphia
South Carolina	3	1905	Philadelphia
Tennessee	1	1968	Georgia
Texas	1	1879	Philadelphia
Virginia	1	1892	Philadelphia
Pending	126	pending	N. Carolina, MVZ, Philadelphia, LSU, NMNH

All data

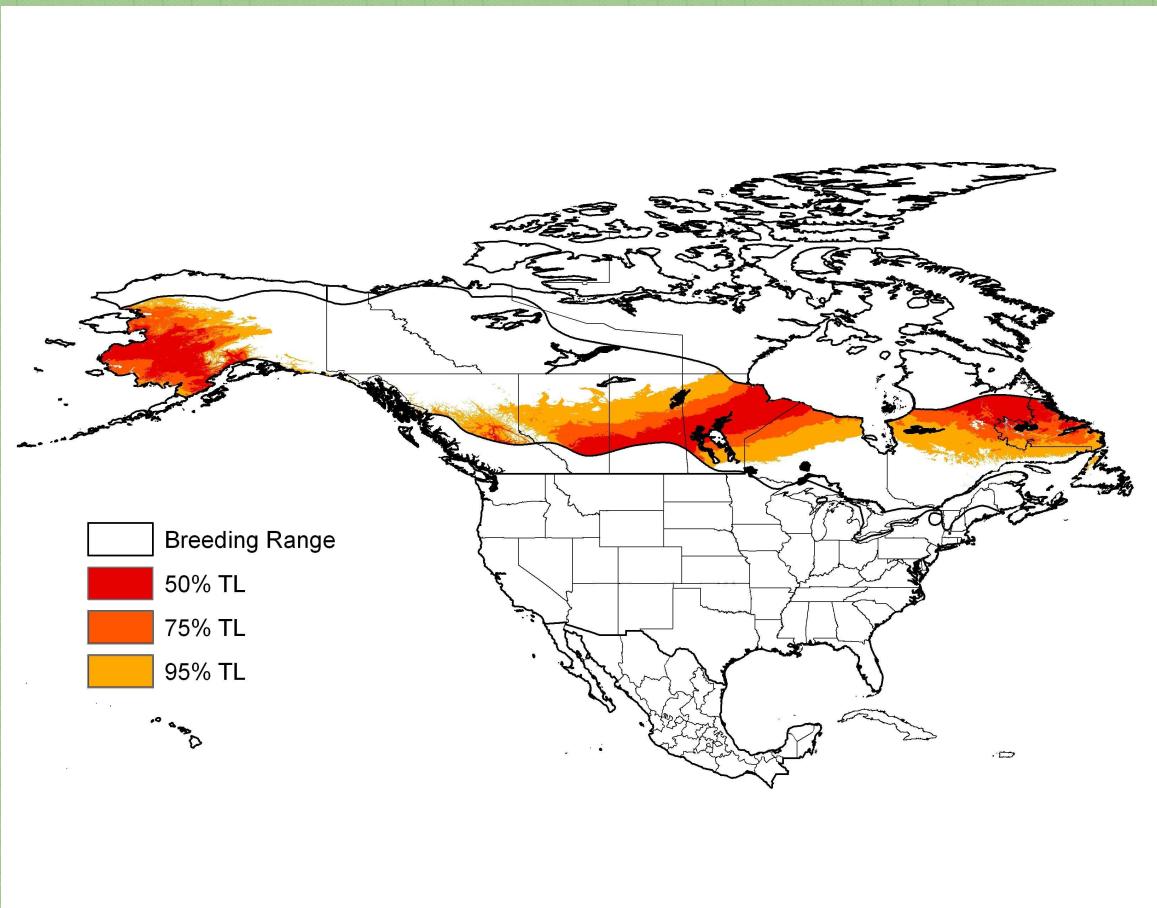


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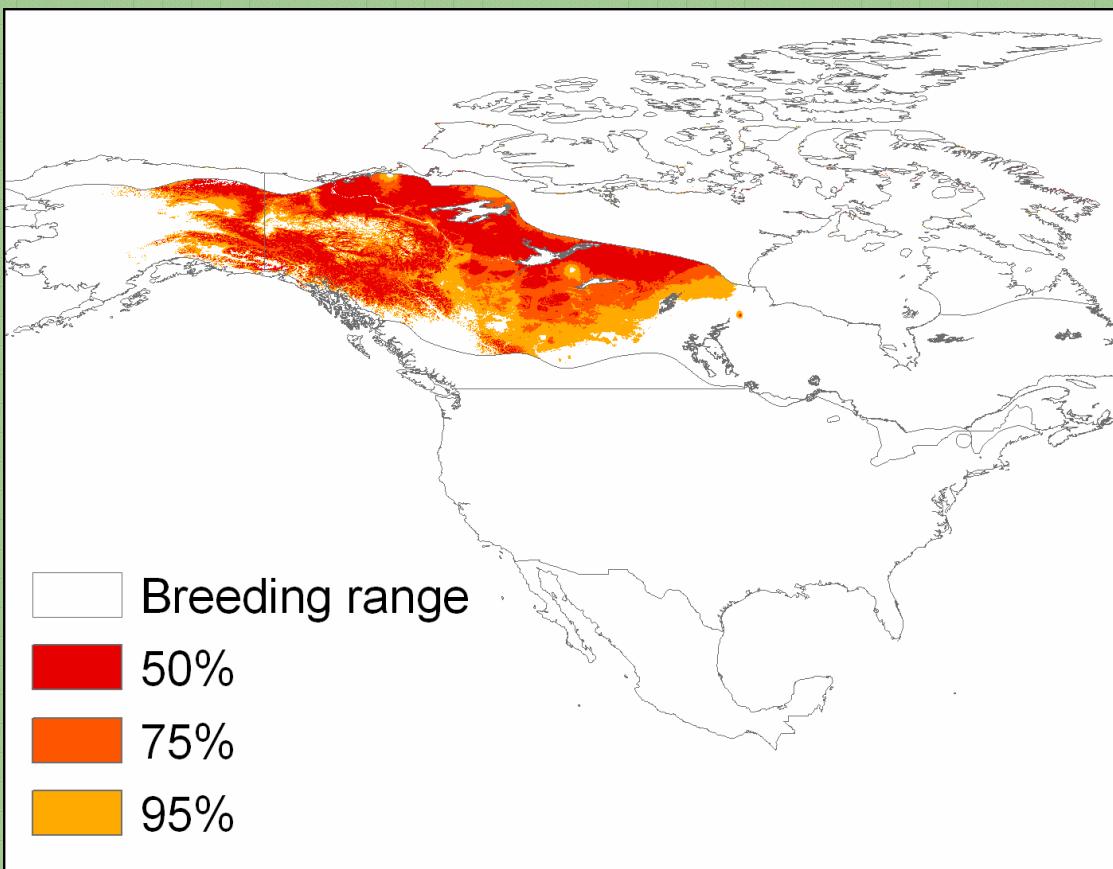
Histroical vs. modern ...

Sample	<i>n</i>	Mean \pm SD δD (%)	50% Tolerance		75% Tolerance		95% Tolerance	
			Lower	Upper	Lower	Upper	Lower	Upper
Historical	199	-126.3 \pm 20.9	-133.3	-119.4	-138.2	-114.5	-146.5	-106.2
Modern	75	-137.5 \pm 18.7	-143.6	-131.3	-148.0	-126.9	-155.4	-199.5

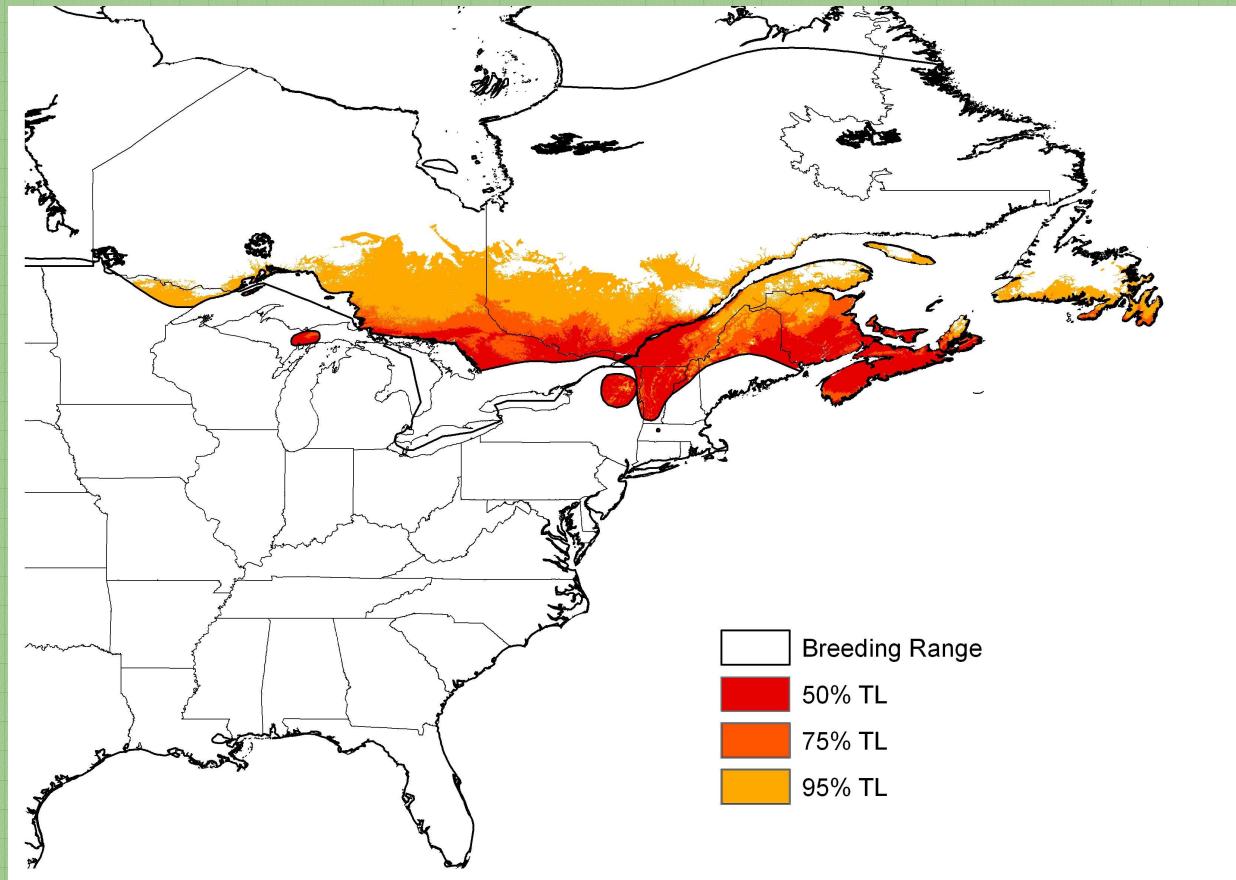
Historical origins



Modern origins ...



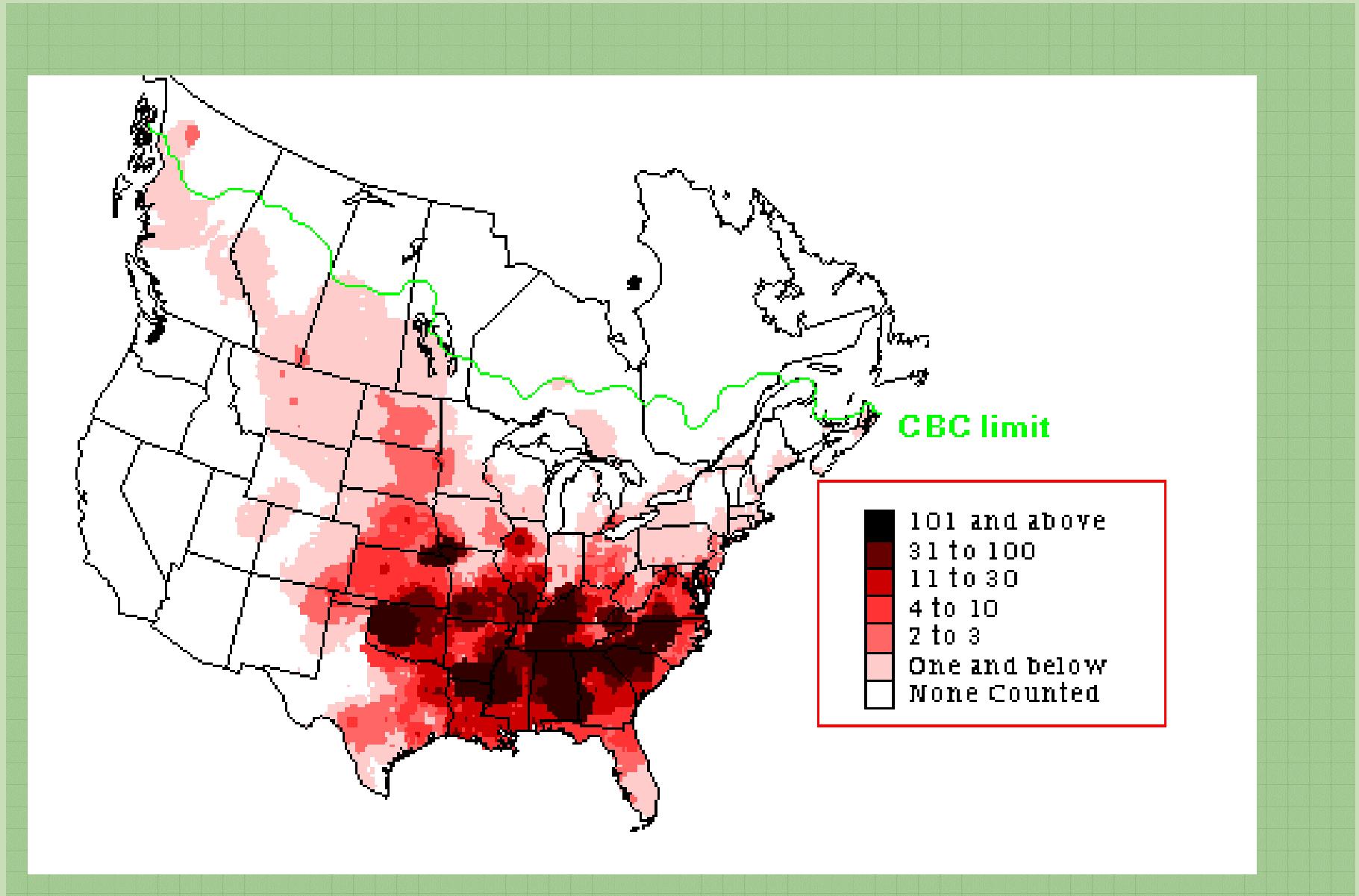
South Carolina sample ...



Conclusions

- Rusty Blackbird distributions have shifted to the northwest ...
 - *Wetland degradation in the central and eastern boreal?*
 - *Have we simply not sampled the modern population well enough?*





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