

**Conservation Estate Portfolio for the  
Savannah sparrow  
(*Passerculus sandwichensis*)**

**Bird Conservation Region 23  
(Prairie Hardwood Transition)**



[http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Savannah\\_Sparrow.html](http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Savannah_Sparrow.html)

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February 2007

## **Preface**

Mapped patterns in the distribution and abundance of rare or focal species can be useful in identifying priority areas for conservation. We have modeled and mapped rare bird abundance in the upper midwestern United States for more than a dozen species of conservation concern. Our work has focused on the Prairie Hardwood Transition (Bird Conservation Region 23). This portfolio describes the conservation context of one species in the Prairie Hardwood Transition. We outlined areas of peak predicted abundance relative to federal, tribal, and state managed lands. This juxtaposition of predicted relative abundance and land management authorities is the conservation estate for this focal species. Identifying these land management authorities relative to areas in which the species is most abundant may help to focus conservation resources in those areas in which they may do the most good.

## **Data References**

Major Cities depicted using data acquired from the National Atlas of the United States web site (<http://nationalatlas.gov/mld/citiesx.html>). Major cities were determined to be those that had a population in 2000 of greater than 5,000 persons.

Major Roads depicted using data acquired from the National Atlas of the United States web site (<http://nationalatlas.gov/mld/roadtrl.html>). Roads were determined to be Major if they were classified as *Principal Highway* or *Limited Access Highway* according to the data field "Feature".

States data were created by Geographic Data Technology, Inc. This data was published by Environmental Systems Research Institute (ESRI) and made available for distribution.

Counties data were acquired from the National Atlas of the United States web site (<http://www.nationalatlas.gov/mld/countyp.html>).

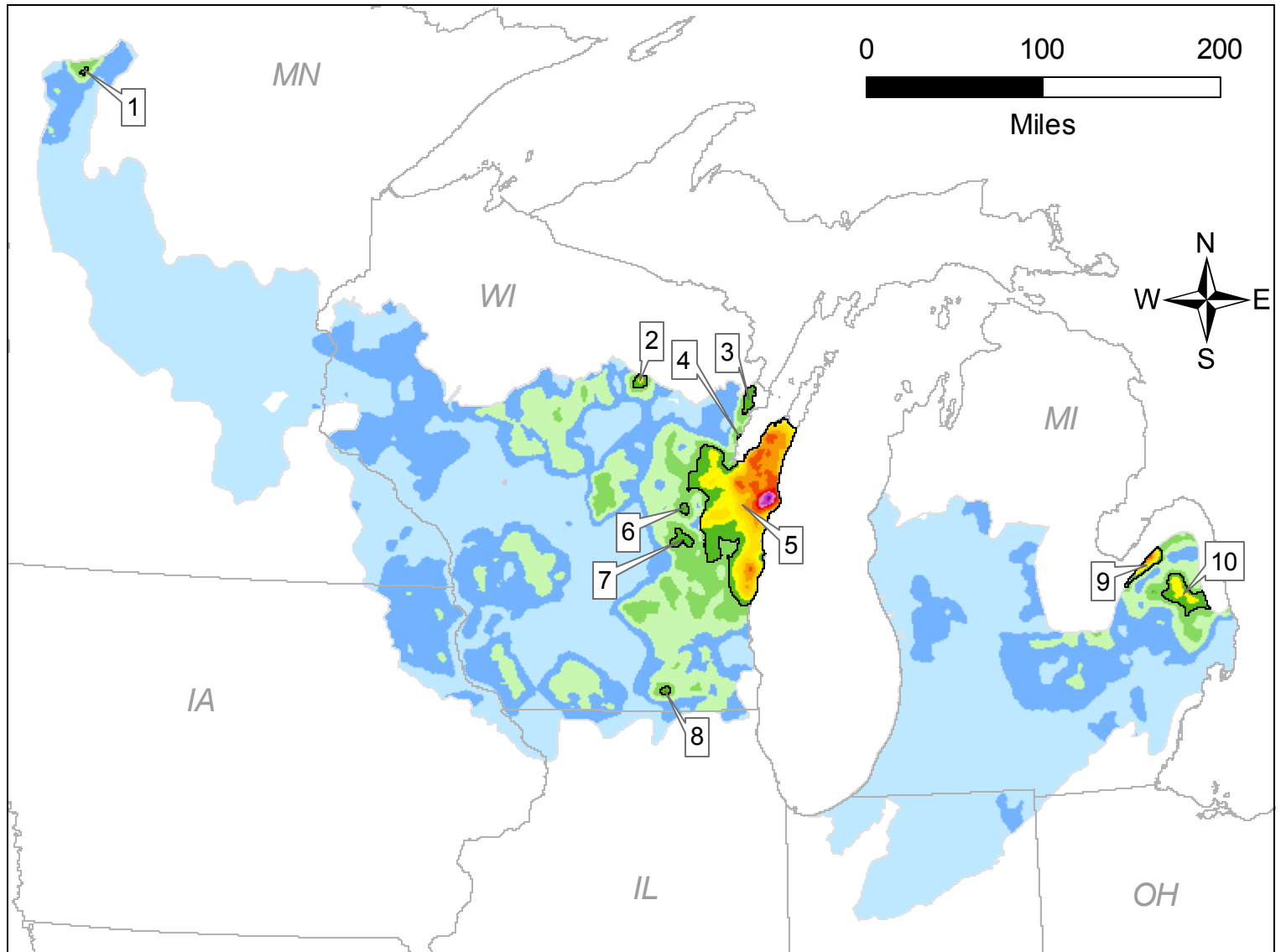
Federal and State lands depicted using Protected Areas Database, version 4: (<http://www.consbio.org/cbi/projects/PAD/index.htm>). Federal and State lands were identified based upon the data field "Owner".

Tribal lands depicted using data acquired from the National Atlas of the United States web site (<http://www.nationalatlas.gov/mld/indlanp.html>).

## **Methodology**

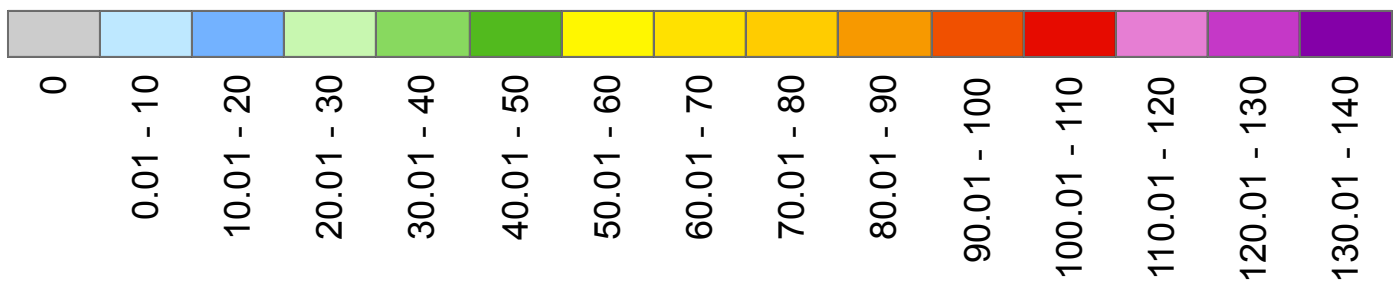
For detailed methodology on avian abundance modeling, see: [http://www.umesc.er.usgs.gov/terrestrial/migratory\\_birds/bird\\_conservation\\_methods.html](http://www.umesc.er.usgs.gov/terrestrial/migratory_birds/bird_conservation_methods.html)

# Predicted Relative Abundance and 10-Highest Peaks of Predicted Relative Abundance for the Savannah Sparrow



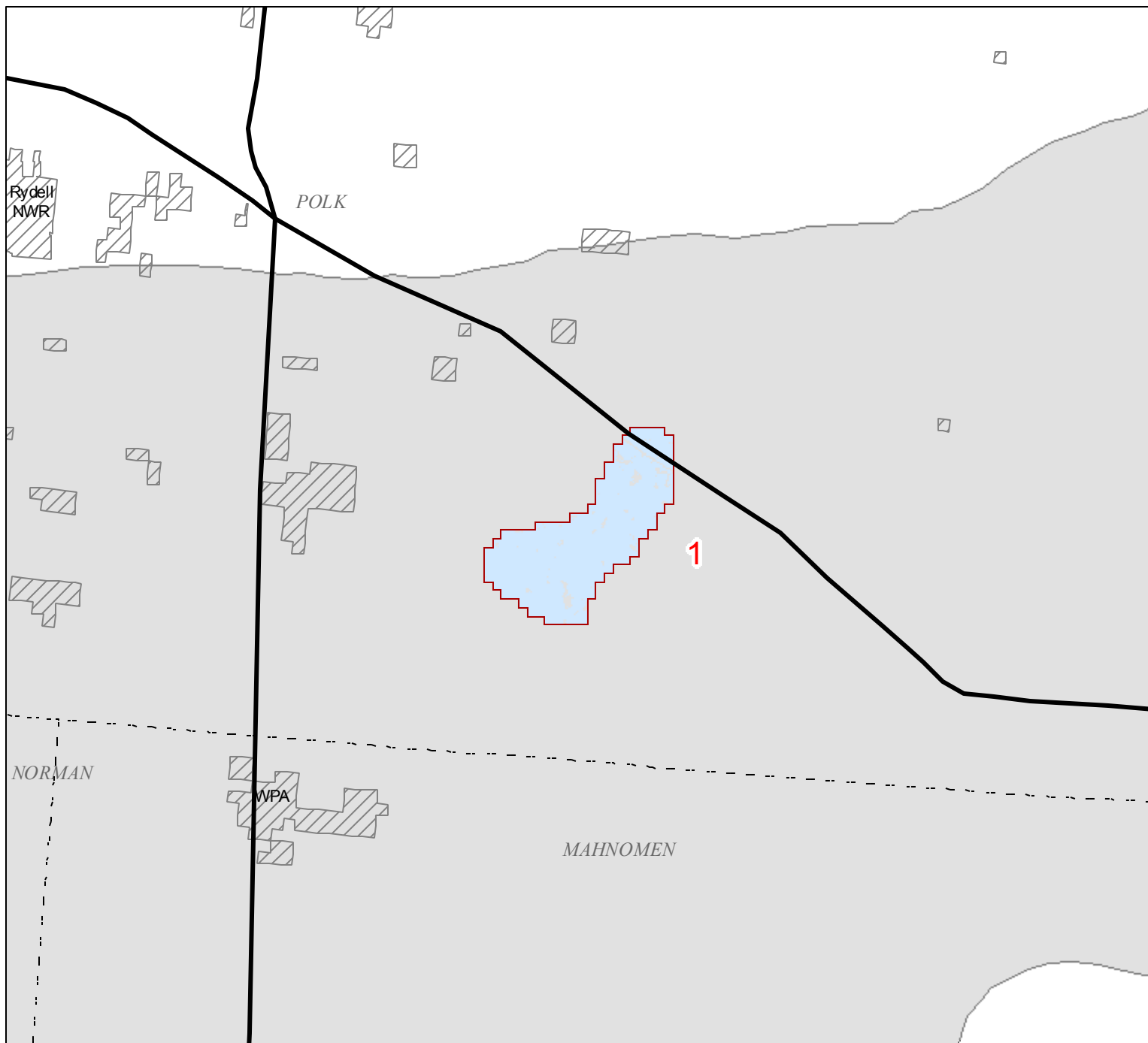
- Top 10 Hotspots
- States
- Bird Conservation Region (BCR) 23 Boundary

Savannah Sparrow Relative Abundance  
(Predicted Mean Count / Breeding Bird Survey)



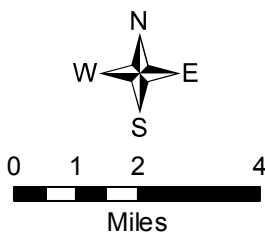
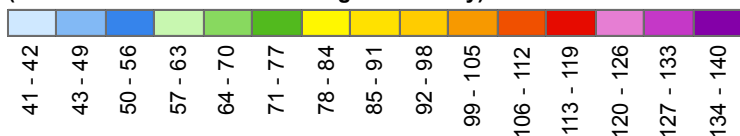
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlayed with Federal Lands

Hotspot 1

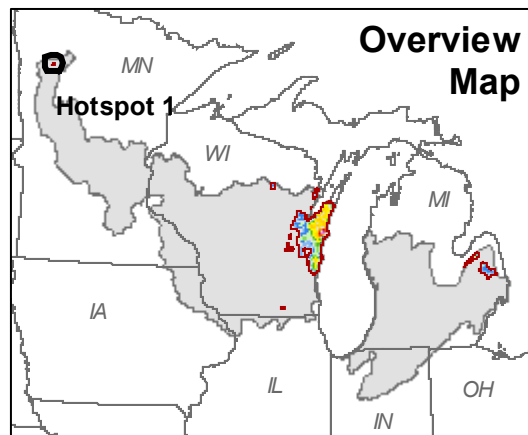


- Major Cities
- Major Roads
- ▭ Hotspot Boundaries
- ▭ States
- - - Counties
- ▭ Bird Conservation Region (BCR) 23 Boundary
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**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)

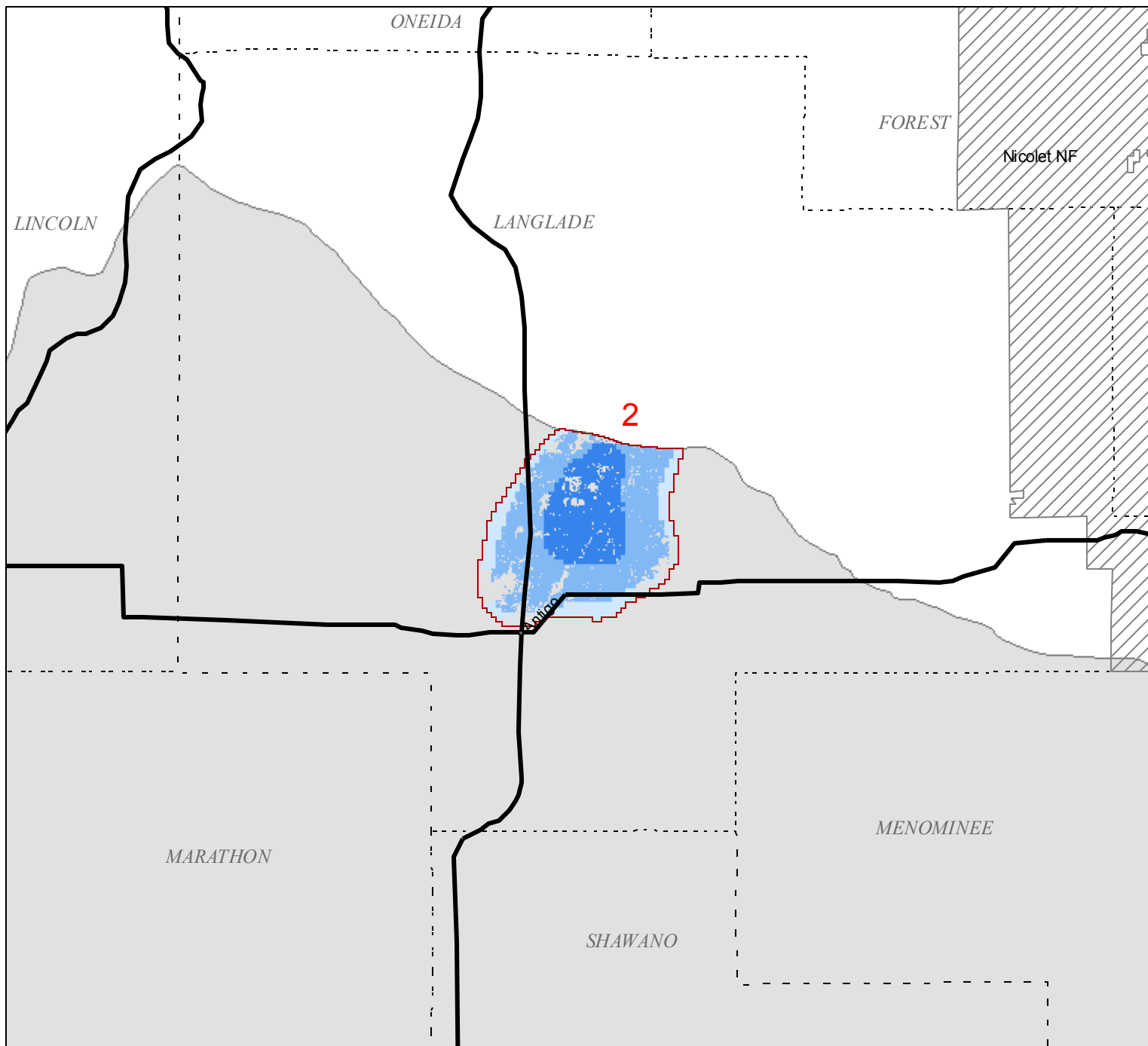


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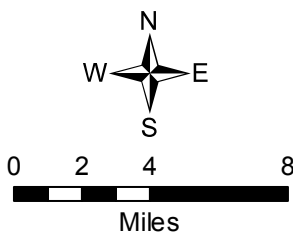
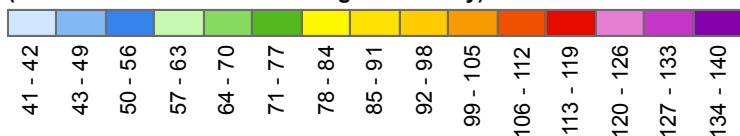
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlaid with Federal Lands

Hotspot 2

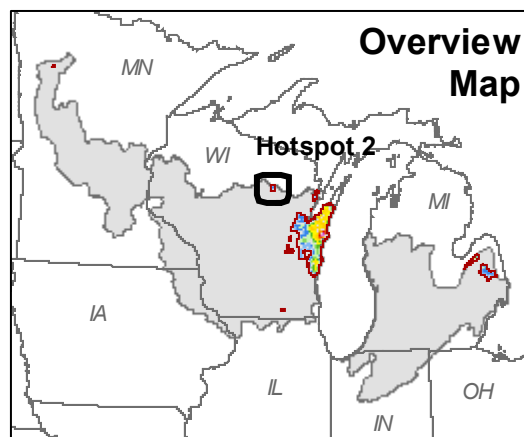


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**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)

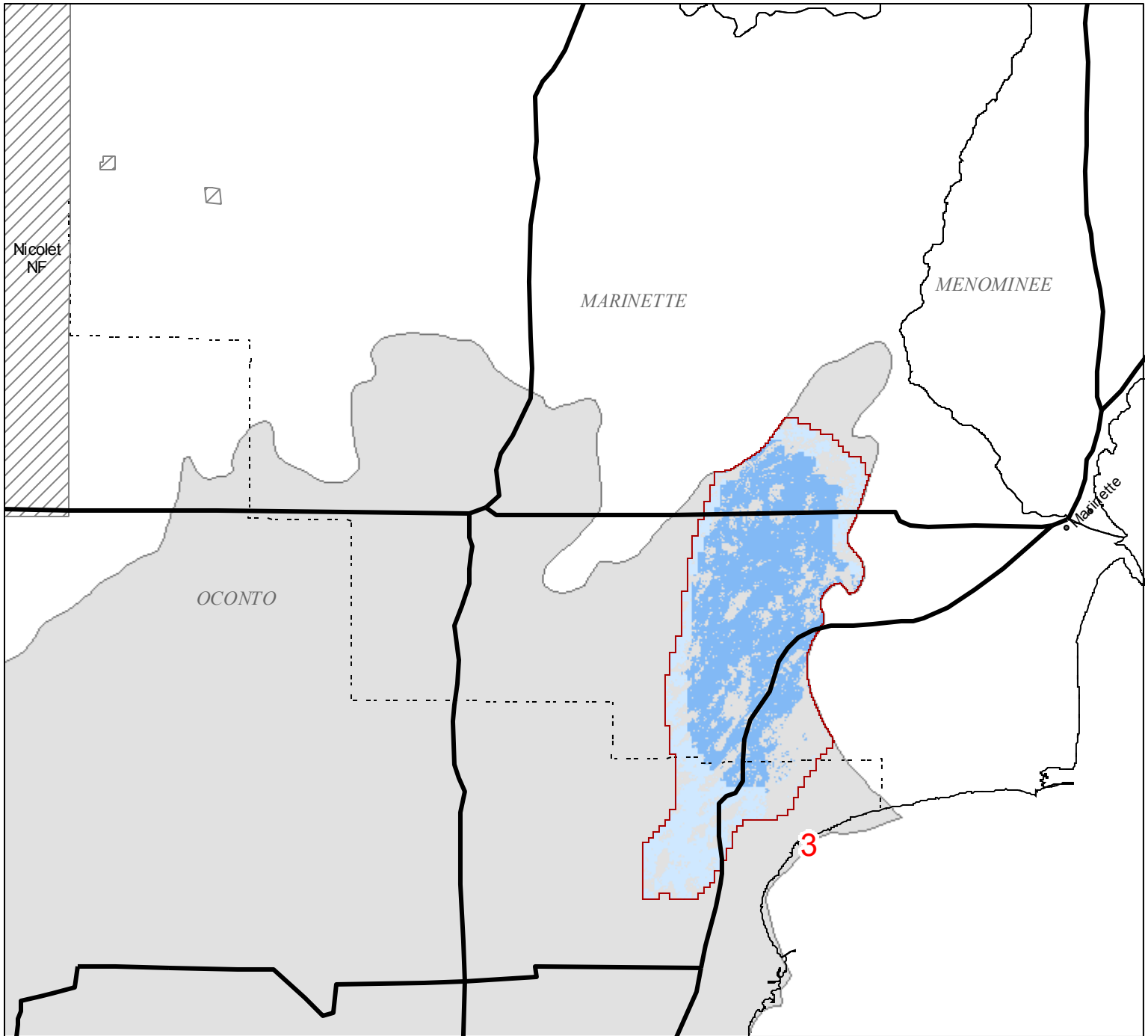


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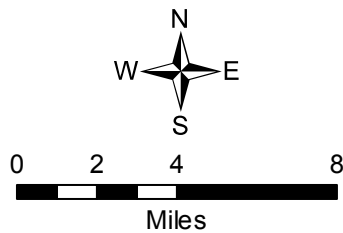
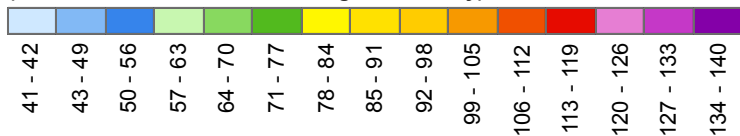
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Hotspot 3

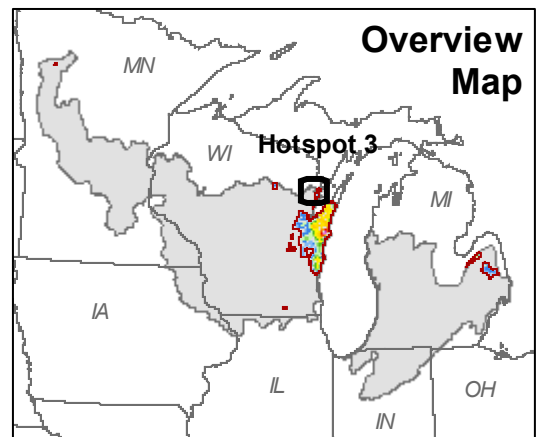


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**Savannah Sparrow Relative Abundance**  
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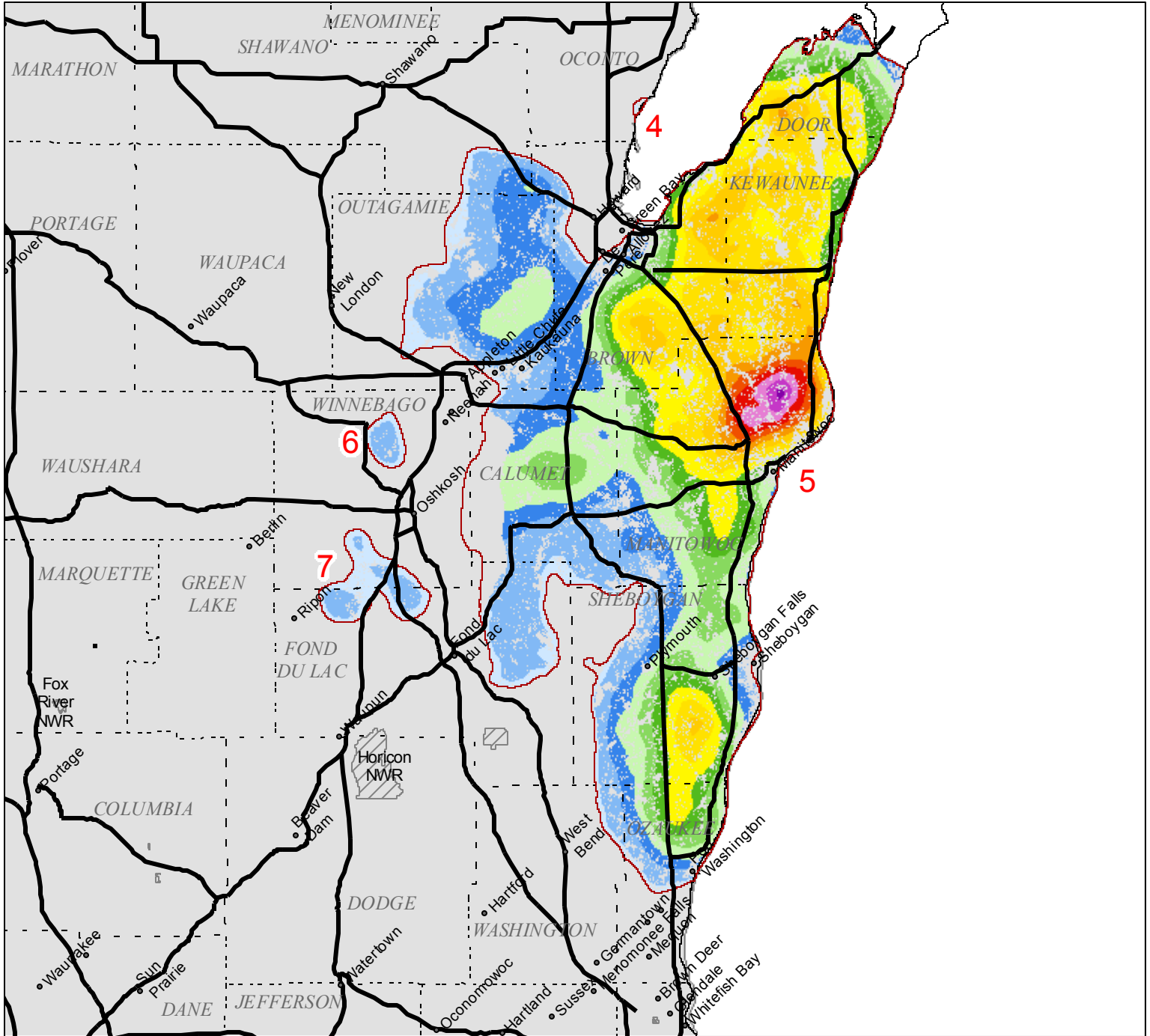


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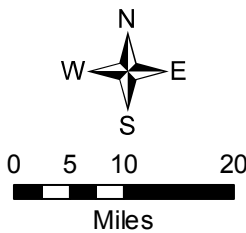
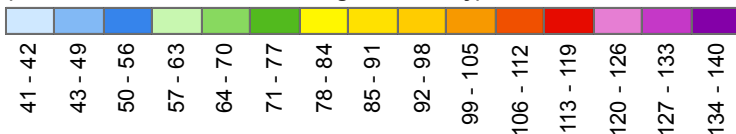
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Hotspots 4, 5, 6, and 7

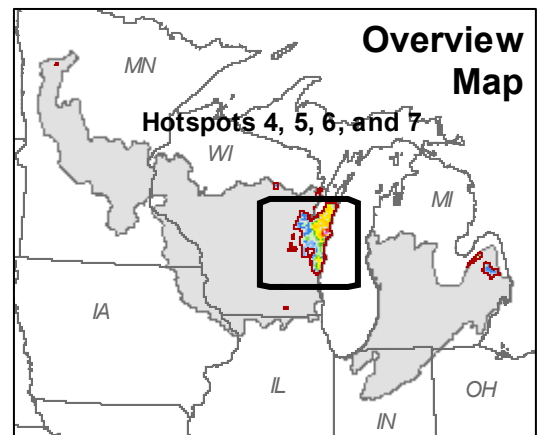


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**Savannah Sparrow Relative Abundance**  
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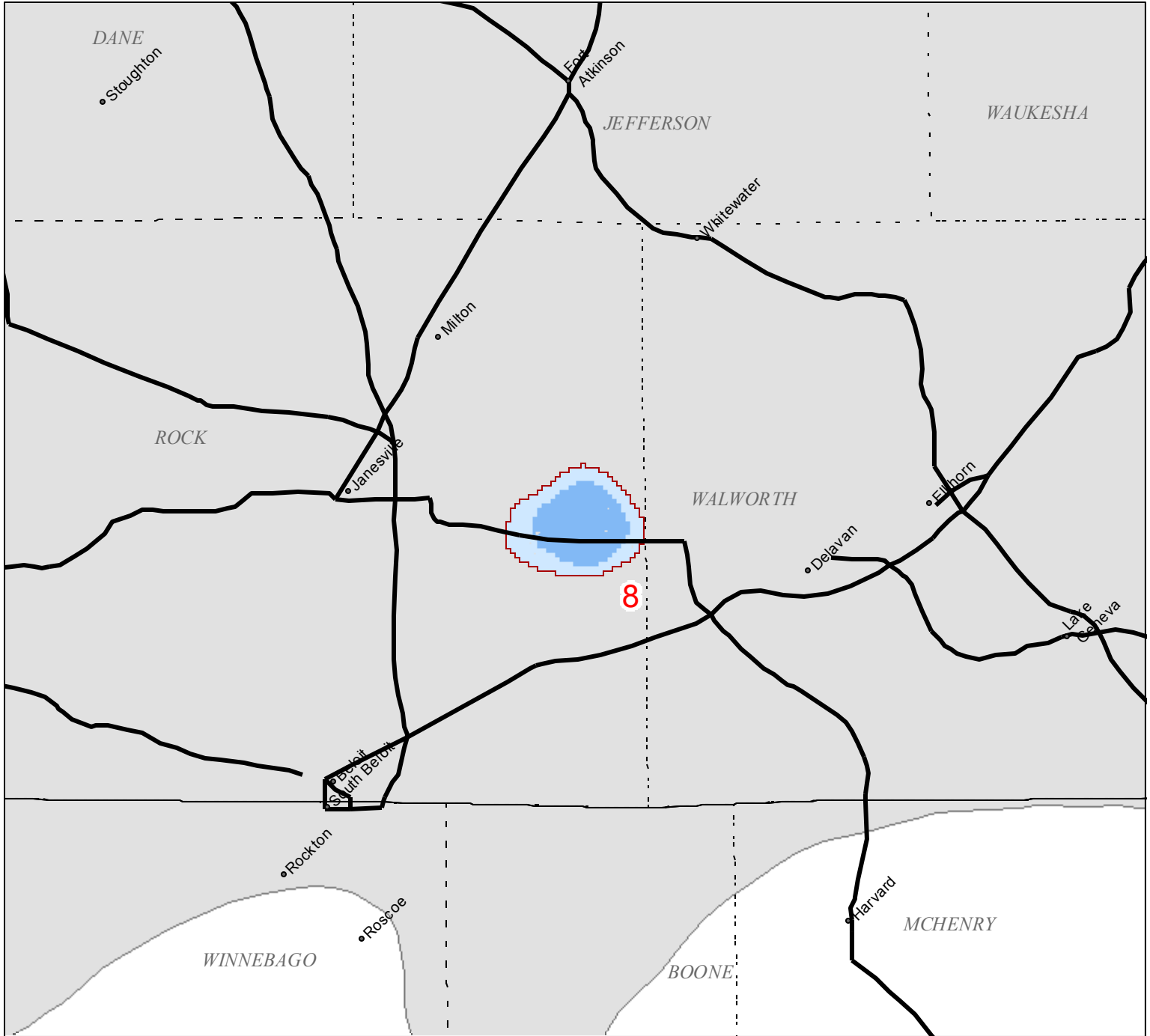
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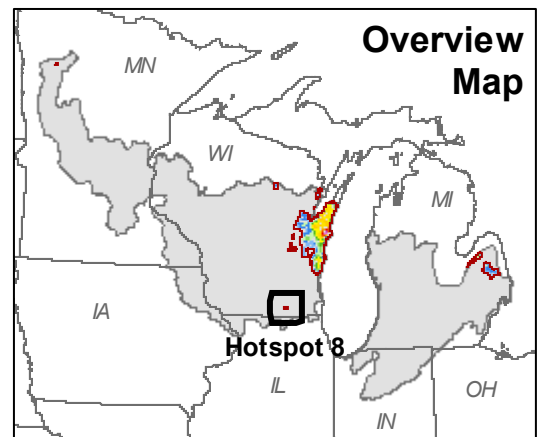
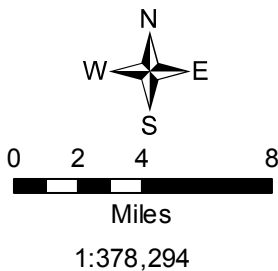
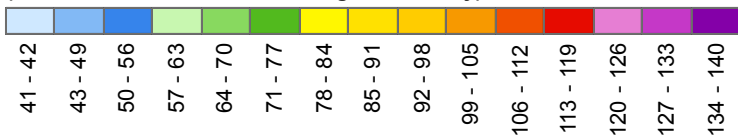
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Hotspot 8



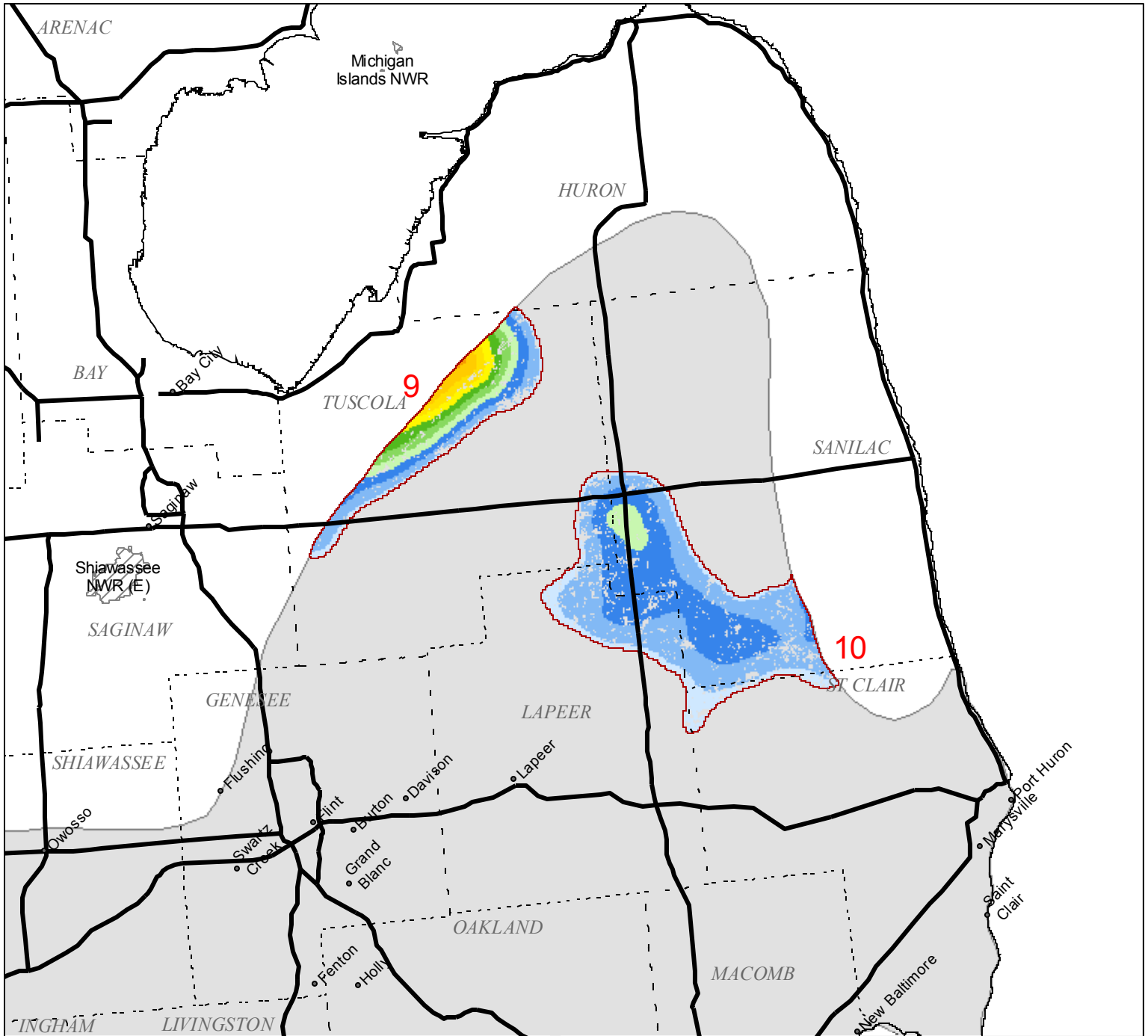
- Major Cities
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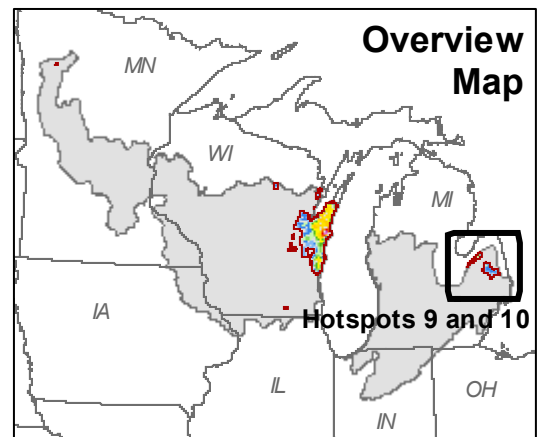
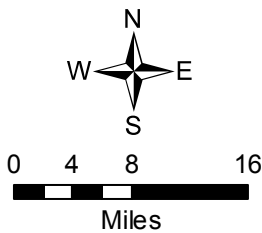
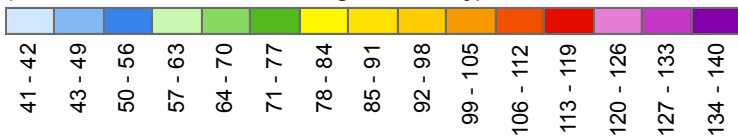
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlaid with Federal Lands

Hotspots 9 and 10



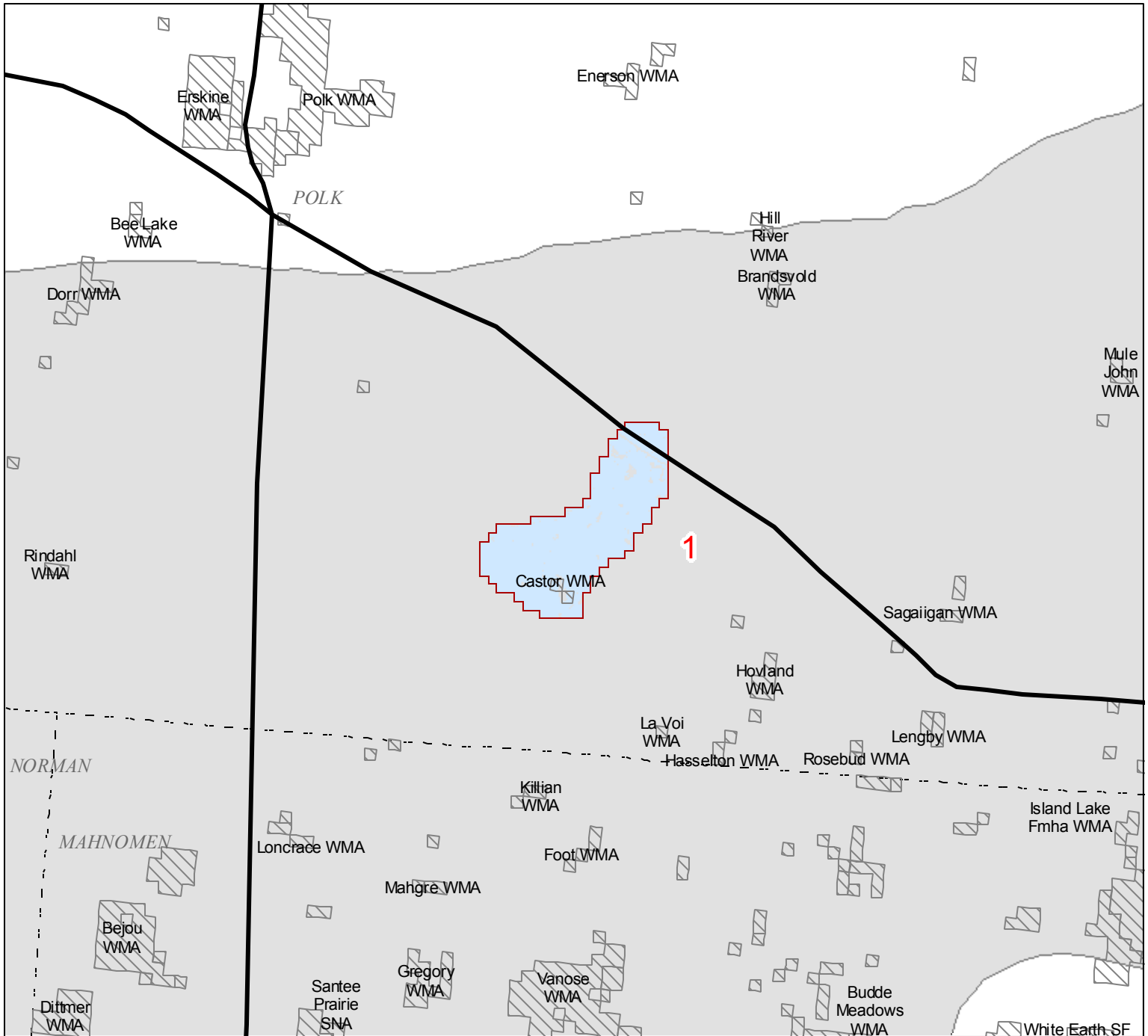
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**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)



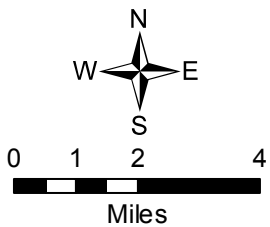
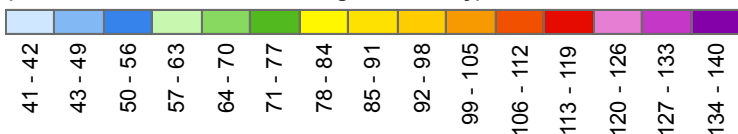
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlaid with State Lands

## Hotspot 1

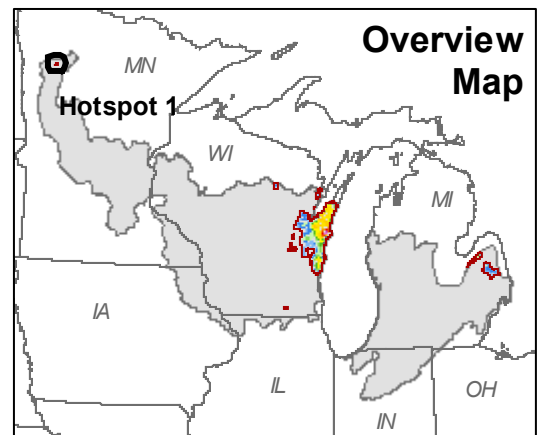


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**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)

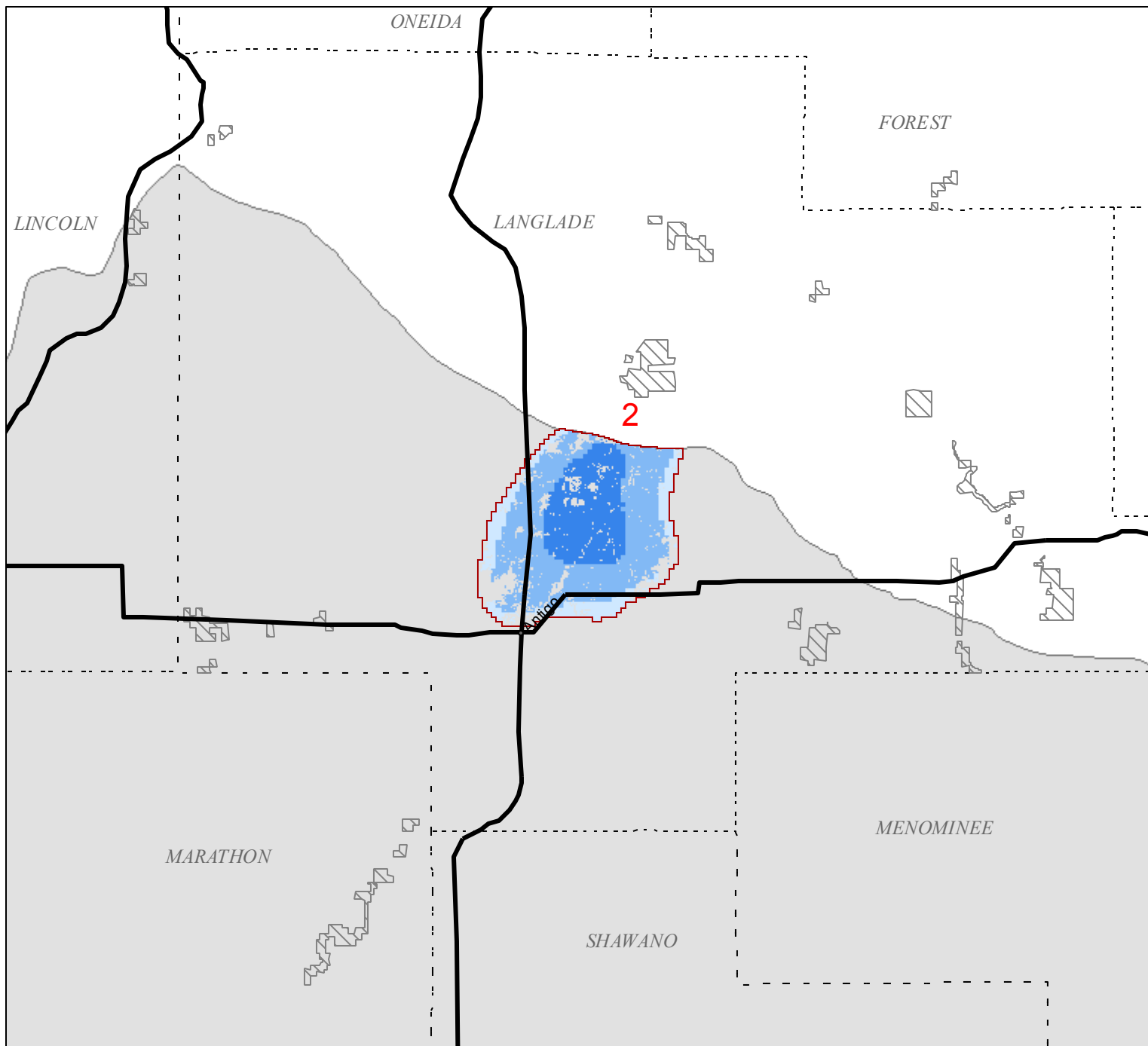


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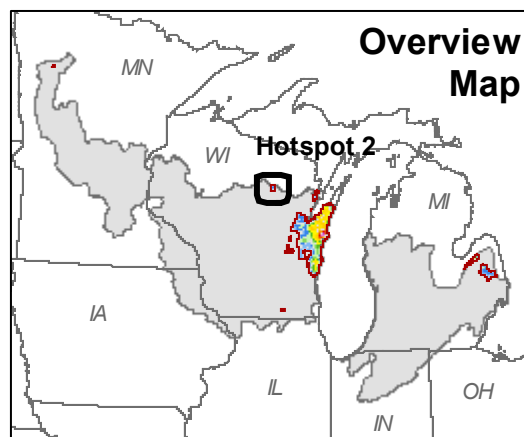
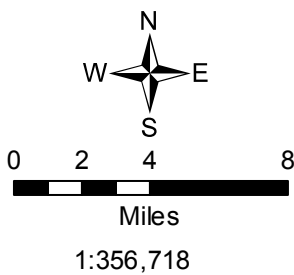
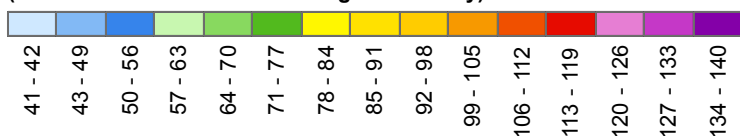
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Hotspot 2



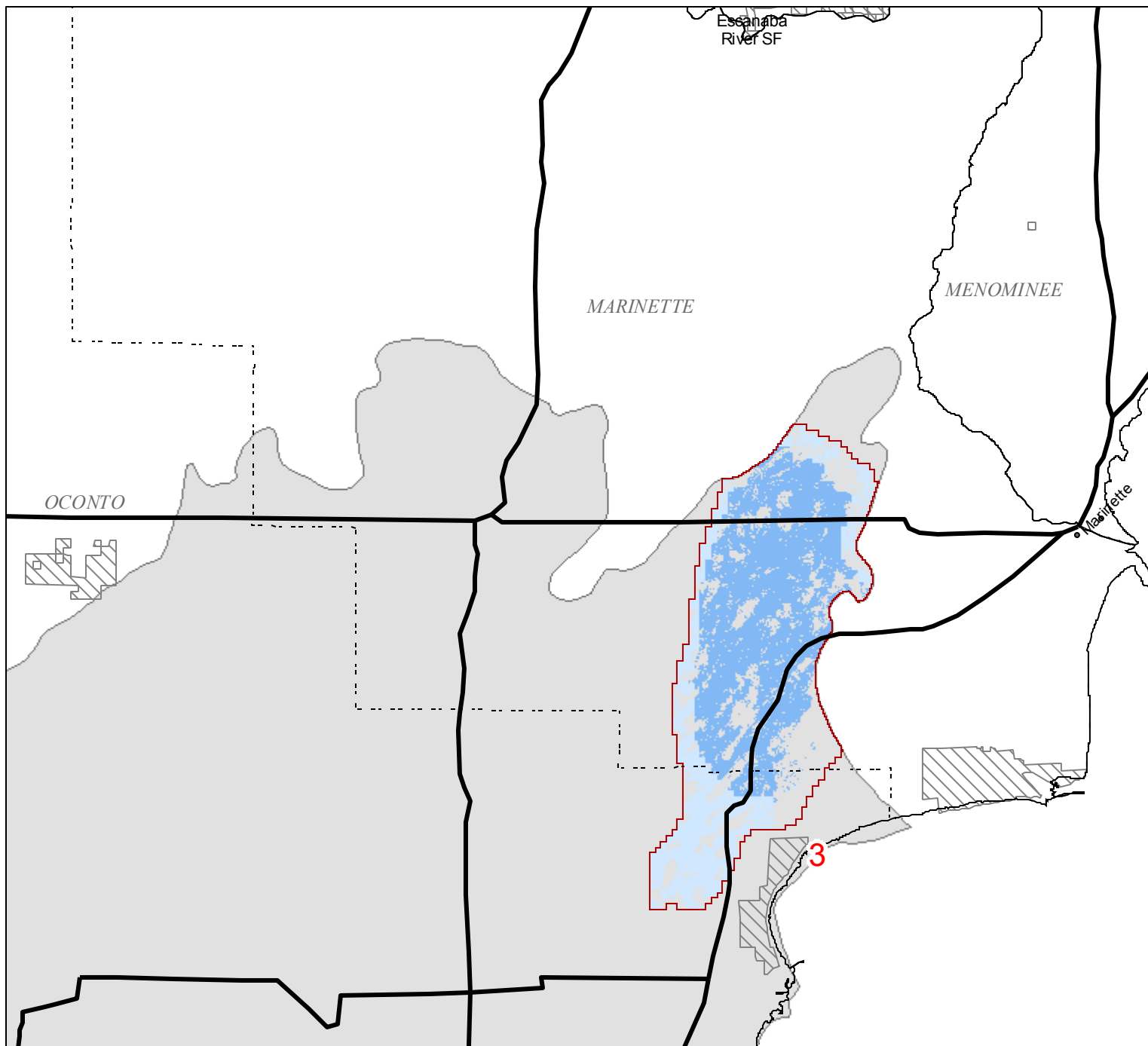
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### Savannah Sparrow Relative Abundance (Predicted Mean Count / Breeding Bird Survey)



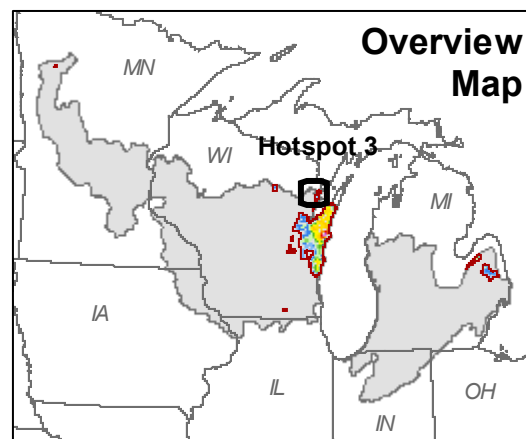
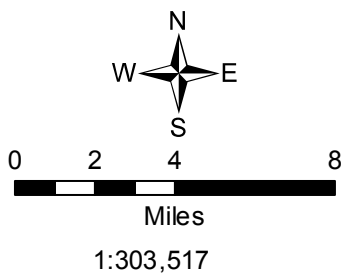
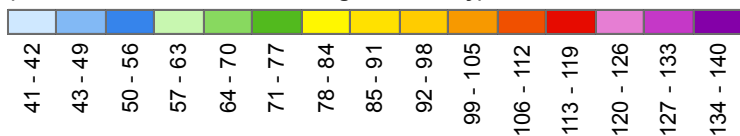
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlayed with State Lands

Hotspot 3



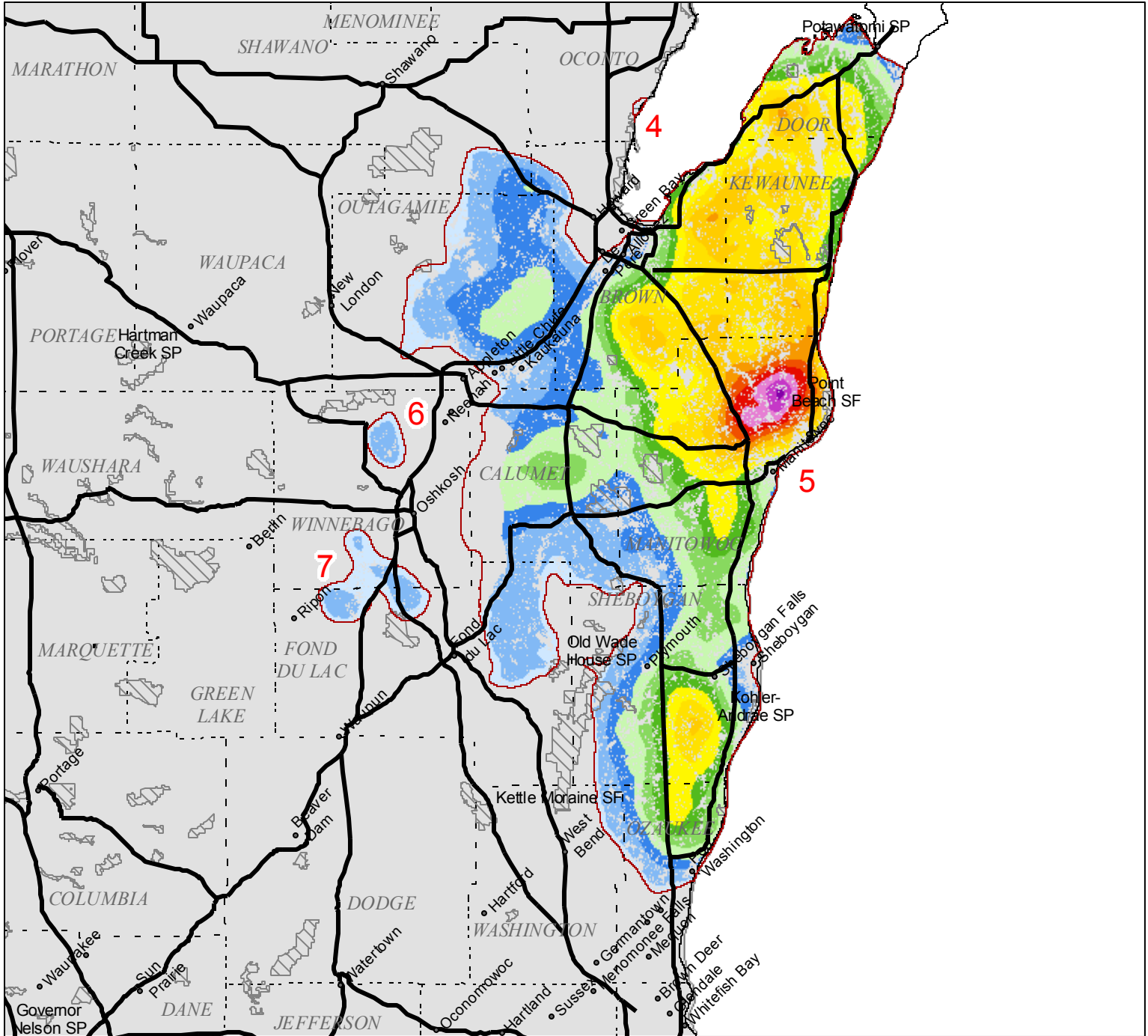
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**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)



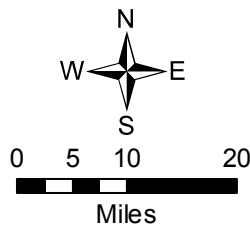
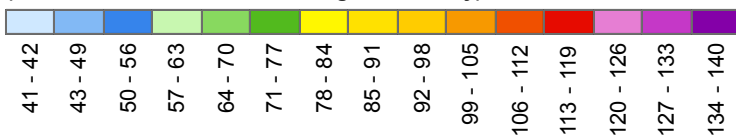
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Hotspots 4, 5, 6, and 7

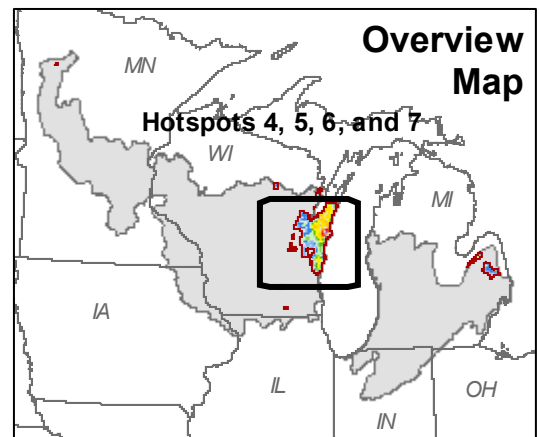


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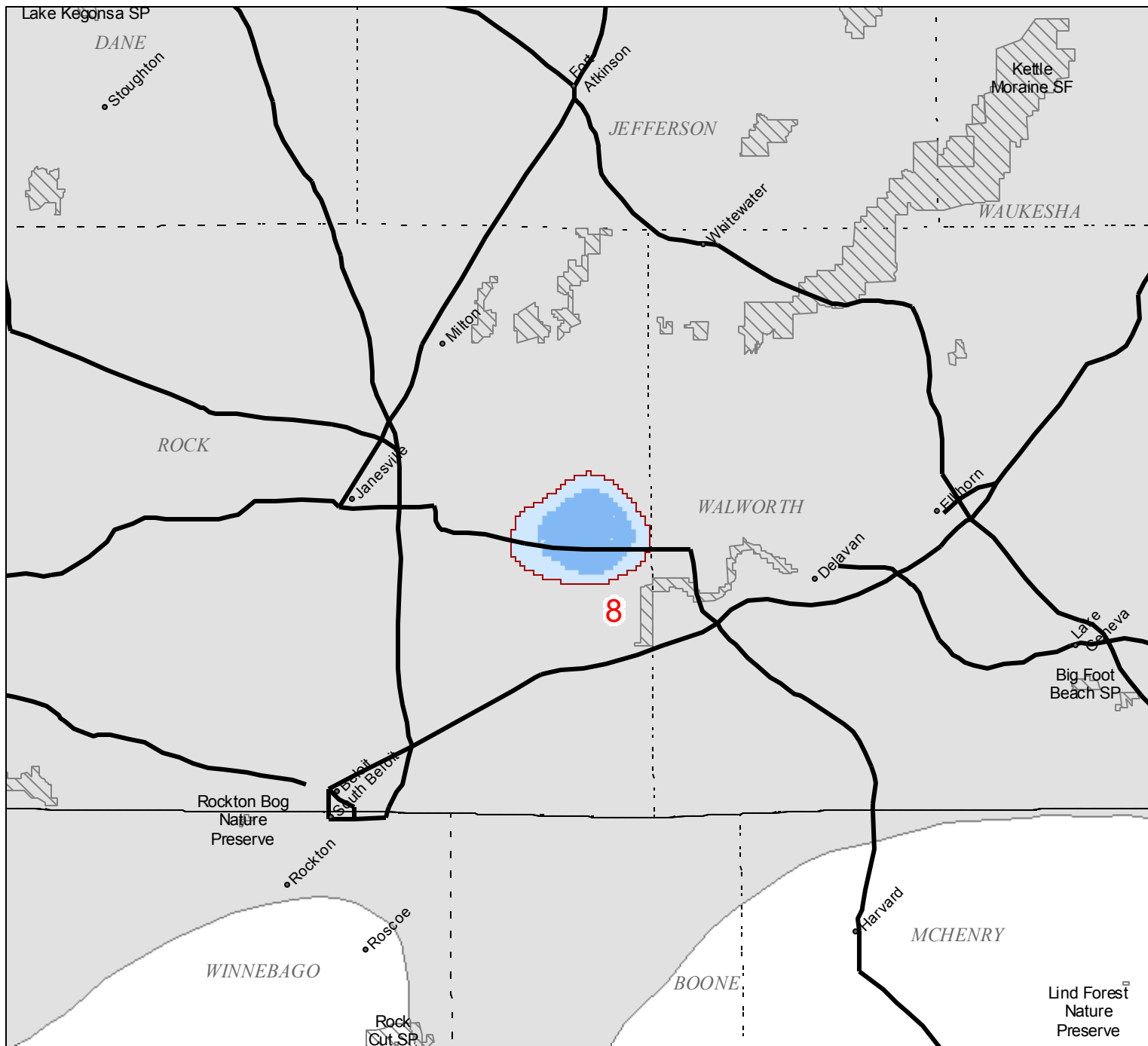


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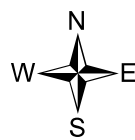
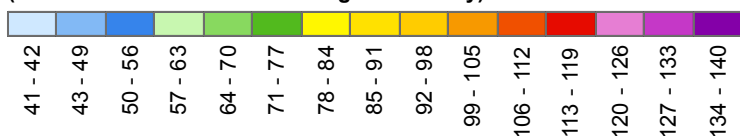
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlayed with State Lands

## Hotspot 8

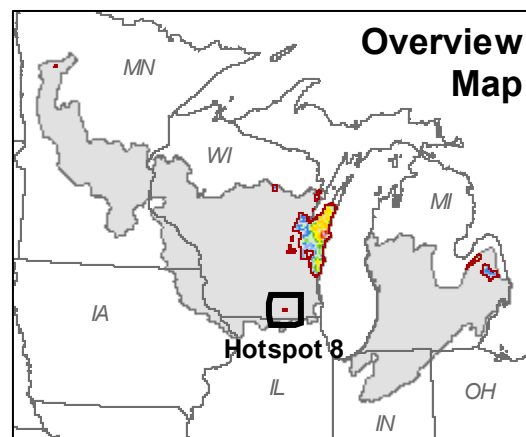


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### Savannah Sparrow Relative Abundance (Predicted Mean Count / Breeding Bird Survey)

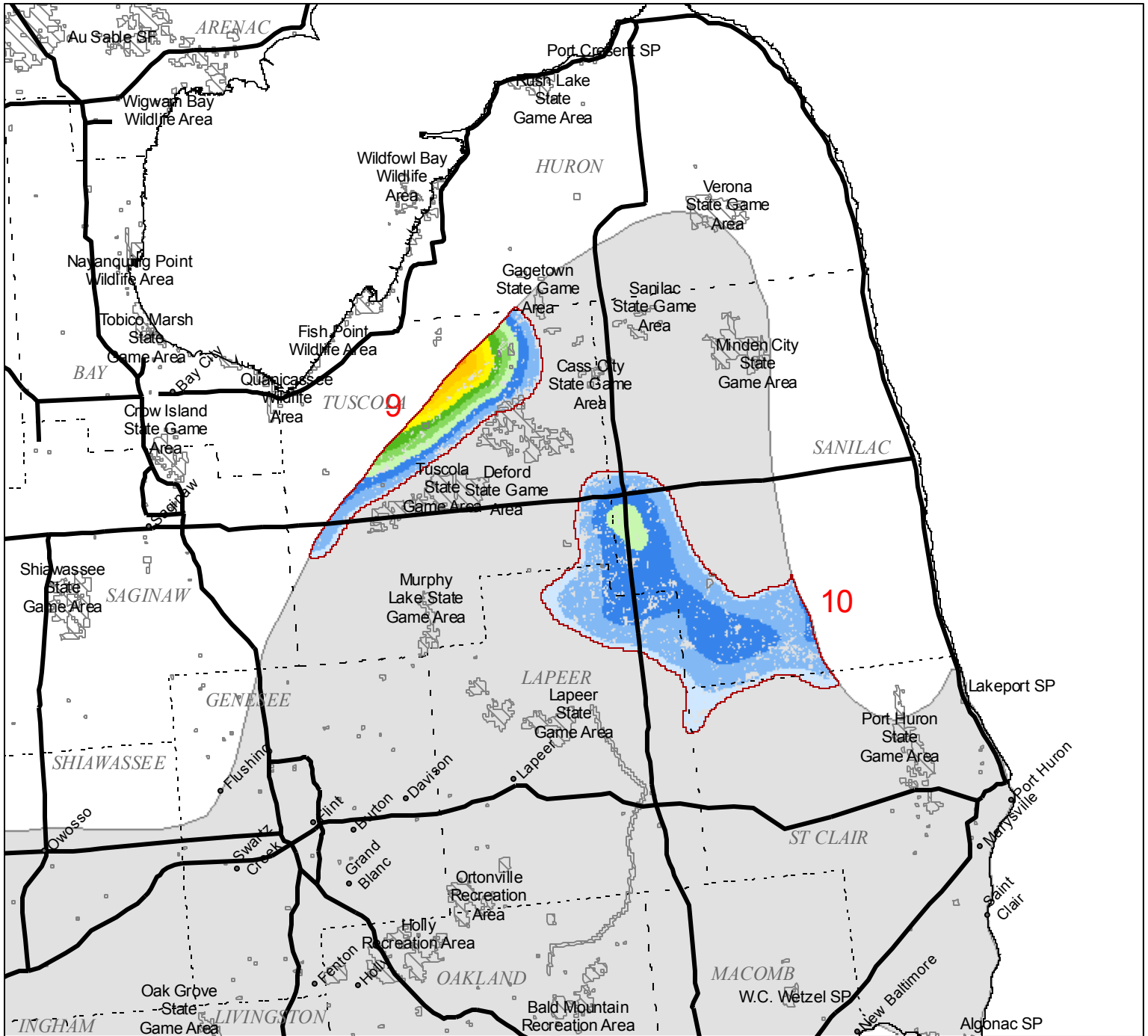


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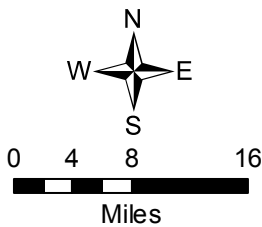
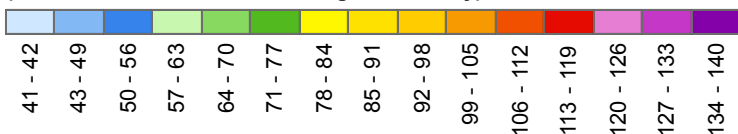
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## Hotspots 9 and 10

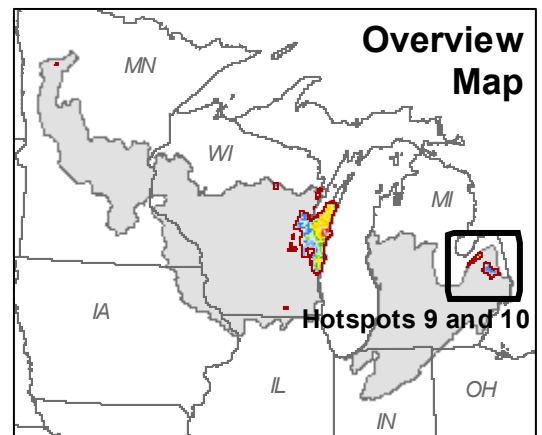


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**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)



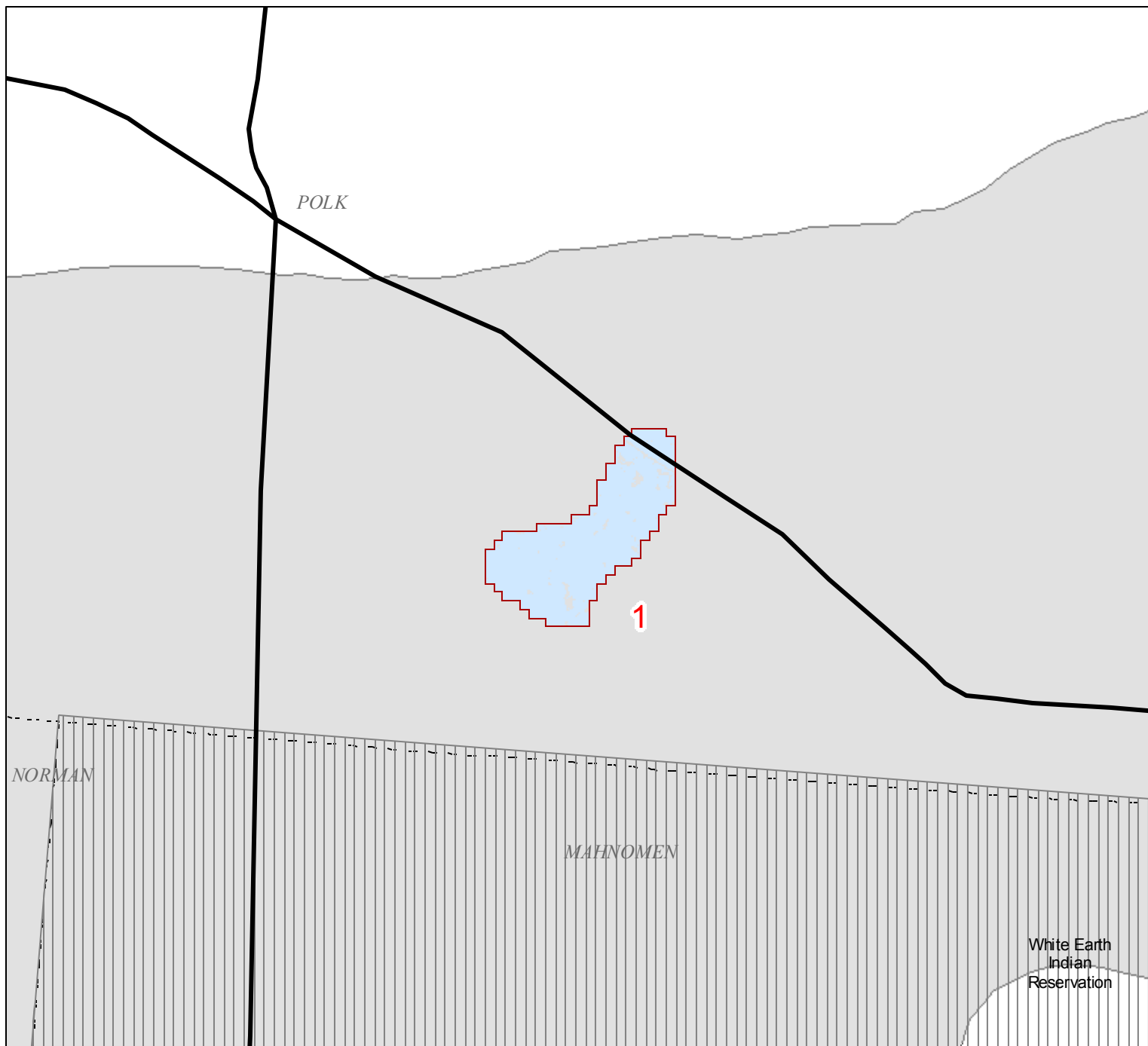
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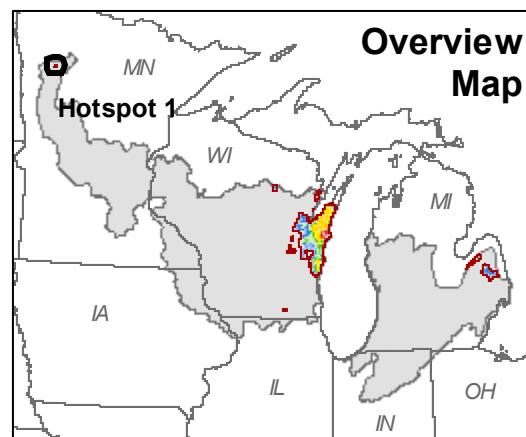
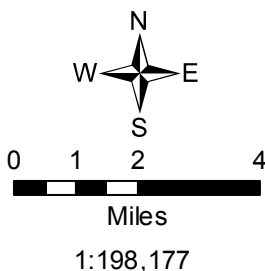
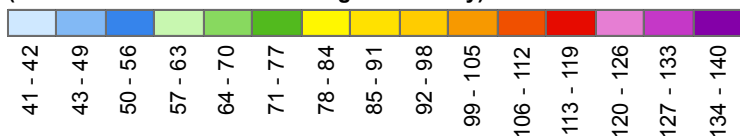
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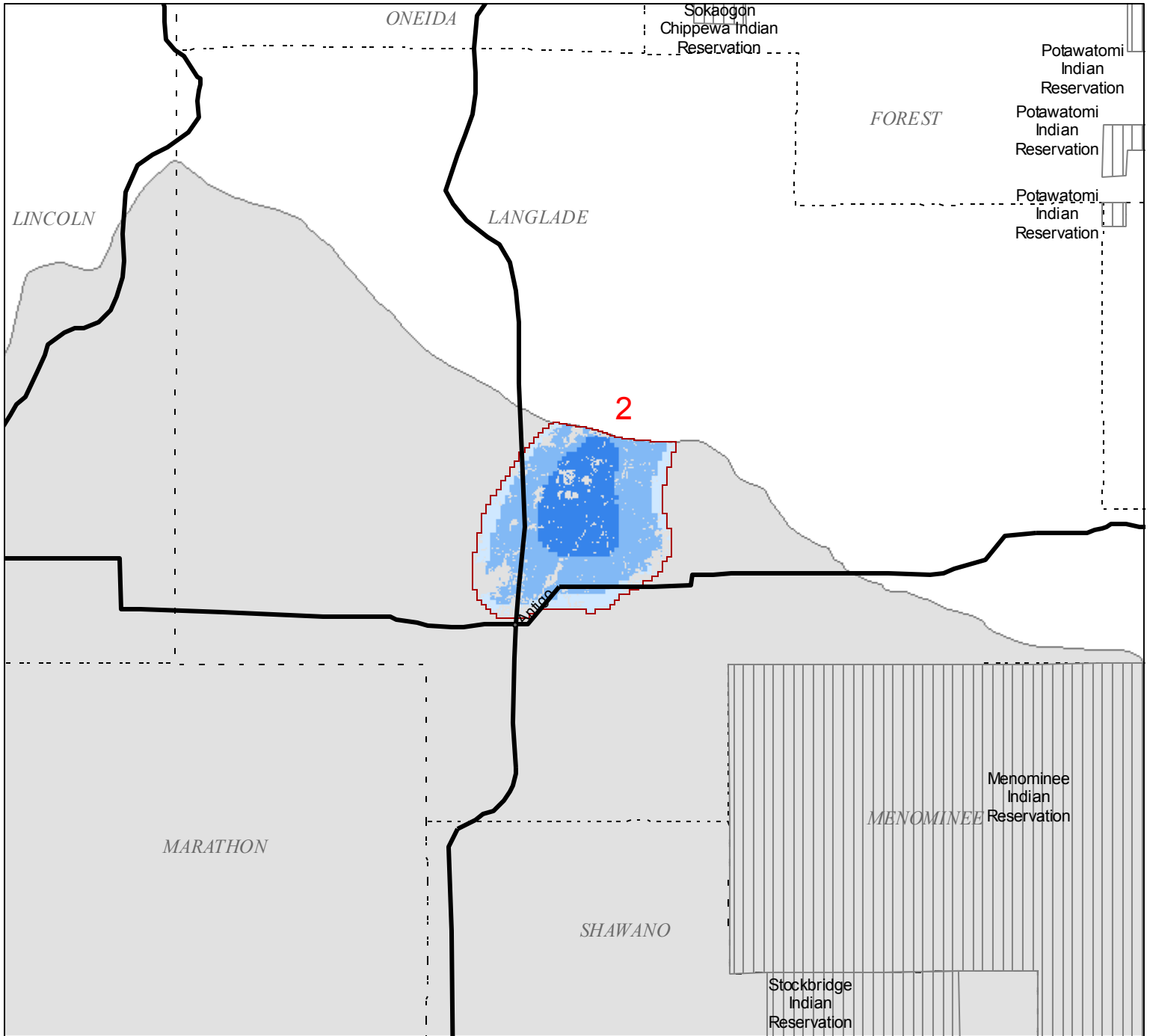
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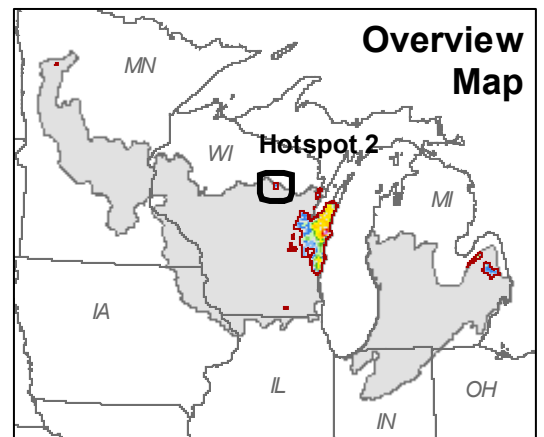
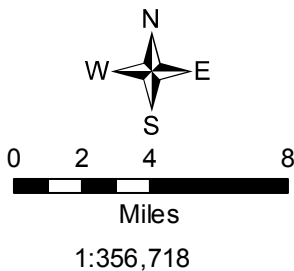
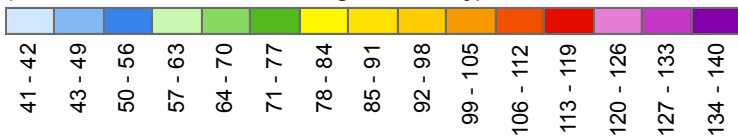
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## Hotspot 2



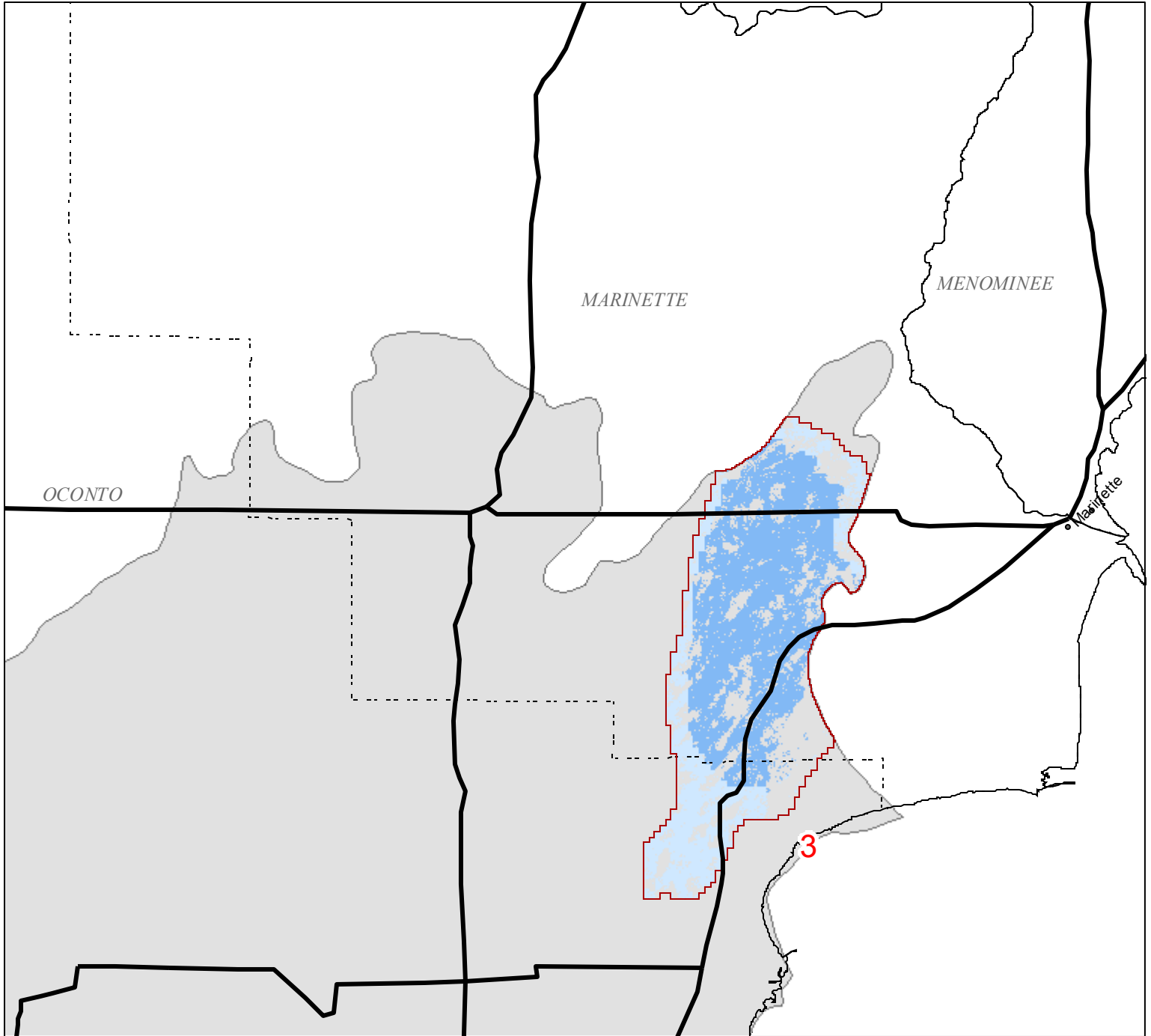
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**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)



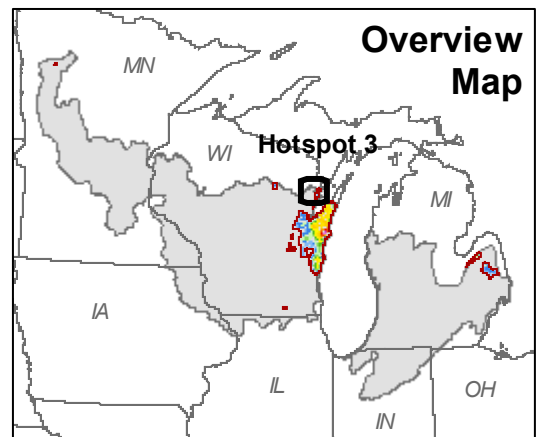
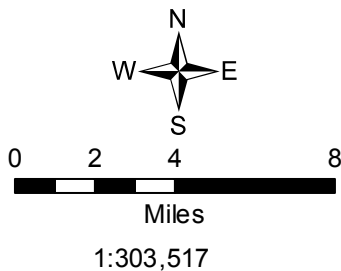
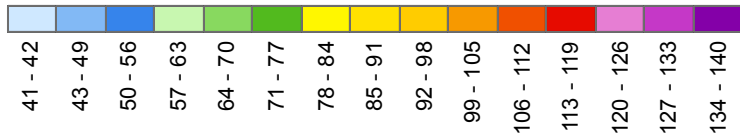
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Hotspot 3



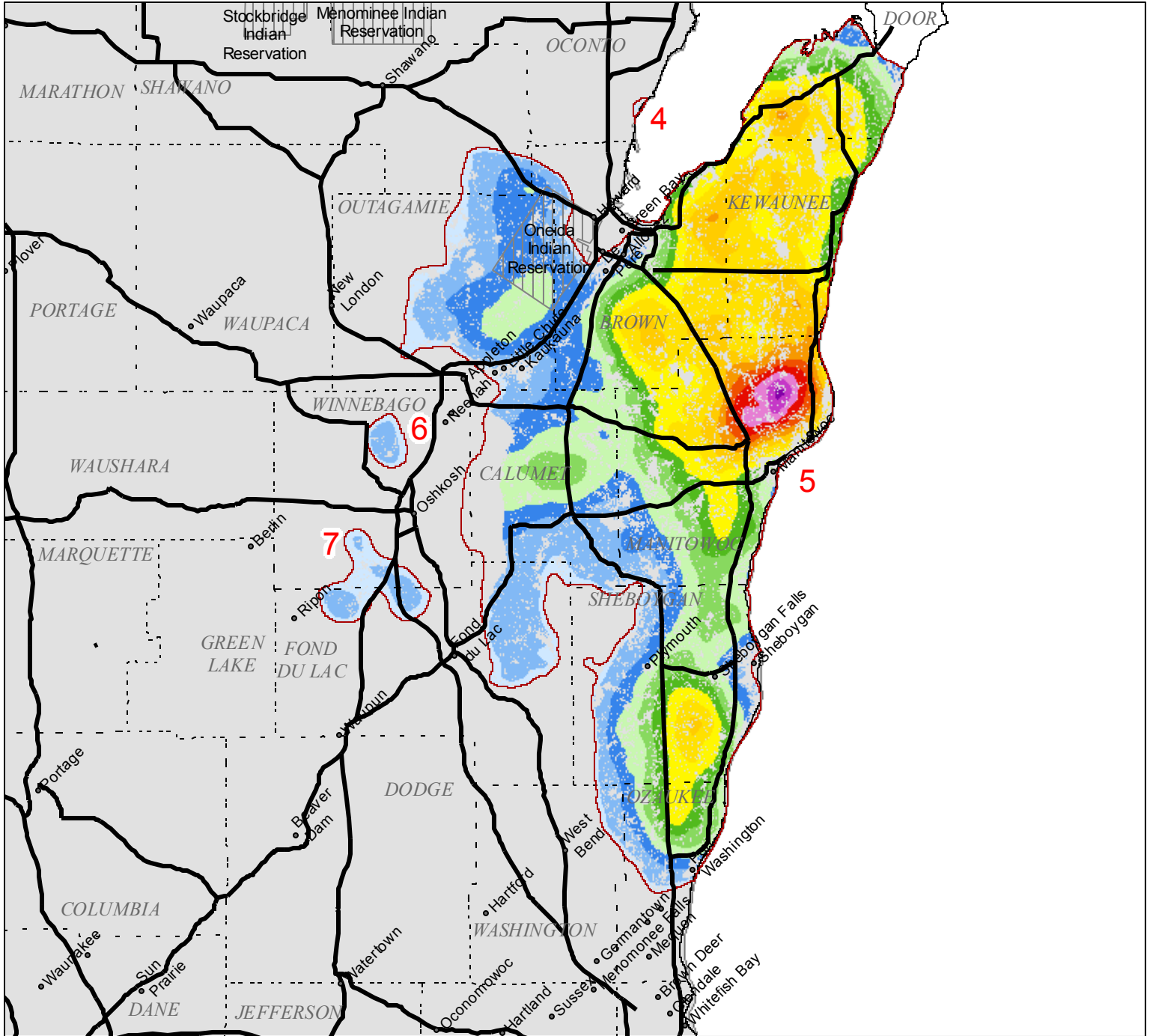
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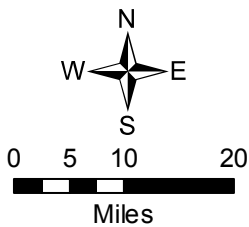
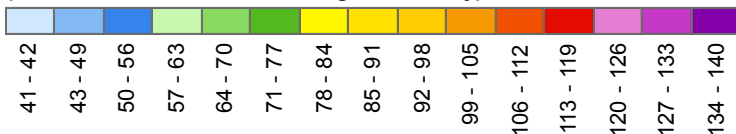
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlaid with Tribal Lands

Hotspots 4, 5, 6, and 7

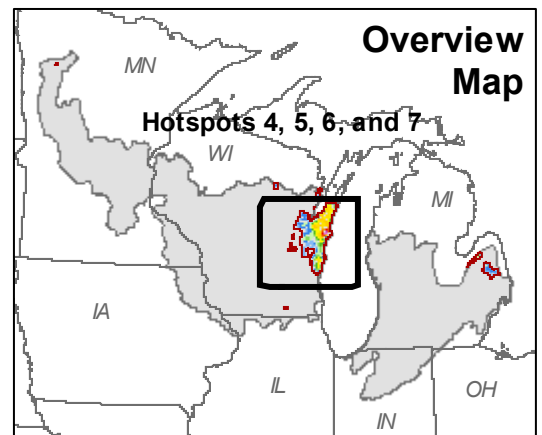


- Major Cities
- Major Roads
- ▭ Hotspot Boundaries
- ▭ States
- - - Counties
- ▨ Tribal Lands
- ▭ Bird Conservation Region (BCR) 23 Boundary

**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)

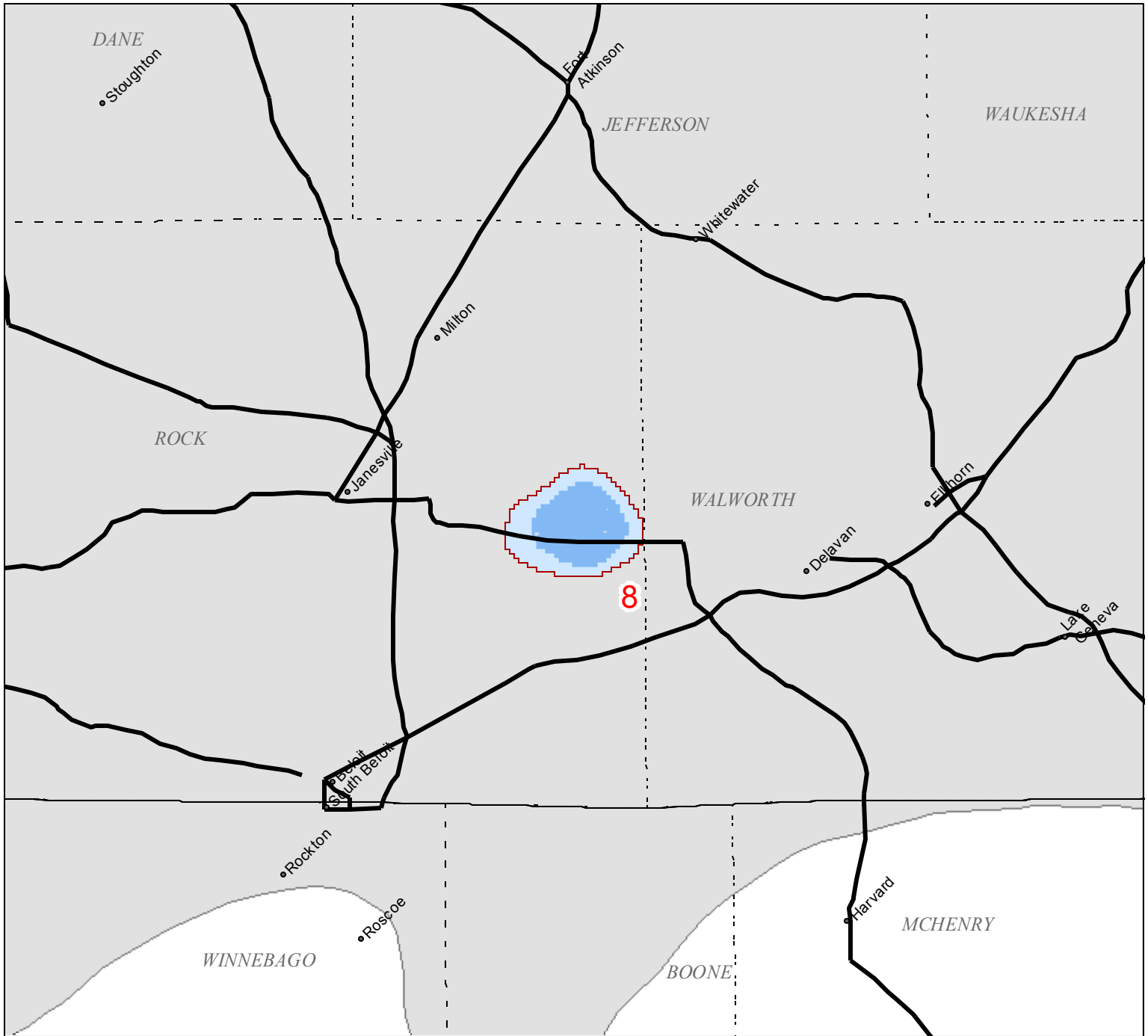


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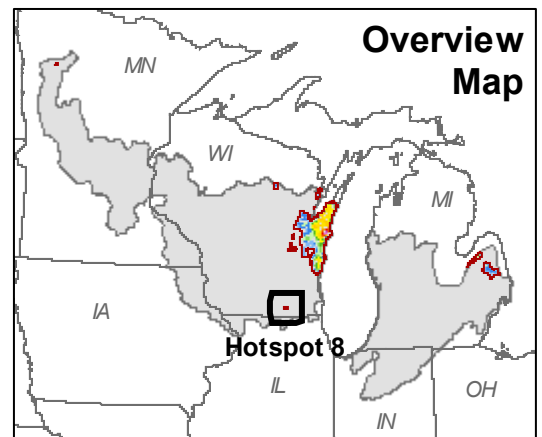
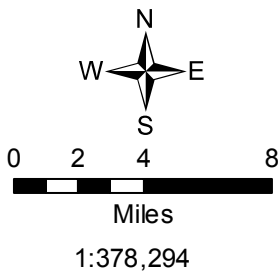
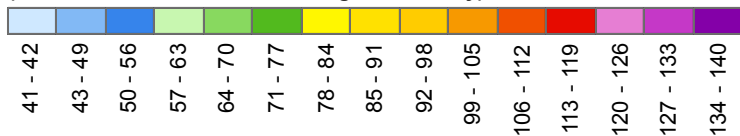
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlaid with Tribal Lands

## Hotspot 8



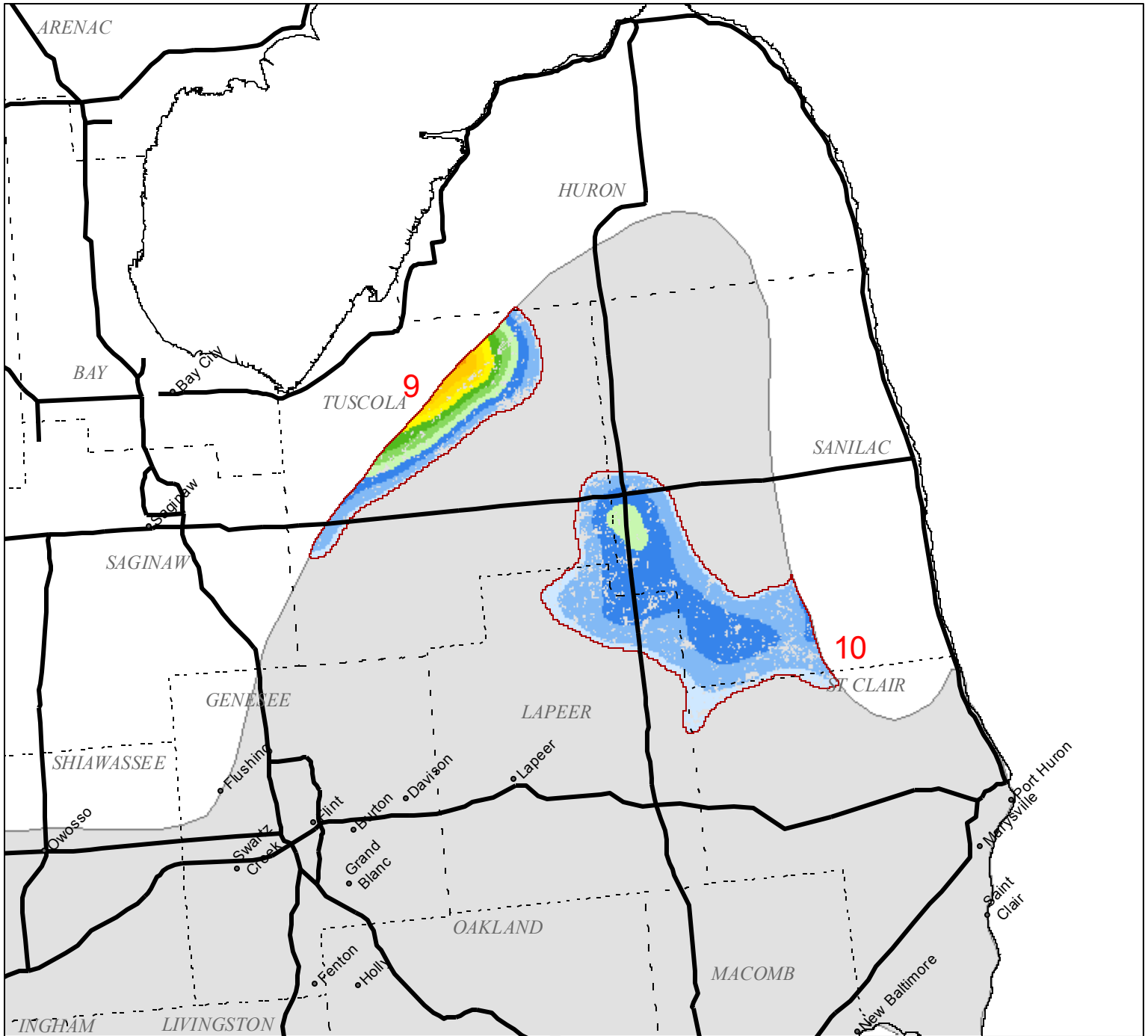
- Major Cities
- Major Roads
- ▭ Hotspot Boundaries
- ▭ States
- - - Counties
- ▨ Tribal Lands
- ▭ Bird Conservation Region (BCR) 23 Boundary

**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)



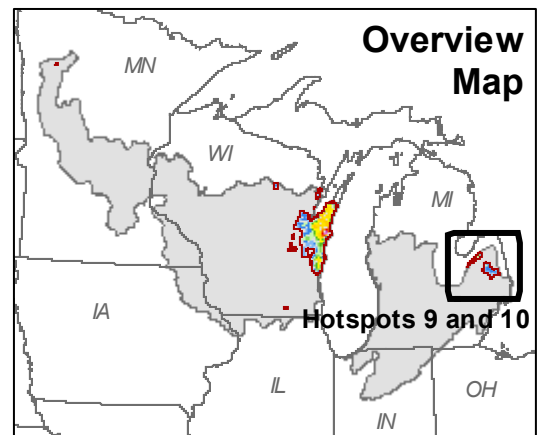
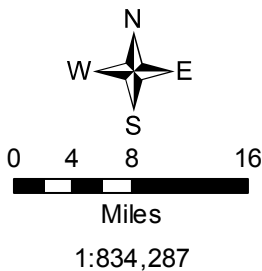
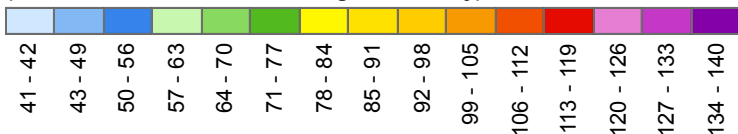
# Savannah Sparrow (SAVS) Predicted Relative Abundance Overlaid with Tribal Lands

Hotspots 9 and 10



- Major Cities
- Major Roads
- ▭ Hotspot Boundaries
- ▭ States
- ▭ Counties
- ▭ Tribal Lands
- ▭ Bird Conservation Region (BCR) 23 Boundary

**Savannah Sparrow Relative Abundance**  
(Predicted Mean Count / Breeding Bird Survey)



**Savannah Sparrow Predicted Relative Abundance Summary by Hotspot  
Federal Managed Lands Versus Lands Not Under Federal Management**

Description	Area (sq km)	Mean Predicted Count / Breeding Bird Survey				SD	Sum*	Percent Area Managed/ Unmanaged	Percent Sum* Managed/ Unmanaged
		Min	Mean	Max	Range				
Hotspot 1 - Unmanaged by Federal	21.69	0.00	39.12	42.00	42.00	8.82	942,910	100.00	100.00
Hotspot 1 - Managed by Federal	0.00								
Hotspot 2 - Unmanaged by Federal	120.07	0.00	39.07	53.00	53.00	17.63	5,212,020	100.00	100.00
Hotspot 2 - Managed by Federal	0.00								
Hotspot 3 - Unmanaged by Federal	176.07	0.00	29.96	49.00	49.00	20.65	5,860,490	100.00	100.00
Hotspot 3 - Managed by Federal	0.00								
Hotspot 4 - Unmanaged by Federal	5.54	0.00	16.59	43.00	43.00	20.33	102,078	100.00	100.00
Hotspot 4 - Managed by Federal	0.00								
Hotspot 5 - Unmanaged by Federal	7,897.72	0.00	53.05	135.00	135.00	32.94	465,566,000	100.00	100.00
Hotspot 5 - Managed by Federal	0.00								
Hotspot 6 - Unmanaged by Federal	62.64	0.00	39.37	46.00	46.00	12.17	2,740,060	100.00	100.00
Hotspot 6 - Managed by Federal	0.00								
Hotspot 7 - Unmanaged by Federal	207.54	0.00	38.40	46.00	46.00	12.46	8,854,180	100.00	100.00
Hotspot 7 - Managed by Federal	0.00								
Hotspot 8 - Unmanaged by Federal	50.67	0.00	42.52	46.00	46.00	3.57	2,393,710	100.00	100.00
Hotspot 8 - Managed by Federal	0.00								
Hotspot 9 - Unmanaged by Federal	297.05	0.00	55.83	101.00	101.00	23.72	18,427,200	100.00	100.00
Hotspot 9 - Managed by Federal	0.00								
Hotspot 10 - Unmanaged by Federal	759.26	0.00	42.41	60.00	60.00	16.23	35,781,500	100.00	100.00
Hotspot 10 - Managed by Federal	0.00								

**SUMMARY**

Total Area Unmanaged (sq km)	9,598.25	Sum* Total Unmanaged	545,880,148
Total Area Managed (sq km)	0.00	Sum* Total Managed	0
Total Area (sq km)	9,598.25	Total Sum*	545,880,148

Total Area Unmanaged %	100.00	Sum* Total Unmanaged %	100.00
Total Area Managed %	0.00	Sum* Total Managed %	0.00

\* Sum refers to the cumulative predicted relative abundance values for each cell (900 sq meters) in each managed category.

A note on interpretation: If the "Total Area Unmanaged" and "Sum\* Total Unmanaged" exceeds that of their respective Managed cells, this indicates a majority of the area and population is outside of direct governmental jurisdiction. If the "Sum\* Total Managed %" is less than the "Total Area Managed %", this indicates that the conservation estate does a poorer job than a random placement of managed lands. Conversely, if the "Sum\* Total Managed %" exceeds that of the "Total Area Managed %", then the conservation estate does a better job than a random placement of the conservation estate.

**Savannah Sparrow Predicted Relative Abundance Summary by Hotspot  
State Managed Lands Versus Lands Not Under State Management**

Description	Area (sq km)	Mean Predicted Count / Breeding Bird Survey				SD	Sum*	Percent Area Managed/ Unmanaged	Percent Sum* Managed/ Unmanaged
		Min	Mean	Max	Range				
Hotspot 1 - Unmanaged by State	21.36	0.00	39.30	42.00	42.00	8.43	932,954	98.50	98.94
Hotspot 1 - Managed by State	0.33	0.00	27.50	42.00	42.00	19.61	9,956	1.50	1.06
Hotspot 2 - Unmanaged by State	120.07	0.00	39.07	53.00	53.00	17.63	5,212,020	100.00	100.00
Hotspot 2 - Managed by State	0.00								
Hotspot 3 - Unmanaged by State	176.07	0.00	29.96	49.00	49.00	20.65	5,860,490	100.00	100.00
Hotspot 3 - Managed by State	0.00								
Hotspot 4 - Unmanaged by State	3.84	0.00	15.61	43.00	43.00	20.04	66,599	69.36	65.24
Hotspot 4 - Managed by State	1.70	0.00	18.82	43.00	43.00	20.79	35,479	30.64	34.76
Hotspot 5 - Unmanaged by State	7,719.45	0.00	53.68	135.00	135.00	32.72	460,433,000	97.74	98.90
Hotspot 5 - Managed by State	178.26	0.00	25.91	100.00	100.00	30.82	5,132,800	2.26	1.10
Hotspot 6 - Unmanaged by State	62.64	0.00	39.37	46.00	46.00	12.17	2,740,060	100.00	100.00
Hotspot 6 - Managed by State	0.00								
Hotspot 7 - Unmanaged by State	205.60	0.00	38.39	46.00	46.00	12.48	8,771,070	99.07	99.06
Hotspot 7 - Managed by State	1.94	0.00	38.55	42.00	42.00	9.93	83,108	0.93	0.94
Hotspot 8 - Unmanaged by State	50.67	0.00	42.52	46.00	46.00	3.57	2,393,710	100.00	100.00
Hotspot 8 - Managed by State	0.00								
Hotspot 9 - Unmanaged by State	290.97	0.00	56.42	101.00	101.00	23.17	18,241,700	97.95	98.99
Hotspot 9 - Managed by State	6.08	0.00	27.48	77.00	77.00	31.06	185,570	2.05	1.01
Hotspot 10 - Unmanaged by State	6.08	0.00	18.01	50.00	50.00	22.23	23,749	0.80	0.07
Hotspot 10 - Managed by State	758.07	0.00	42.45	60.00	60.00	16.19	35,757,800	99.20	99.93

**SUMMARY**

Total Area Unmanaged (sq km)	8,656.76	Sum* Total Unmanaged	504,675,352
Total Area Managed (sq km)	946.38	Sum* Total Managed	41,204,713
Total Area (sq km)	9,603.14	Total Sum*	545,880,065

Total Area Unmanaged %	90.15	Sum* Total Unmanaged %	92.45
Total Area Managed %	9.85	Sum* Total Managed %	7.55

\* Sum refers to the cumulative predicted relative abundance values for each cell (900 sq meters) in each managed category.

A note on interpretation: If the "Total Area Unmanaged" and "Sum\* Total Unmanaged" exceeds that of their respective Managed cells, this indicates a majority of the area and population is outside of direct governmental jurisdiction. If the "Sum\* Total Managed %" is less than the "Total Area Managed %", this indicates that the conservation estate does a poorer job than a random placement of managed lands. Conversely, if the "Sum\* Total Managed %" exceeds that of the "Total Area Managed %", then the conservation estate does a better job than a random placement of the conservation estate.



**Savannah Sparrow Predicted Relative Abundance Summary by Hotspot  
Tribal Lands Versus Lands Not Under Tribal Management**

Description	Area (sq km)	Mean Predicted Count / Breeding Bird Survey				SD	Sum*	Percent Area Managed/ Unmanaged	Percent Sum* Managed/ Unmanaged
		Min	Mean	Max	Range				
Hotspot 1 - Unmanaged by Tribal	21.69	0.00	39.12	42.00	42.00	8.82	942,910	100.00	100.00
Hotspot 1 - Managed by Tribal	0.00								
Hotspot 2 - Unmanaged by Tribal	120.07	0.00	39.07	53.00	53.00	17.63	5,212,020	100.00	100.00
Hotspot 2 - Managed by Tribal	0.00								
Hotspot 3 - Unmanaged by Tribal	176.07	0.00	29.96	49.00	49.00	20.65	5,860,490	100.00	100.00
Hotspot 3 - Managed by Tribal	0.00								
Hotspot 4 - Unmanaged by Tribal	5.54	0.00	16.59	43.00	43.00	20.33	102,078	100.00	100.00
Hotspot 4 - Managed by Tribal	0.00								
Hotspot 5 - Unmanaged by Tribal	7,665.72	0.00	53.39	135.00	135.00	33.18	454,767,000	97.06	97.68
Hotspot 5 - Managed by Tribal	232.00	0.00	41.89	59.00	59.00	20.57	10,799,000	2.94	2.32
Hotspot 6 - Unmanaged by Tribal	62.64	0.00	39.37	46.00	46.00	12.17	2,740,060	100.00	100.00
Hotspot 6 - Managed by Tribal	0.00								
Hotspot 7 - Unmanaged by Tribal	207.54	0.00	38.40	46.00	46.00	12.46	8,854,180	100.00	100.00
Hotspot 7 - Managed by Tribal	0.00								
Hotspot 8 - Unmanaged by Tribal	50.67	0.00	42.52	46.00	46.00	3.57	2,393,710	100.00	100.00
Hotspot 8 - Managed by Tribal	0.00								
Hotspot 9 - Unmanaged by Tribal	297.05	0.00	55.83	101.00	101.00	23.72	18,427,200	100.00	100.00
Hotspot 9 - Managed by Tribal	0.00								
Hotspot 10 - Unmanaged by Tribal	759.26	0.00	42.41	60.00	60.00	16.23	35,781,500	100.00	100.00
Hotspot 10 - Managed by Tribal	0.00								

**SUMMARY**

Total Area Unmanaged (sq km)	9,366.25	Sum* Total Unmanaged	535,081,148
Total Area Managed (sq km)	232.00	Sum* Total Managed	10,799,000
Total Area (sq km)	9,598.24	Total Sum*	545,880,148

Total Area Unmanaged %	97.58	Sum* Total Unmanaged %	98.02
Total Area Managed %	2.42	Sum* Total Managed %	1.98

\* Sum refers to the cumulative predicted relative abundance values for each cell (900 sq meters) in each managed category.

A note on interpretation: If the "Total Area Unmanaged" and "Sum\* Total Unmanaged" exceeds that of their respective Managed cells, this indicates a majority of the area and population is outside of direct governmental jurisdiction. If the "Sum\* Total Managed %" is less than the "Total Area Managed %", this indicates that the conservation estate does a poorer job than a random placement of managed lands. Conversely, if the "Sum\* Total Managed %" exceeds that of the "Total Area Managed %", then the conservation estate does a better job than a random placement of the conservation estate.

## Savannah Sparrow Predicted Relative Abundance Summary by State Federal Managed Lands Versus Lands Not Under Federal Management

Description	Area (sq km)	Mean Predicted Count / Breeding Bird Survey				SD	Sum*	Percent Area Managed/ Unmanaged	Percent Sum* Managed/ Unmanaged
		Min	Mean	Max	Range				
IA - Unmanaged by Federal	6,982.18	0.00	8.65	23.00	23.00	6.90	67,140,000	96.80	99.61
IA - Managed by Federal	230.67	0.00	1.02	22.00	22.00	2.65	262,123	3.20	0.39
IL - Unmanaged by Federal	3,208.05	0.00	7.15	31.00	31.00	5.54	25,469,900	96.68	99.62
IL - Managed by Federal	110.30	0.00	0.78	11.00	11.00	1.55	96,029	3.32	0.38
IN - Unmanaged by Federal	13,070.80	0.00	2.72	15.00	15.00	2.70	39,573,800	99.68	99.98
IN - Managed by Federal	41.35	0.00	0.19	2.00	2.00	0.39	8,585	0.32	0.02
MI - Unmanaged by Federal	57,537.80	0.00	6.52	101.00	101.00	9.89	416,740,000	98.06	99.94
MI - Managed by Federal	1,139.19	0.00	0.19	17.00	17.00	0.80	239,805	1.94	0.06
MN - Unmanaged by Federal	49,220.50	0.00	3.53	42.00	42.00	4.88	193,028,992	98.73	98.96
MN - Managed by Federal	635.37	0.00	2.87	36.00	36.00	5.20	2,027,300	1.27	1.04
OH - Unmanaged by Federal	110.41	0.00	6.00	10.00	10.00	3.70	735,674	100.00	100.00
OH - Managed by Federal	0.00								
WI - Unmanaged by Federal	96,519.50	0.00	14.03	135.00	135.00	18.37	1,505,040,000	99.00	99.78
WI - Managed by Federal	976.24	0.00	3.04	38.00	38.00	7.51	3,300,410	1.00	0.22

### SUMMARY

Total Area Unmanaged (sq km)	226,649.24	Sum* Total Unmanaged	2,247,728,366
Total Area Managed (sq km)	3,133.12	Sum* Total Managed	5,934,252
Total Area (sq km)	229,782.36	Total Sum*	2,253,662,618

Total Area Unmanaged %	98.64	Sum* Total Unmanaged %	99.74
Total Area Managed %	1.36	Sum* Total Managed %	0.26

\* Sum refers to the cumulative predicted relative abundance values for each cell (900 sq meters) in each managed category.

A note on interpretation: If the "Total Area Unmanaged" and "Sum\* Total Unmanaged" exceeds that of their respective Managed cells, this indicates a majority of the area and population is outside of direct governmental jurisdiction. If the "Sum\* Total Managed %" is less than the "Total Area Managed %", this indicates that the conservation estate does a poorer job than a random placement of managed lands. Conversely, if the "Sum\* Total Managed %" exceeds that of the "Total Area Managed %", then the conservation estate does a better job than a random placement of the conservation estate.

## Savannah Sparrow Predicted Relative Abundance Summary by State State Managed Lands Versus Lands Not Under State Management

Description	Area (sq km)	Mean Predicted Count / Breeding Bird Survey				SD	Sum*	Percent Area Managed/ Unmanaged	Percent Sum* Managed/ Unmanaged
		Min	Mean	Max	Range				
IA - Unmanaged by State	7,046.34	0.00	8.55	23.00	23.00	6.92	66,923,200	97.69	99.29
IA - Managed by State	166.51	0.00	2.59	21.00	21.00	5.00	478,936	2.31	0.71
IL - Unmanaged by State	3,278.40	0.00	6.96	31.00	31.00	5.55	25,339,400	98.80	99.11
IL - Managed by State	39.95	0.00	5.10	20.00	20.00	7.11	226,453	1.20	0.89
IN - Unmanaged by State	12,948.40	0.00	2.73	15.00	15.00	2.69	39,244,900	98.75	99.15
IN - Managed by State	163.72	0.00	1.86	14.00	14.00	3.36	337,507	1.25	0.85
MI - Unmanaged by State	56,466.40	0.00	6.56	101.00	101.00	9.93	411,862,016	96.23	98.77
MI - Managed by State	2,210.56	0.00	2.08	77.00	77.00	5.23	5,117,940	3.77	1.23
MN - Unmanaged by State	48,427.60	0.00	3.57	42.00	42.00	4.91	191,836,992	97.14	98.35
MN - Managed by State	1,428.22	0.00	2.03	42.00	42.00	3.79	3,219,230	2.86	1.65
OH - Unmanaged by State	101.07	0.00	6.30	10.00	10.00	3.58	707,864	91.54	96.22
OH - Managed by State	9.34	0.00	2.68	8.00	8.00	3.28	27,810	8.46	3.78
WI - Unmanaged by State	94,536.00	0.00	14.17	135.00	135.00	18.42	1,488,409,984	96.96	98.68
WI - Managed by State	2,959.68	0.00	6.06	100.00	100.00	12.61	19,930,300	3.04	1.32

### SUMMARY

Total Area Unmanaged (sq km)	222,804.21	Sum* Total Unmanaged	2,224,324,356
Total Area Managed (sq km)	6,977.98	Sum* Total Managed	29,338,176
Total Area (sq km)	229,782.19	Total Sum*	2,253,662,532

Total Area Unmanaged %	96.96	Sum* Total Unmanaged %	98.70
Total Area Managed %	3.04	Sum* Total Managed %	1.30

\* Sum refers to the cumulative predicted relative abundance values for each cell (900 sq meters) in each managed category.

A note on interpretation: If the "Total Area Unmanaged" and "Sum\* Total Unmanaged" exceeds that of their respective Managed cells, this indicates a majority of the area and population is outside of direct governmental jurisdiction. If the "Sum\* Total Managed %" is less than the "Total Area Managed %", this indicates that the conservation estate does a poorer job than a random placement of managed lands. Conversely, if the "Sum\* Total Managed %" exceeds that of the "Total Area Managed %", then the conservation estate does a better job than a random placement of the conservation estate.

**Savannah Sparrow Predicted Relative Abundance Summary by State  
Tribal Lands Versus Lands Not Under Tribal Management**

Description	Area (sq km)	Mean Predicted Count / Breeding Bird Survey				SD	Sum*	Percent Area Managed/ Unmanaged	Percent Sum* Managed/ Unmanaged
		Min	Mean	Max	Range				
IA - Unmanaged by Tribal	7,212.85	0.00	8.41	23.00	23.00	6.94	67,402,096	100.00	100.00
IA - Managed by Tribal	0.00								
IL - Unmanaged by Tribal	3,318.35	0.00	6.93	31.00	31.00	5.58	25,565,900	100.00	100.00
IL - Managed by Tribal	0.00								
IN - Unmanaged by Tribal	13,112.10	0.00	2.72	15.00	15.00	2.70	39,582,400	100.00	100.00
IN - Managed by Tribal	0.00								
MI - Unmanaged by Tribal	58,154.70	0.00	6.38	101.00	101.00	9.86	412,171,008	99.11	98.85
MI - Managed by Tribal	522.27	0.00	8.29	15.00	15.00	5.42	4,809,450	0.89	1.15
MN - Unmanaged by Tribal	47,959.20	0.00	3.32	42.00	42.00	4.67	176,940,992	96.20	90.71
MN - Managed by Tribal	1,896.59	0.00	8.60	31.00	31.00	7.09	18,116,000	3.80	9.29
OH - Unmanaged by Tribal	110.41	0.00	6.00	10.00	10.00	3.70	735,674	100.00	100.00
OH - Managed by Tribal	0.00								
WI - Unmanaged by Tribal	96,268.00	0.00	13.99	135.00	135.00	18.30	1,496,179,968	98.74	99.19
WI - Managed by Tribal	1,227.65	0.00	8.91	59.00	59.00	18.97	12,158,700	1.26	0.81

**SUMMARY**

Total Area Unmanaged (sq km)	226,135.61	Sum* Total Unmanaged	2,218,578,038
Total Area Managed (sq km)	3,646.51	Sum* Total Managed	35,084,150
Total Area (sq km)	229,782.12	Total Sum*	2,253,662,188

Total Area Unmanaged %	98.41	Sum* Total Unmanaged %	98.44
Total Area Managed %	1.59	Sum* Total Managed %	1.56

\* Sum refers to the cumulative predicted relative abundance values for each cell (900 sq meters) in each managed category.

A note on interpretation: If the "Total Area Unmanaged" and "Sum\* Total Unmanaged" exceeds that of their respective Managed cells, this indicates a majority of the area and population is outside of direct governmental jurisdiction. If the "Sum\* Total Managed %" is less than the "Total Area Managed %", this indicates that the conservation estate does a poorer job than a random placement of managed lands. Conversely, if the "Sum\* Total Managed %" exceeds that of the "Total Area Managed %", then the conservation estate does a better job than a random placement of the conservation estate.