

Conservation Estate Portfolio for the Wood Thrush (*Hylocichla mustelina*)

Bird Conservation Region 23 (Prairie Hardwood Transition)



http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Wood_Thrush.html

U.S. Department of the Interior U.S. Geological Survey By Jason J. Rohweder and Wayne E. Thogmartin U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, WI 54603 Email: <u>wthogmartin@usgs.gov</u>

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 (<u>http://nationalatlas.gov/mld/citiesx.html</u>). 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 (<u>http://nationalatlas.gov/mld/roadtrl.html</u>). 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 (<u>http://www.nationalatlas.gov/mld/countyp.html</u>).

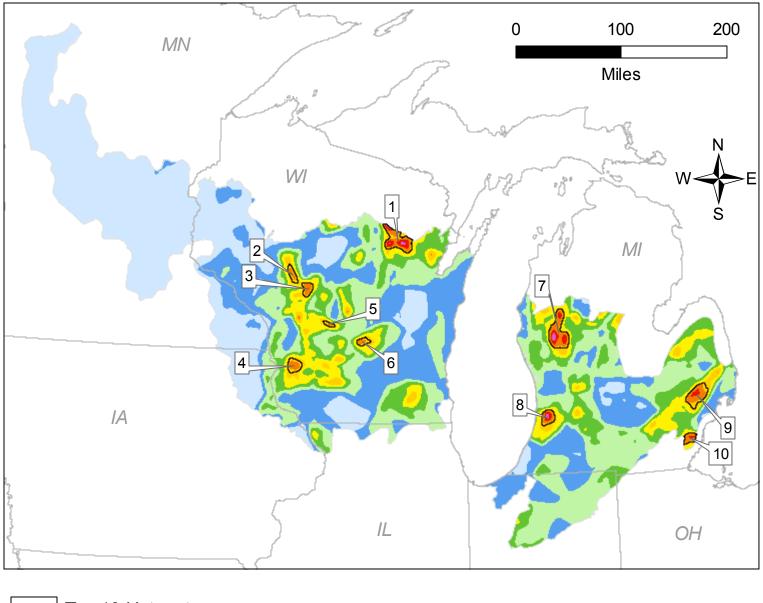
Federal and State lands depicted using Protected Areas Database, version 4: (<u>http://www.consbio.org/cbi/projects/PAD/index.htm</u>). Federal and State lands were identified based upon the data field "Owner".

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

Methodology

For detailed methodology on avian abundance modeling, see: 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 Wood Thrush



Top 10 Hotspots

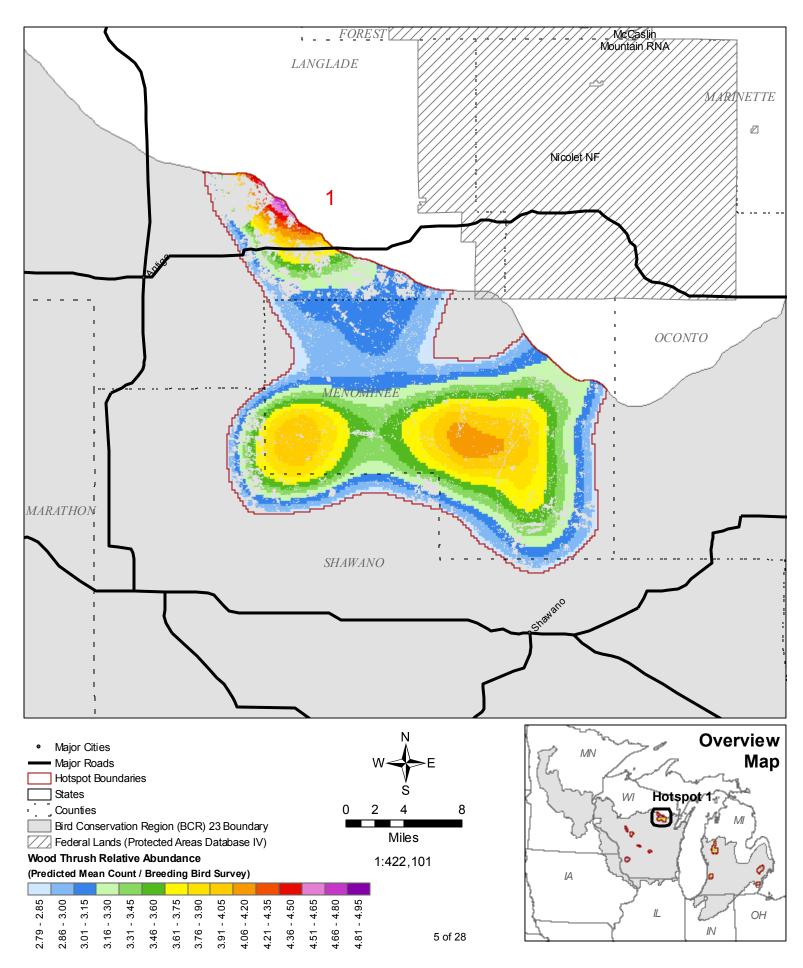
States

Bird Conservation Region (BCR) 23 Boundary

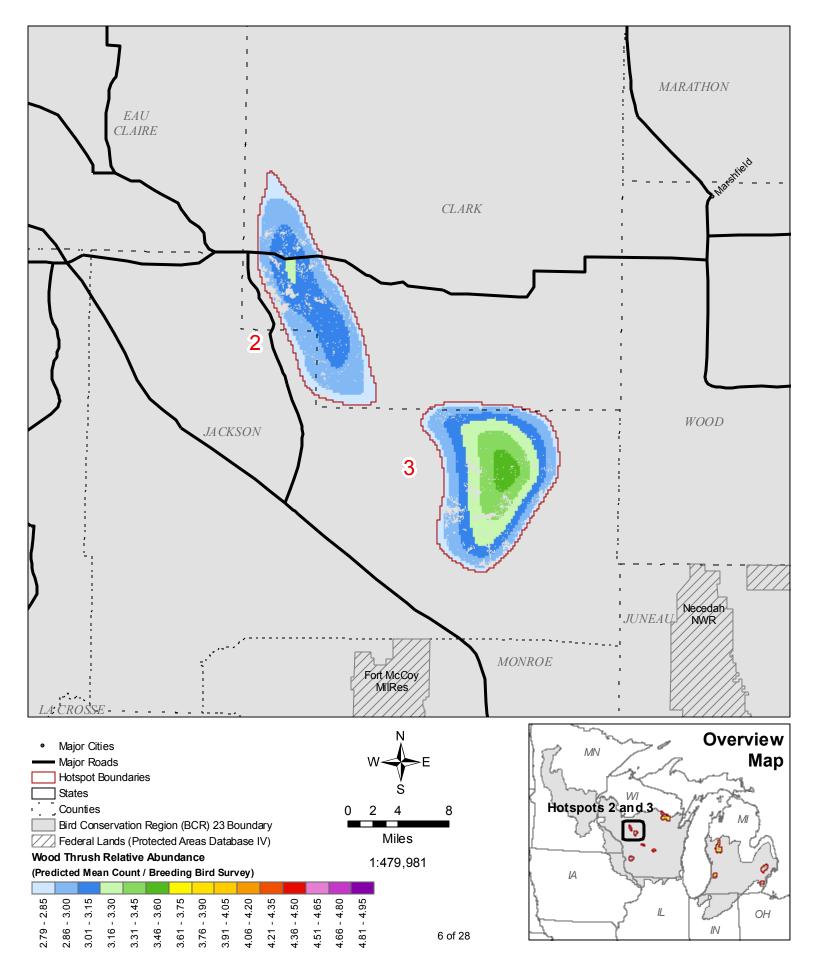
Wood Thrush Relative Abundance

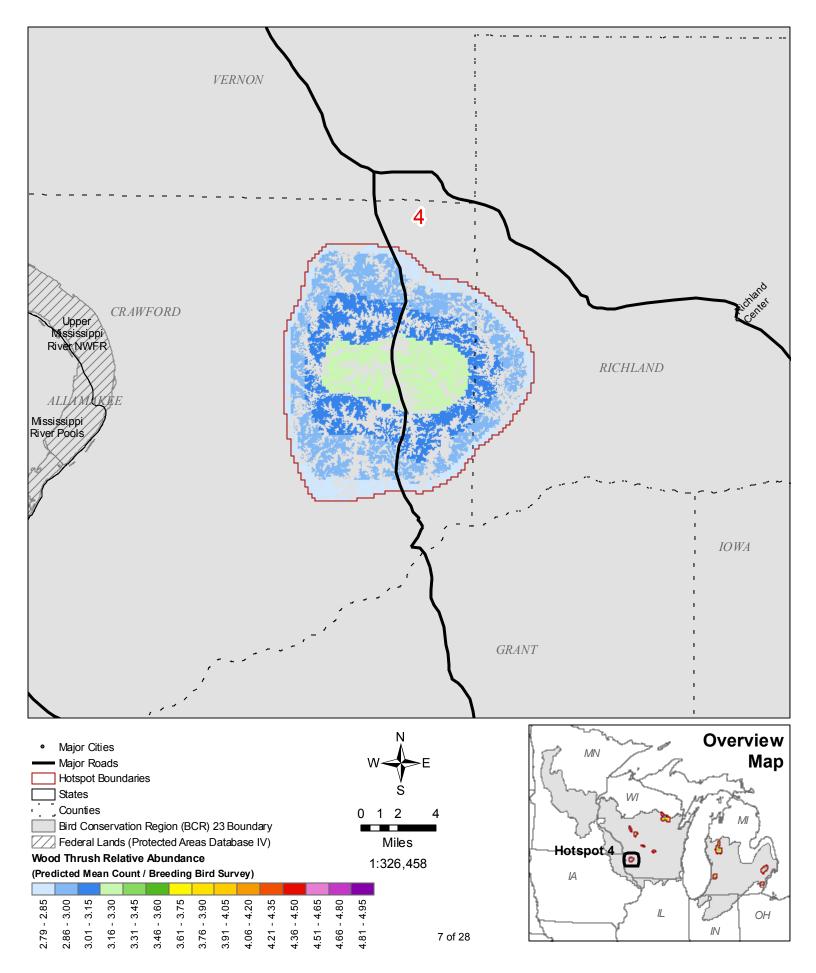
(Predicted Mean Count / Breeding Bird Survey)



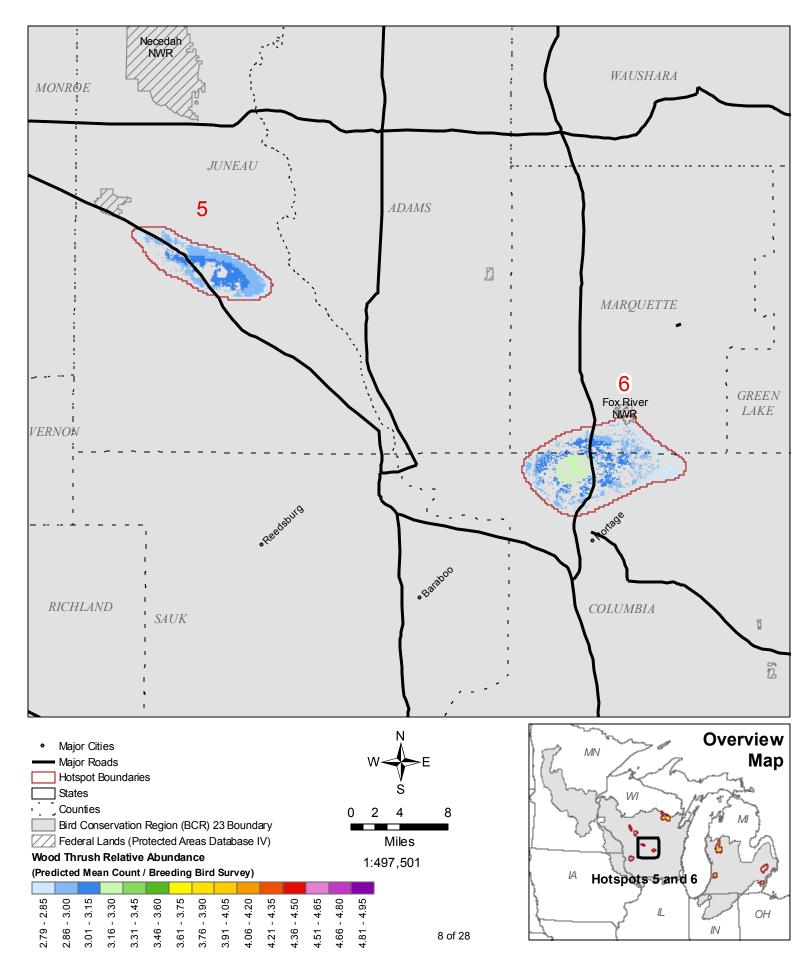


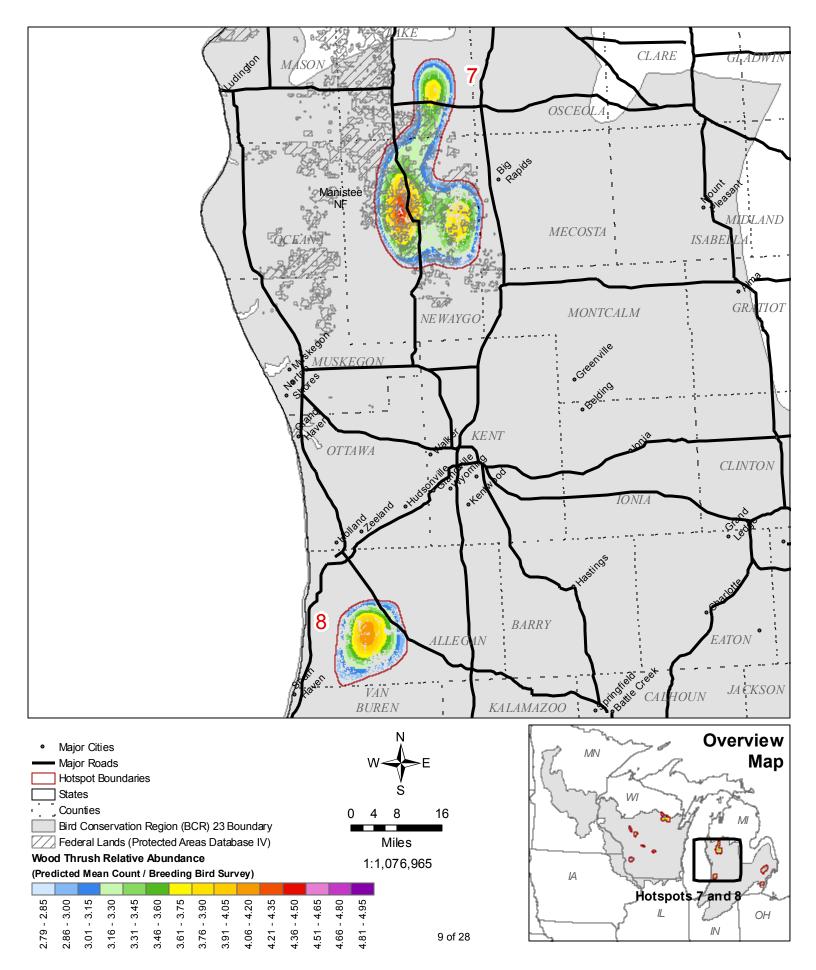
Hotspot 1

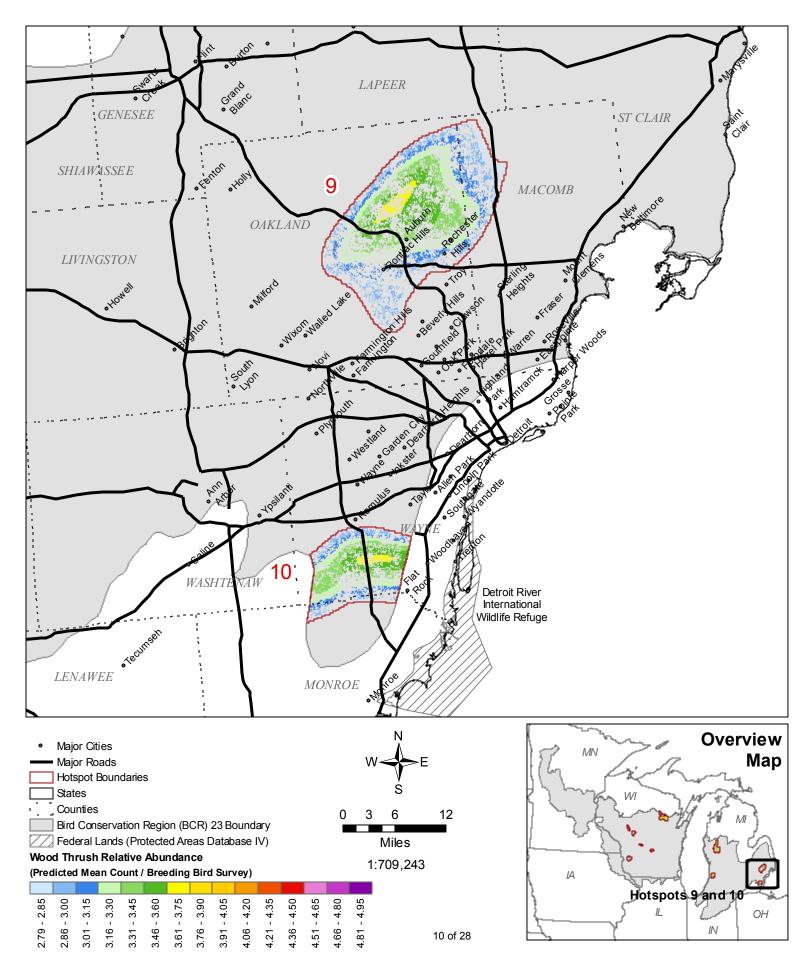




Hotspots 5 and 6

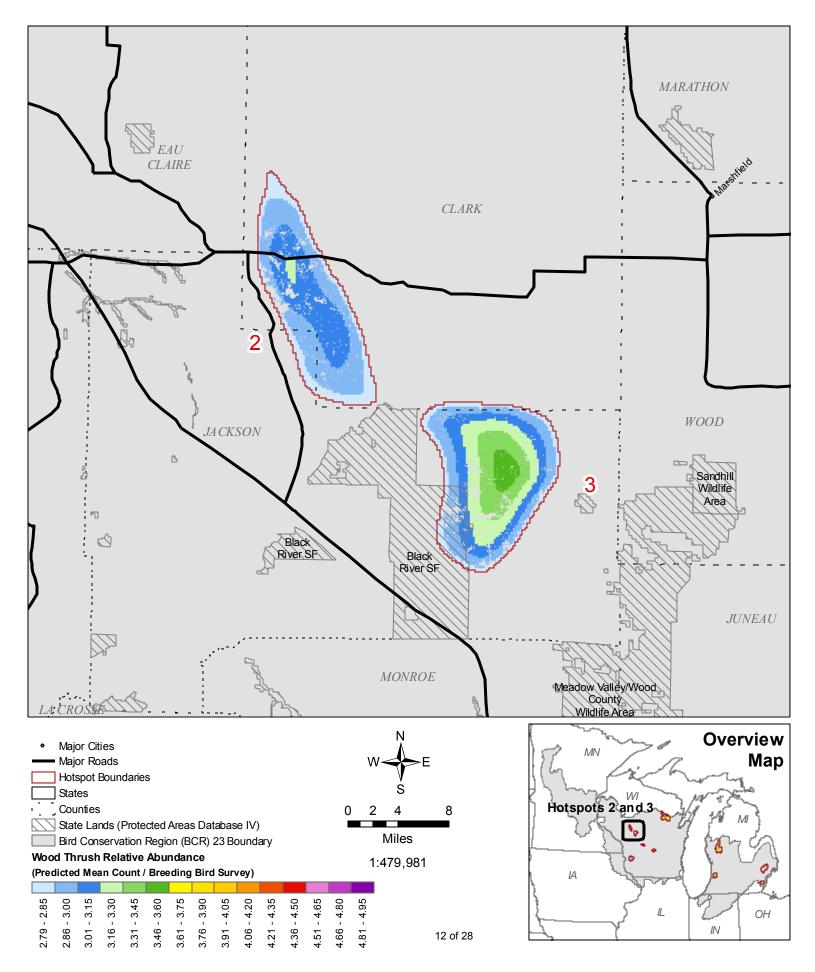


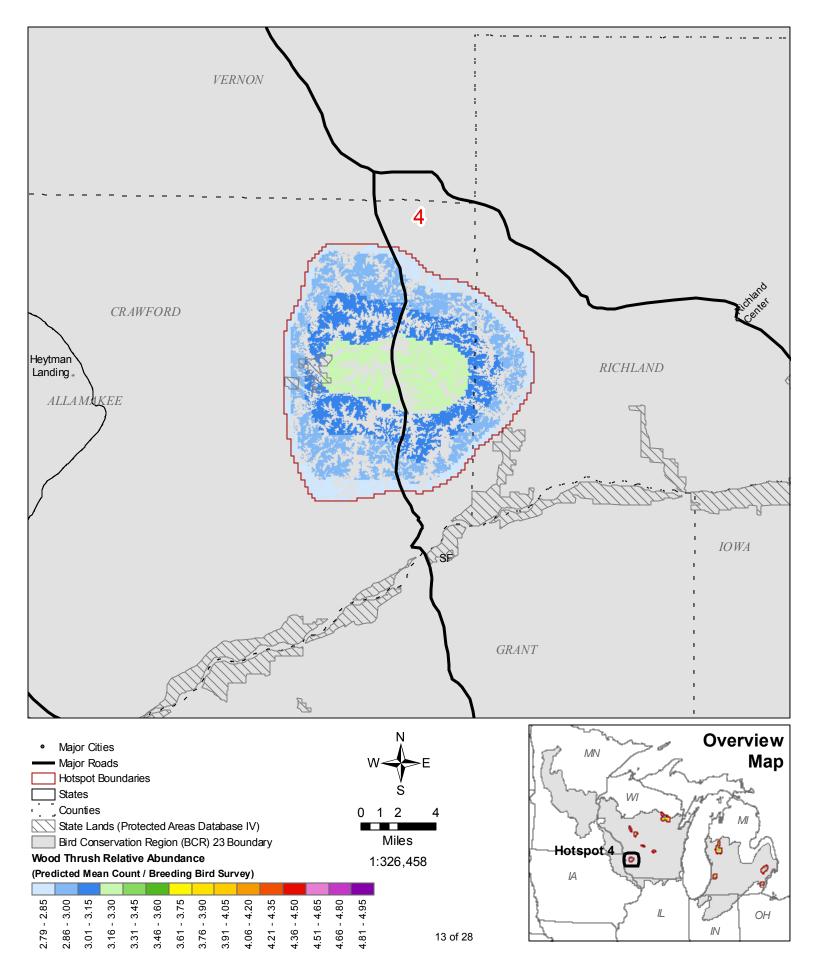




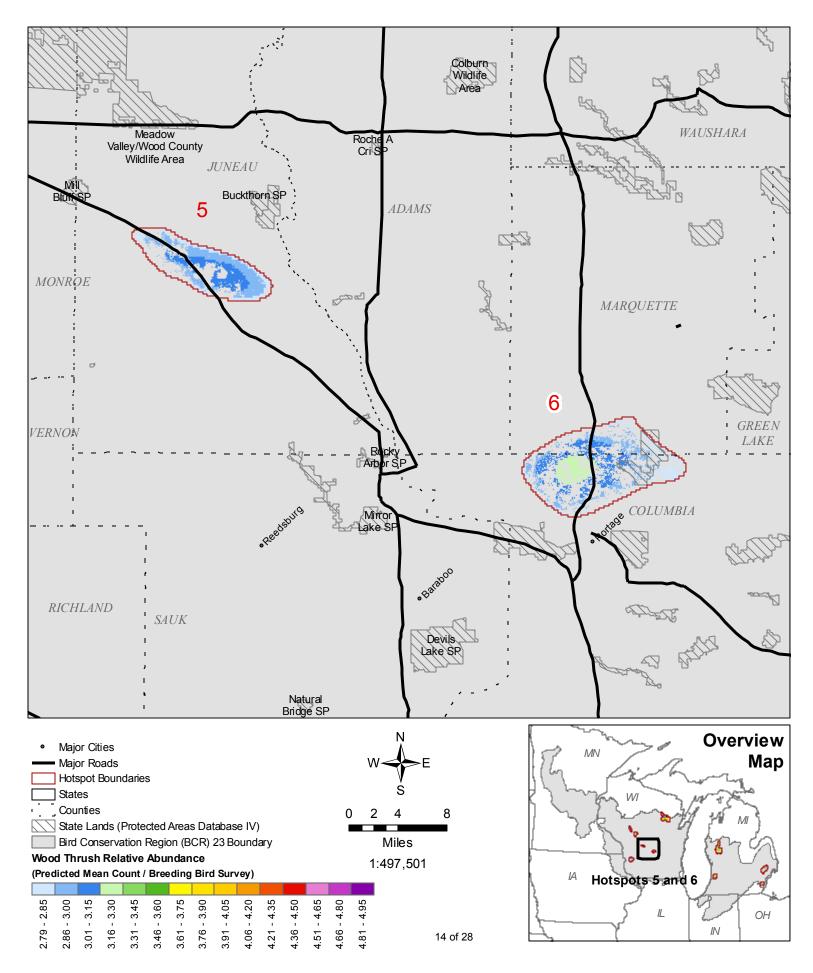
FOREST LANGLADE 4 29 MARINETTE \square OCONTO D 6 MENOMINEI ⊿ MARATHON SHAWANO Ianano **Overview** Major Cities ΜN Map Major Roads Hotspot Boundaries Hotspot 1 States WI Counties 2 8 n Bird Conservation Region (BCR) 23 Boundary Miles State Lands (Protected Areas Database IV) Wood Thrush Relative Abundance 1:422,101 (Predicted Mean Count / Breeding Bird Survey) IA 2.79 - 2.85 3.61 - 3.75 4.51 - 4.65 3.76 - 3.90 3.91 - 4.05 4.21 - 4.35 4.36 - 4.50 4.81 - 4.95 2.86 - 3.00 3.01 - 3.15 3.16 - 3.30 3.31 - 3.45 3.46 - 3.60 4.06 - 4.20 4.66 - 4.80 IL ОН IN 11 of 28

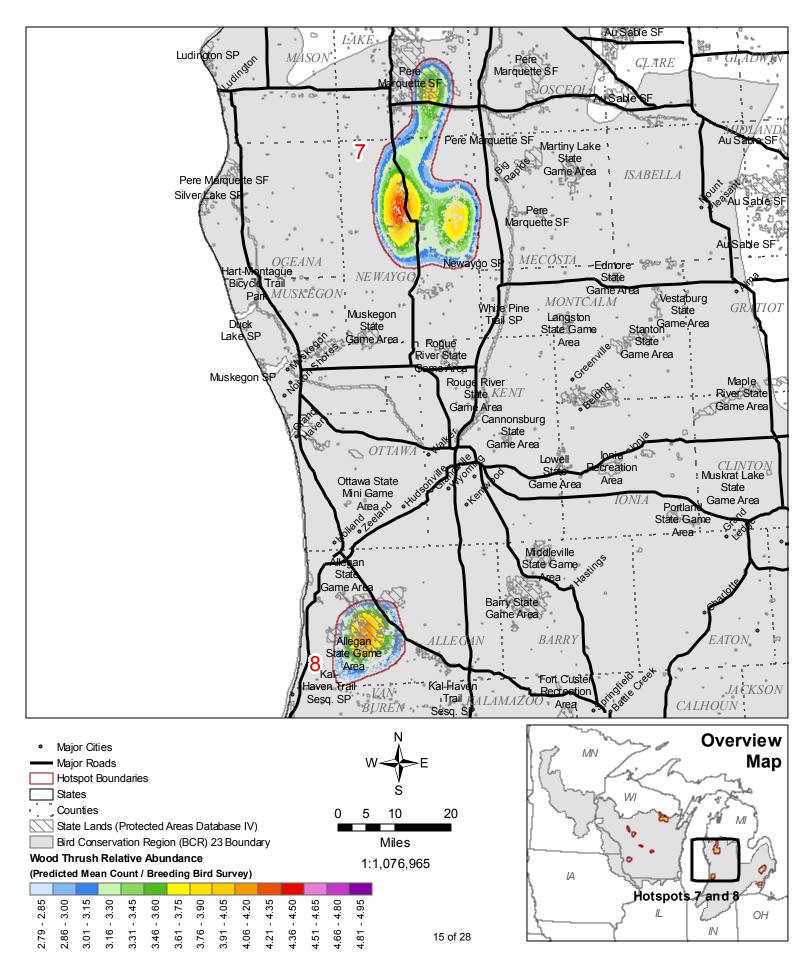
Hotspot 1

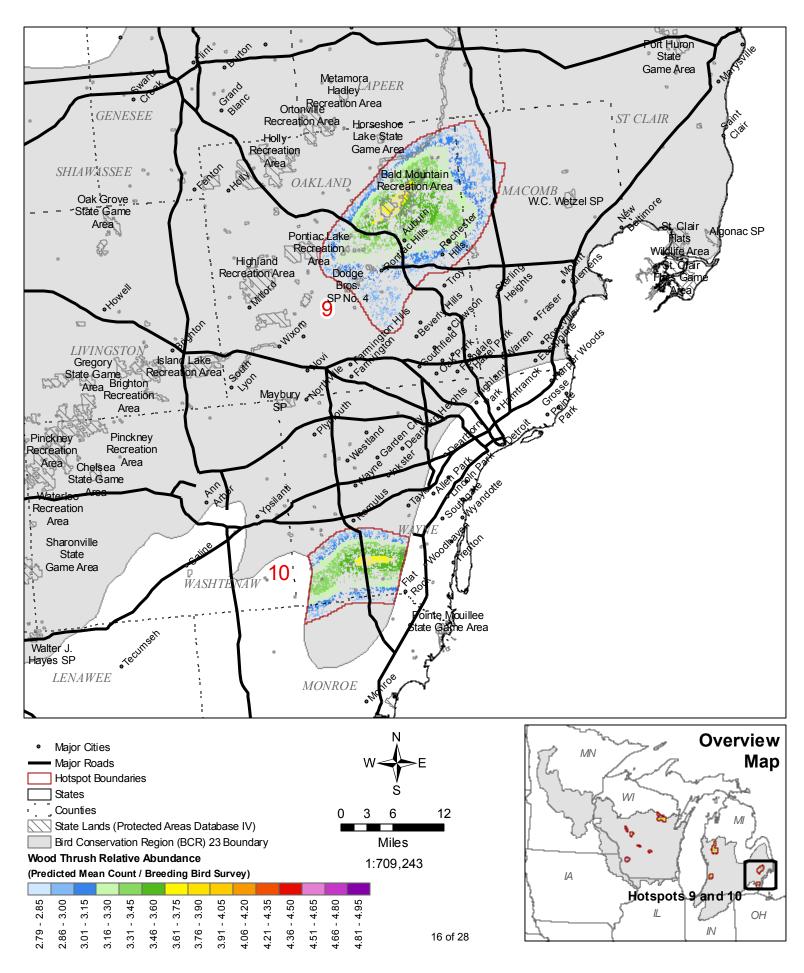


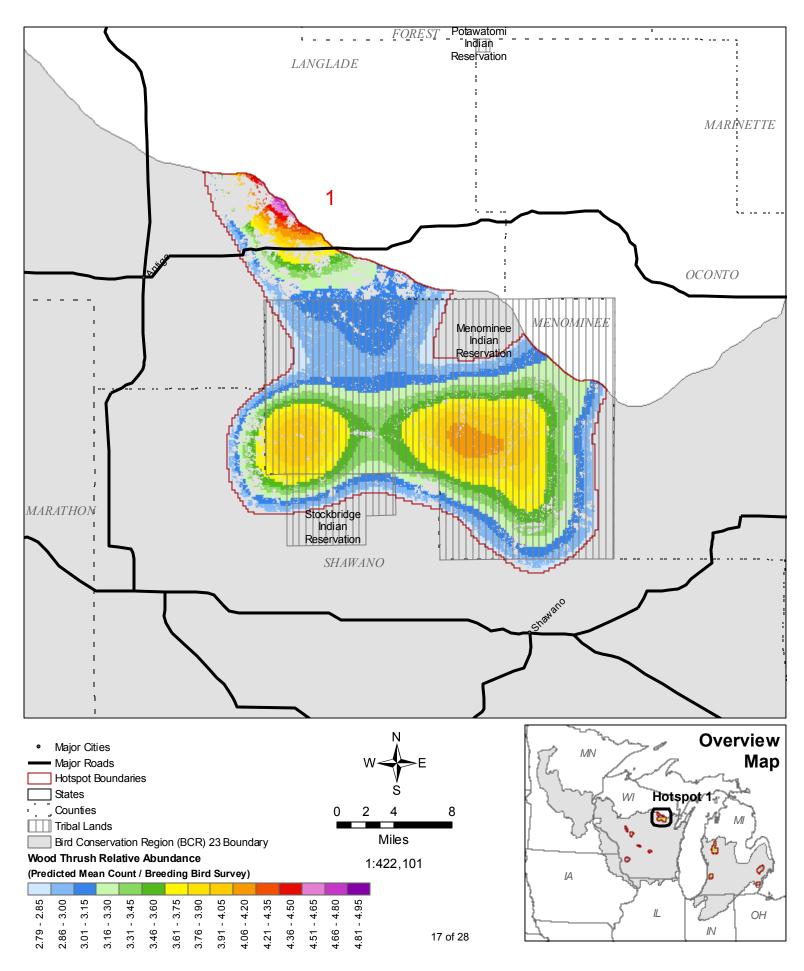


Hotspots 5 and 6

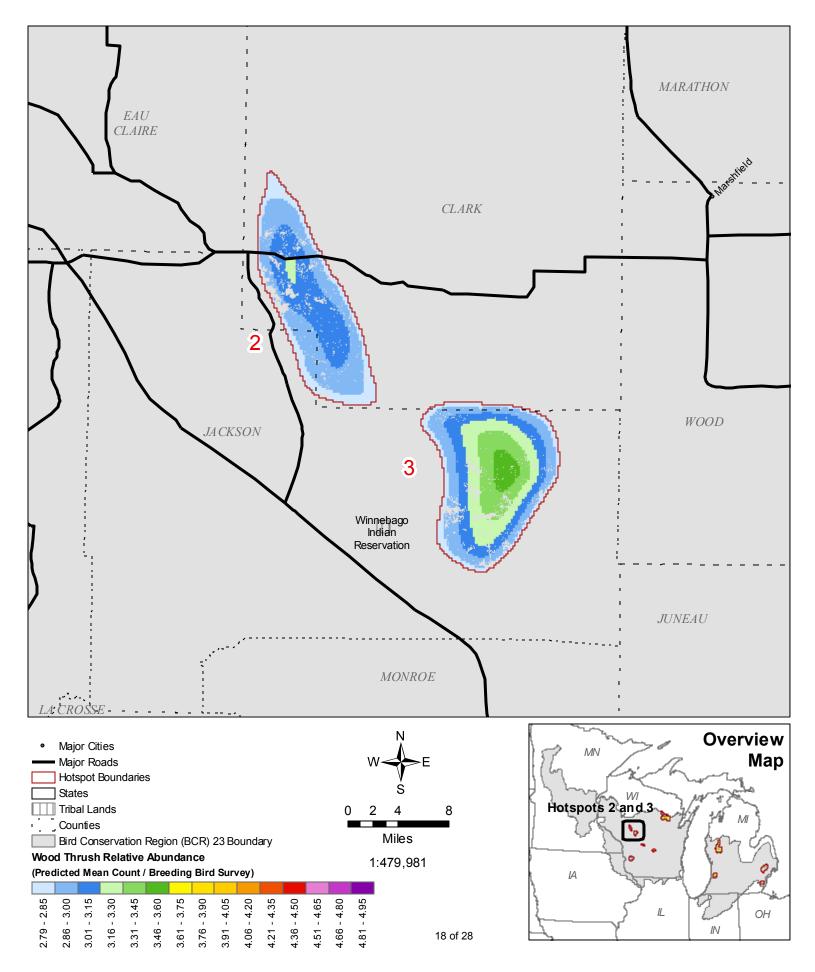




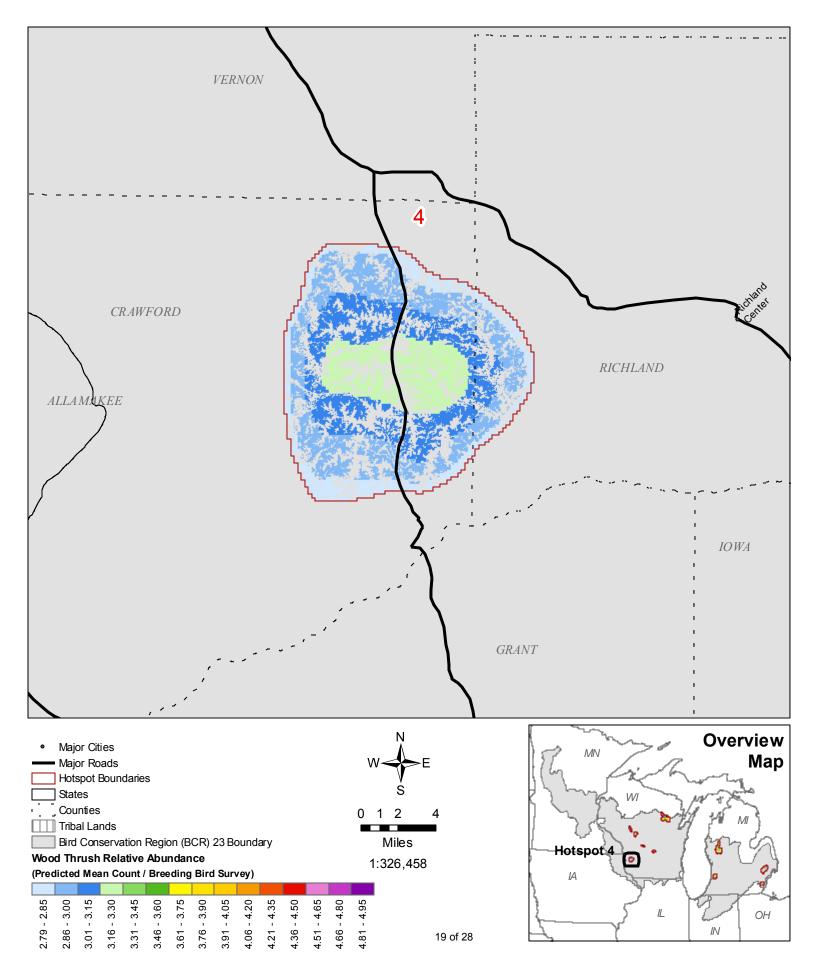


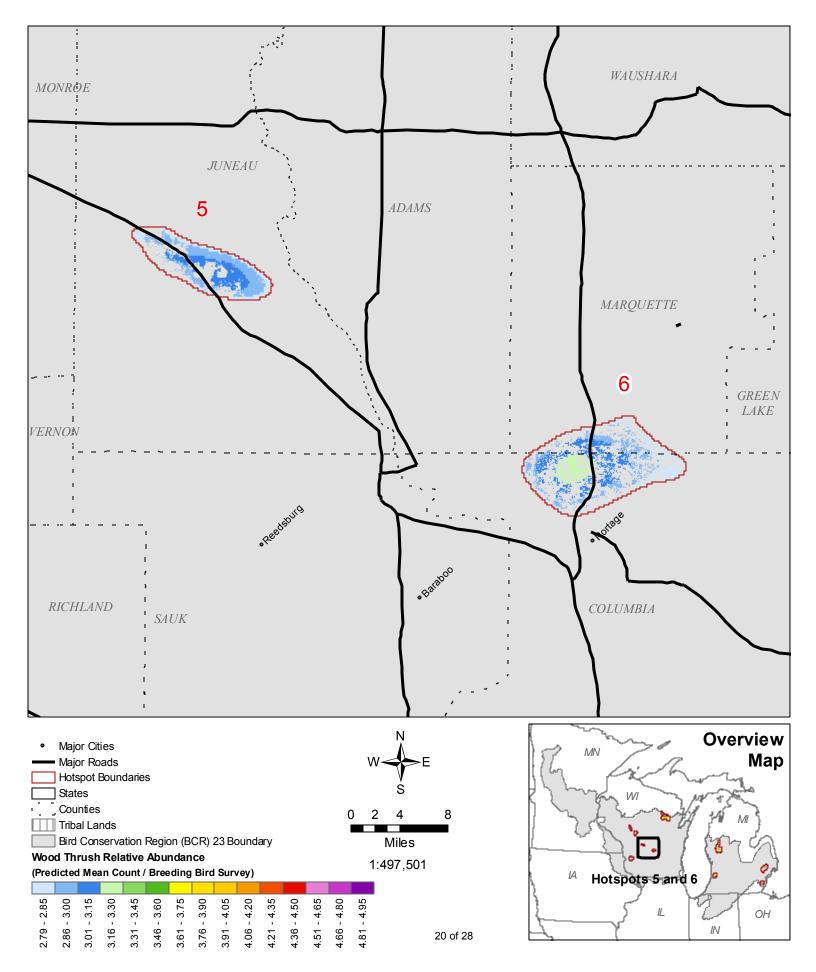


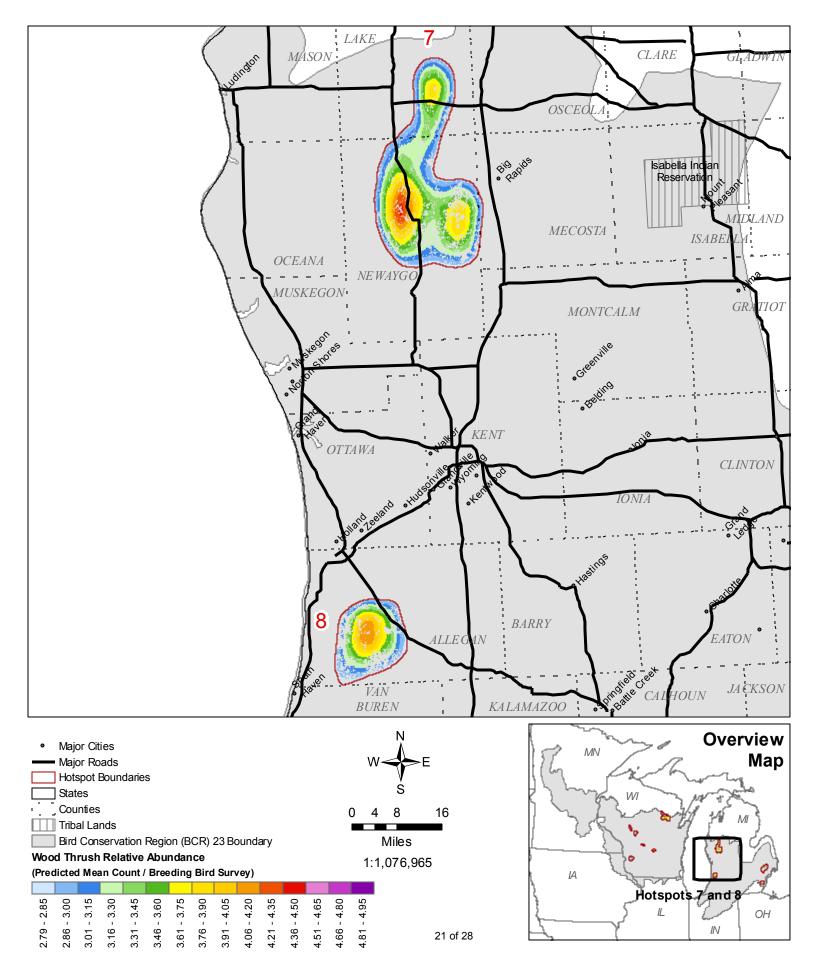
Hotspot 1

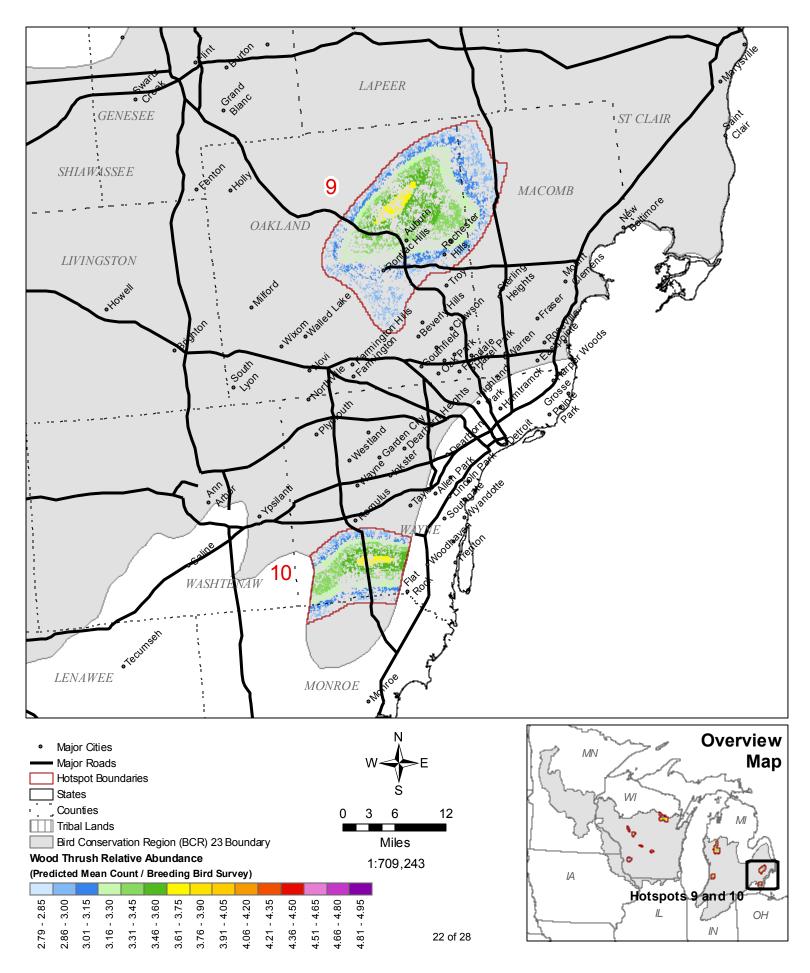












Wood Thrush Predicted Relative Abundance Summary by Hotspot Federal Managed Lands Versus Lands Not Under Federal Management

			an Predi eeding E					Percent Area Managed/	Percent Sum* Managed/
Description	Area (sq km)	Min	Mean	Max	Range	SD	Sum*	Unmanaged	Unmanaged
Hotspot 1 - Unmanaged by Federal	1,007.50	0.00	2.80	4.83	4.83	1.29	3,137,460	100.00	100.00
Hotspot 1 - Managed by Federal	0.00								
Hotspot 2 - Unmanaged by Federal	223.38	0.00	2.66	3.17	3.17	0.88	661,302	100.00	100.00
Hotspot 2 - Managed by Federal	0.00								
Hotspot 3 - Unmanaged by Federal	265.50	0.00	2.87	3.52	3.52	0.86	846,170	100.00	100.00
Hotspot 3 - Managed by Federal	0.00								
Hotspot 4 - Unmanaged by Federal	365.40	0.00	1.78	3.25	3.25	1.48	723,779	100.00	100.00
Hotspot 4 - Managed by Federal	0.00								
Hotspot 5 - Unmanaged by Federal	91.80	0.00	1.63	3.14	3.14	1.47	165,879	100.00	100.00
Hotspot 5 - Managed by Federal	0.00								
Hotspot 6 - Unmanaged by Federal	172.13	0.00	1.08	3.20	3.20	1.44	206,279	99.30	99.62
Hotspot 6 - Managed by Federal	1.21	0.00	0.59	2.85	2.85	1.14	792	0.70	0.38
Hotspot 7 - Unmanaged by Federal	802.42	0.00	2.45	4.38	4.38	1.50	2,184,860	71.90	66.78
Hotspot 7 - Managed by Federal	313.58	0.00	3.12	4.37	4.37	0.96	1,087,070	28.10	33.22
Hotspot 8 - Unmanaged by Federal	386.10	0.00	2.24	4.20	4.20	1.66	962,218	100.00	100.00
Hotspot 8 - Managed by Federal	0.00								
Hotspot 9 - Unmanaged by Federal	747.09	0.00	1.14	3.68	3.68	1.54	944,372	100.00	100.00
Hotspot 9 - Managed by Federal	0.00								
Hotspot 10 - Unmanaged by Federal	239.82	0.00	1.53	3.64	3.64	1.65	406,867	100.00	100.00
Hotspot 10 - Managed by Federal	0.00								

_	SUMMAR	Y	
Total Area Unmanaged		Sum* Total	
(sq km)	4,301.14	Unmanaged	10,239,186
Total Area Managed		Sum* Total	
(sq km)	314.79	Managed	1,087,862
Total Area (sq km)	4,615.93	Total Sum*	11,327,048
Total Area Unmanaged		Sum* Total	
%	93.18	Unmanaged %	90.40
		Sum* Total	
Total Area Managed %	6.82	Managed %	9.60

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

Wood Thrush Predicted Relative Abundance Summary by Hotspot State Managed Lands Versus Lands Not Under State Management

			an Predi eeding E					Percent Area Managed/	Percent Sum* Managed/
Description	Area (sq km)	Min	Mean	Max	Range	SD	Sum*	Unmanaged	Unmanaged
Hotspot 1 - Unmanaged by State	1,001.93	0.00	2.80	4.83	4.83	1.29	3,119,770	99.45	99.44
Hotspot 1 - Managed by State	5.57	0.00	2.86	3.65	3.65	1.04	17,685	0.55	0.56
Hotspot 2 - Unmanaged by State	223.38	0.00	2.66	3.17	3.17	0.88	661,302	100.00	100.00
Hotspot 2 - Managed by State	0.00								
Hotspot 3 - Unmanaged by State	233.18	0.00	2.92	3.52	3.52	0.82	755,602	87.83	89.30
Hotspot 3 - Managed by State	32.32	0.00	2.52	3.19	3.19	1.02	90,567	12.17	10.70
Hotspot 4 - Unmanaged by State	359.75	0.00	1.79	3.25	3.25	1.48	714,400	98.45	98.70
Hotspot 4 - Managed by State	5.65	0.00	1.50	3.19	3.19	1.52	9,380	1.55	1.30
Hotspot 5 - Unmanaged by State	91.80	0.00	1.63	3.14	3.14	1.47	165,879	100.00	100.00
Hotspot 5 - Managed by State	0.00								
Hotspot 6 - Unmanaged by State	156.40	0.00	1.07	3.20	3.20	1.44	185,897	90.23	89.77
Hotspot 6 - Managed by State	16.94	0.00	1.13	3.08	3.08	1.41	21,174	9.77	10.23
Hotspot 7 - Unmanaged by State	1,015.49	0.00	2.61	4.38	4.38	1.43	2,946,660	90.99	90.06
Hotspot 7 - Managed by State	100.52	0.00	2.91	4.25	4.25	1.05	325,281	9.01	9.94
Hotspot 8 - Unmanaged by State	226.78	0.00	1.68	4.20	4.20	1.62	423,358	58.74	44.00
Hotspot 8 - Managed by State	159.32	0.00	3.04	4.20	4.20	1.38	538,861	41.26	56.00
Hotspot 9 - Unmanaged by State	712.08	0.00	1.11	3.66	3.66	1.52	874,777	95.31	92.63
Hotspot 9 - Managed by State	35.01	0.00	1.79	3.68	3.68	1.73	69,595	4.69	7.37
Hotspot 10 - Unmanaged by State	238.27	0.00	1.52	3.64	3.64	1.64	403,062	99.36	99.06
Hotspot 10 - Managed by State	1.54	0.00	2.22	3.59	3.59	1.64	3,806	0.64	0.94

|--|

	-	
	Sum* Total	
4,259.06	Unmanaged	10,250,707
	Sum* Total	
356.87	Managed	1,076,348
4,615.93	Total Sum*	11,327,054
	Sum* Total	
92.27	Unmanaged %	90.50
	Sum* Total	
7.73	Managed %	9.50
	356.87 4,615.93 92.27	4,259.06 Unmanaged Sum* Total 356.87 Managed 4,615.93 Total Sum* Sum* Total 92.27 Unmanaged %

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

Wood Thrush Predicted Relative Abundance Summary by Hotspot
Tribal Lands Versus Lands Not Under Tribal Management

			an Predi eeding E					Percent Area Managed/	Percent Sum* Managed/
Description	Area (sq km)	Min	Mean	Max	Range	SD	Sum*	Unmanaged	Unmanaged
Hotspot 1 - Unmanaged by Tribal	245.14	0.00	1.89	4.83	4.83	1.70	514,028	24.33	16.38
Hotspot 1 - Managed by Tribal	762.37	0.00	3.10	4.13	4.13	0.96	2,623,430	75.67	83.62
Hotspot 2 - Unmanaged by Tribal	223.38	0.00	2.66	3.17	3.17	0.88	661,302	100.00	100.00
Hotspot 2 - Managed by Tribal	0.00								
Hotspot 3 - Unmanaged by Tribal	265.50	0.00	2.87	3.52	3.52	0.86	846,170	100.00	100.00
Hotspot 3 - Managed by Tribal	0.00								
Hotspot 4 - Unmanaged by Tribal	365.40	0.00	1.78	3.25	3.25	1.48	723,779	100.00	100.00
Hotspot 4 - Managed by Tribal	0.00								
Hotspot 5 - Unmanaged by Tribal	91.80	0.00	1.63	3.14	3.14	1.47	165,879	100.00	100.00
Hotspot 5 - Managed by Tribal	0.00								
Hotspot 6 - Unmanaged by Tribal	173.34	0.00	1.08	3.20	3.20	1.44	207,071	100.00	100.00
Hotspot 6 - Managed by Tribal	0.00								
Hotspot 7 - Unmanaged by Tribal	1,116.00	0.00	2.64	4.38	4.38	1.41	3,271,940	100.00	100.00
Hotspot 7 - Managed by Tribal	0.00								
Hotspot 8 - Unmanaged by Tribal	386.10	0.00	2.24	4.20	4.20	1.66	962,218	100.00	100.00
Hotspot 8 - Managed by Tribal	0.00								
Hotspot 9 - Unmanaged by Tribal	747.09	0.00	1.14	3.68	3.68	1.54	944,372	100.00	100.00
Hotspot 9 - Managed by Tribal	0.00								
Hotspot 10 - Unmanaged by Tribal	239.82	0.00	1.53	3.64	3.64	1.65	406,867	100.00	100.00
Hotspot 10 - Managed by Tribal	0.00								

	SUMMAR	Y	
Total Area Unmanaged		Sum* Total	
(sq km)	3,853.57	Unmanaged	8,703,626
Total Area Managed		Sum* Total	
(sq km)	762.37	Managed	2,623,430
Total Area (sq km)	4,615.93	Total Sum*	11,327,056
Total Area Unmanaged		Sum* Total	
%	83.48	Unmanaged %	76.84
		Sum* Total	
Total Area Managed %	16.52	Managed %	23.16

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

Wood Thrush Predicted Relative Abundance Summary by State Federal Managed Lands Versus Lands Not Under Federal Management

		Mean Predicted Count / Breeding Bird Survey				Percent Area Managed/	Percent Sum* Managed/		
Description	Area (sq km)	Min	Mean	Max	Range	SD	Sum*	Unmanaged	Unmanaged
IA - Unmanaged by Federal	6,982.18	0.00	0.23	1.64	1.64	0.43	1,766,840	96.80	94.98
IA - Managed by Federal	230.67	0.00	0.36	1.57	1.57	0.58	93,449	3.20	5.02
IL - Unmanaged by Federal	3,208.05	0.00	0.26	2.44	2.44	0.56	911,090	96.68	93.36
IL - Managed by Federal	110.30	0.00	0.53	1.89	1.89	0.66	64,820	3.32	6.64
IN - Unmanaged by Federal	13,070.80	0.00	0.15	2.15	2.15	0.41	2,175,980	99.68	98.80
IN - Managed by Federal	41.35	0.00	0.58	0.86	0.86	0.35	26,468	0.32	1.20
MI - Unmanaged by Federal	57,537.80	0.00	0.53	4.38	4.38	0.86	33,907,599	98.06	92.43
MI - Managed by Federal	1,139.19	0.00	2.19	4.37	4.37	0.97	2,776,560	1.94	7.57
MN - Unmanaged by Federal	49,220.50	0.00	0.04	1.20	1.20	0.11	2,310,060	98.73	97.28
MN - Managed by Federal	635.37	0.00	0.09	1.37	1.37	0.22	64,691	1.27	2.72
OH - Unmanaged by Federal	110.41	0.00	0.45	1.93	1.93	0.78	55,357	100.00	100.00
OH - Managed by Federal	0.00								
WI - Unmanaged by Federal	96,519.50	0.00	0.46	4.83	4.83	0.80	49,475,999	99.00	98.10
WI - Managed by Federal	976.24	0.00	0.88	3.24	3.24	1.02	958,188	1.00	1.90

SUMMARY

Total Area Unmanaged		Sum* Total	
(sq km)	226,649.24	Unmanaged	90,602,925
Total Area Managed		Sum* Total	
(sq km)	3,133.12	Managed	3,984,176
Total Area (sq km)	229,782.36	Total Sum*	94,587,100

Total Area Unmanaged		Sum* Total	
%	98.64	Unmanaged %	95.79
		Sum* Total	
Total Area Managed %	1.36	Managed %	4.21

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

Wood Thrush Predicted Relative Abundance Summary by State
State Managed Lands Versus Lands Not Under State Management

		Mean Predicted Count / Breeding Bird Survey						Percent Area Managed/	Percent Sum* Managed/
Description	Area (sq km)	Min	Mean	Max	Range	SD	Sum*	Unmanaged	Unmanaged
IA - Unmanaged by State	7,046.34	0.00	0.22	1.64	1.64	0.43	1,747,790	97.69	93.95
IA - Managed by State	166.51	0.00	0.61	1.61	1.61	0.55	112,500	2.31	6.05
IL - Unmanaged by State	3,278.40	0.00	0.26	2.44	2.44	0.56	939,695	98.80	96.29
IL - Managed by State	39.95	0.00	0.82	2.37	2.37	0.83	36,216	1.20	3.71
IN - Unmanaged by State	12,948.40	0.00	0.14	2.15	2.15	0.40	2,074,270	98.75	94.18
IN - Managed by State	163.72	0.00	0.70	2.14	2.14	0.76	128,172	1.25	5.82
MI - Unmanaged by State	56,466.40	0.00	0.53	4.38	4.38	0.86	33,227,500	96.23	90.58
MI - Managed by State	2,210.56	0.00	1.41	4.25	4.25	1.16	3,456,670	3.77	9.42
MN - Unmanaged by State	48,427.60	0.00	0.04	1.37	1.37	0.11	2,135,960	97.14	89.94
MN - Managed by State	1,428.22	0.00	0.15	0.95	0.95	0.22	238,795	2.86	10.06
OH - Unmanaged by State	101.07	0.00	0.40	1.93	1.93	0.74	44,744	91.54	80.83
OH - Managed by State	9.34	0.00	1.02	1.92	1.92	0.94	10,613	8.46	19.17
WI - Unmanaged by State	94,536.00	0.00	0.45	4.83	4.83	0.79	47,270,502	96.96	93.73
WI - Managed by State	2,959.68	0.00	0.96	3.65	3.65	0.92	3,163,670	3.04	6.27

SUMMARY

Total Area		Sum* Total	
Unmanaged (sq km)	222,804.21	Unmanaged	87,440,461
Total Area Managed		Sum* Total	
(sq km)	6,977.98	Managed	7,146,635
Total Area (sq km)	229,782.19	Total Sum*	94,587,096

Total Area		Sum* Total	
Unmanaged %	96.96	Unmanaged %	92.44
Total Area Managed		Sum* Total	
%	3.04	Managed %	7.56

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

Wood Thrush Predicted Relative Abundance Summary by State Tribal Lands Versus Lands Not Under Tribal Management

		Mean Predicted Count / Breeding Bird Survey						Percent Area Managed/	Percent Sum* Managed/
Description	Area (sq km)	Min	Mean	Max	Range	SD	Sum*	Unmanaged	Unmanaged
IA - Unmanaged by Tribal	7,212.85	0.00	0.23	1.64	1.64	0.44	1,860,290	100.00	100.00
IA - Managed by Tribal	0.00								
IL - Unmanaged by Tribal	3,318.35	0.00	0.26	2.44	2.44	0.56	975,910	100.00	100.00
IL - Managed by Tribal	0.00								
IN - Unmanaged by Tribal	13,112.10	0.00	0.15	2.15	2.15	0.41	2,202,440	100.00	100.00
IN - Managed by Tribal	0.00								
MI - Unmanaged by Tribal	58,154.70	0.00	0.56	4.38	4.38	0.89	36,440,901	99.11	99.34
MI - Managed by Tribal	522.27	0.00	0.42	2.69	2.69	0.78	243,302	0.89	0.66
MN - Unmanaged by Tribal	47,959.20	0.00	0.04	1.37	1.37	0.12	2,330,820	96.20	98.15
MN - Managed by Tribal	1,896.59	0.00	0.02	0.39	0.39	0.04	43,938	3.80	1.85
OH - Unmanaged by Tribal	110.41	0.00	0.45	1.93	1.93	0.78	55,357	100.00	100.00
OH - Managed by Tribal	0.00								
WI - Unmanaged by Tribal	96,268.00	0.00	0.44	4.83	4.83	0.76	47,248,998	98.74	93.68
WI - Managed by Tribal	1,227.65	0.00	2.34	4.13	4.13	1.44	3,185,180	1.26	6.32

SUMMARY

Total Area		Sum* Total					
Unmanaged (sq km)	226,135.61	Unmanaged	91,114,716				
Total Area Managed		Sum* Total					
(sq km)	3,646.51	Managed	3,472,420				
Total Area (sq km)	229,782.12	Total Sum*	94,587,136				

Total Area		Sum* Total	
Unmanaged %	98.41	Unmanaged %	96.33
Total Area Managed		Sum* Total	
%	1.59	Managed %	3.67

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