

# FALL SURVEY OF THE EASTERN POPULATION OF GREATER SANDHILL CRANES 2021 FINAL REPORT



Prepared by:

Rachael Pierce and Dave Fronczak

U.S. Fish and Wildlife Service

This report contains data tables and charts that may be large and complex. Readers that may need help reading and interpreting the data, or that may need data presented in an alternative format to facilitate reading and interpretation, should contact the U.S. Fish and Wildlife Service's Mississippi Flyway Representatives office (612/713-5411). Photo credit: E. Jason Wambsgans

## INTRODUCTION

The fall survey of Eastern Population (hereafter EP) of greater sandhill crane (*Grus canadensis tabida*) staging areas has been conducted throughout the Mississippi and Atlantic Flyways since 1979. The fall survey traditionally occurs during the last week of October under the assumption that the majority of EP sandhill cranes that breed in Canada have migrated to staging areas in the United States. The survey is a collaborative effort by state and federal agencies as well as citizen scientists.

We ask volunteers to visit recommended sites or sites in which cranes have been observed in previous years. Observation methods include roadside counts or point estimates (i.e., cranes departing from or arriving to a roost). Observers record date, start and stop times, location information, weather, and the number of cranes observed for each site.

This survey is not a complete census of EP sandhill cranes, but instead serves as an index of abundance. Over the past decade, EP sandhill cranes have expanded in both size and geographic range. The information collected allows the US Fish and Wildlife Service (Service) and Flyway Councils to quantify population estimates and trends of EP sandhill cranes to better manage this species.

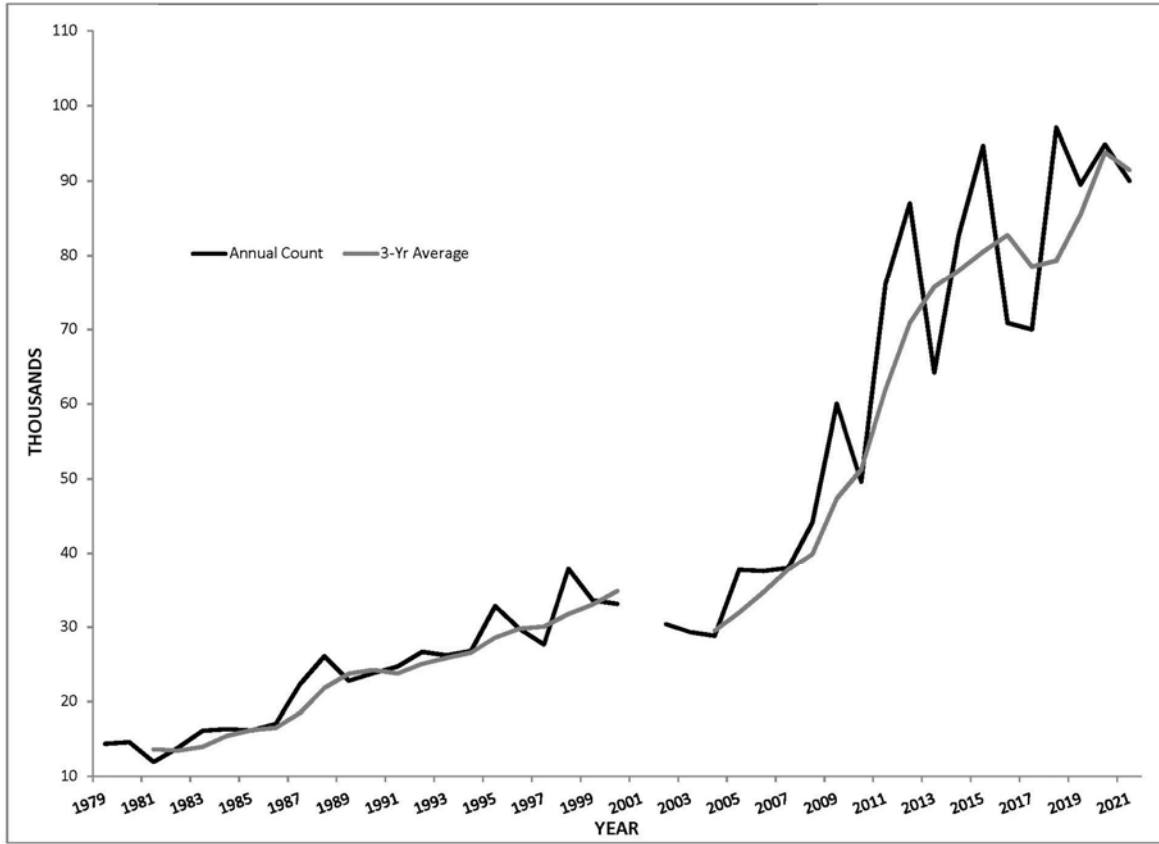
In 2019, the Service launched the EP sandhill crane fall survey data portal (<https://www.fws.gov/epsandhill/>). This online platform was designed to improve survey coordination, enhance communication, reduce the burden of data entry, and provide precise information about where roosting and foraging locations occur each year. Feedback over the last two years from survey volunteers have indicated that the platform works as intended, is easy to use, and significantly reduces the burden of data entry. The platform has also been a benefit to the Service by significantly reducing the time required to coordinate the survey and analyze the data. Each year, continued feedback from volunteers using the data portal helps the Service tweak the platform to continue to improve user functionality.

## RESULTS OF SURVEY

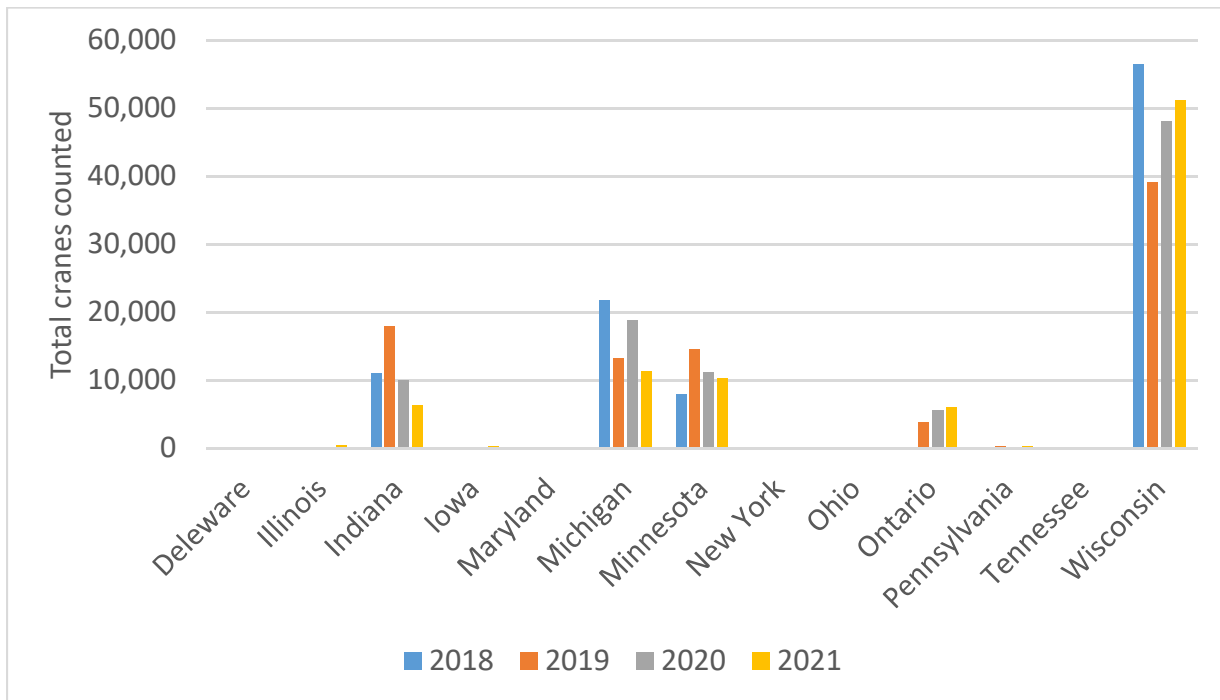
- In 2021, two new states, Illinois and Maryland, joined the Fall sandhill crane survey effort for the first time, bringing the total number of states and provinces participating to 13. While the number of cranes in these new states are low, it is encouraging to see that cranes continue to expand their range.
- The total number of EP sandhill cranes counted across the region for the 2021 survey was 90,029 (Figure 1). This was a 5% decline from 2020 (94,879 birds) and is likely the result of reduced effort in Michigan and a reduced number of birds counted at sites in Indiana (Figure 2, Figure 3). Wisconsin continued to have the largest percentage of birds (59%) followed by Michigan (11%), Minnesota (11%), and Indiana (7%).

- The number of sites surveyed in Michigan this year was 30% lower than in 2019 and 25% lower than in 2020 (Figure 3). Some counties that used to count large numbers of birds (e.g., Missaukee) no longer have a volunteer assigned. There was also a large decline in the number of birds counted in Ogemaw County in 2021. The continued decline in effort in Michigan is an indication that we need to focus on generating additional survey capacity in this state, especially at key staging areas. Northwest Indiana is usually a stronghold for staging EP sandhill cranes. However, in 2021 there was a 36% decline in the number of cranes counted. This does not appear to be the cause of reduced effort, but instead due to a reduced number of cranes staging at Jasper-Pulaski Wildlife Area and surrounding area at the time of the survey.
- The average U.S. temperature in November was 45.2 F, ranking seventh warmest in the November record. This record was primarily driven by the high temperatures in western states (including the western Midwest states such as MN, IA, and WI). More eastern Midwest states, however, were near the average temperature for this time of year (Figure 5). Despite some reports from Michigan that several regularly surveyed locations had high water levels in 2021, precipitation was near or below average for most states in the Midwest (Figure 6).

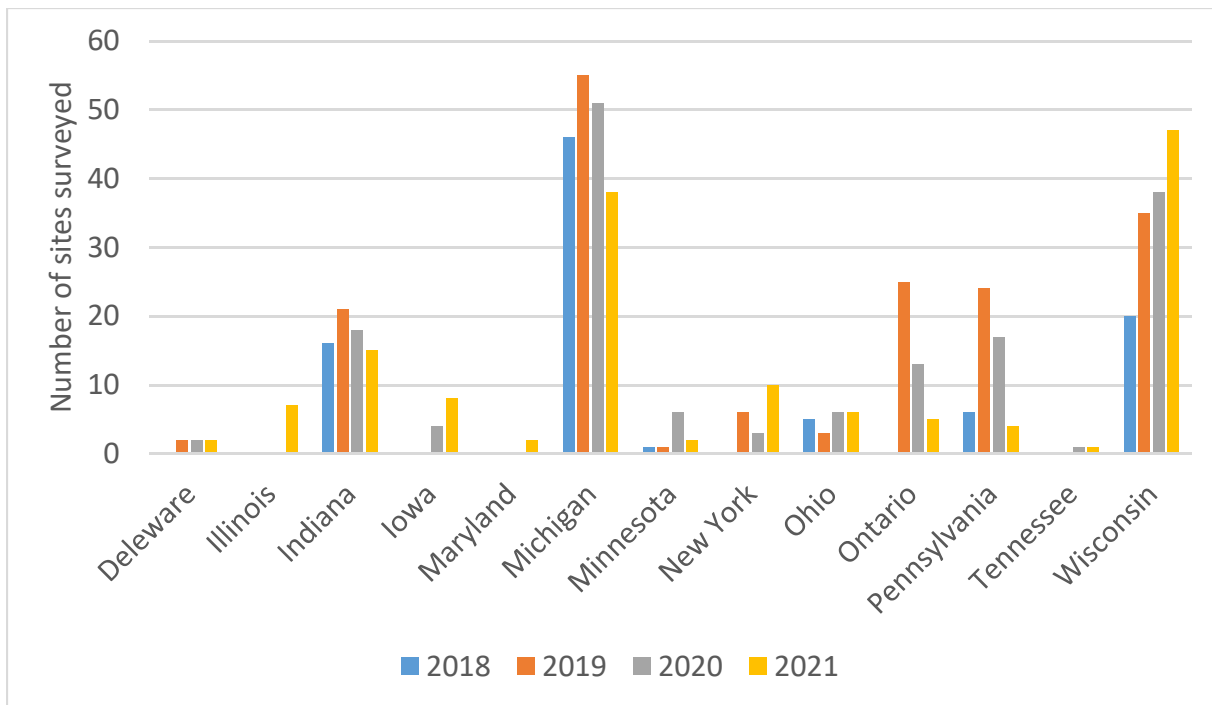
**Figure 1.** Total number of Eastern Population sandhill cranes counted, 1979 – 2020.



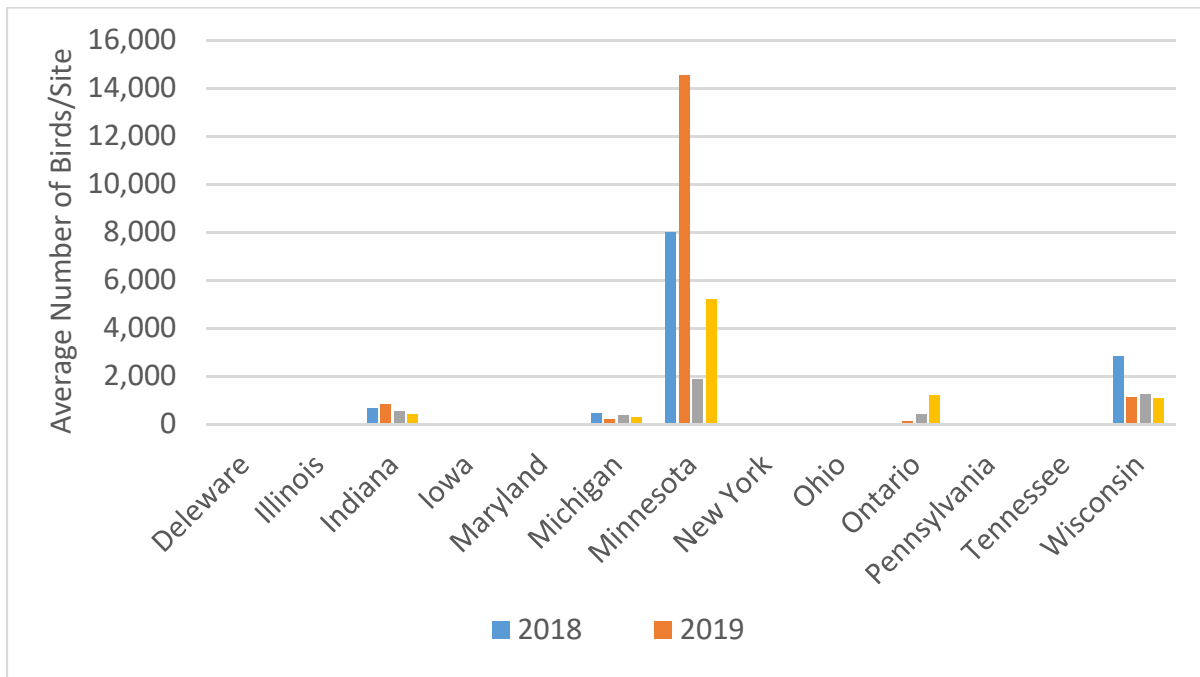
**Figure 2.** Total number of Eastern Population sandhill cranes by State, 2019 - 2021.



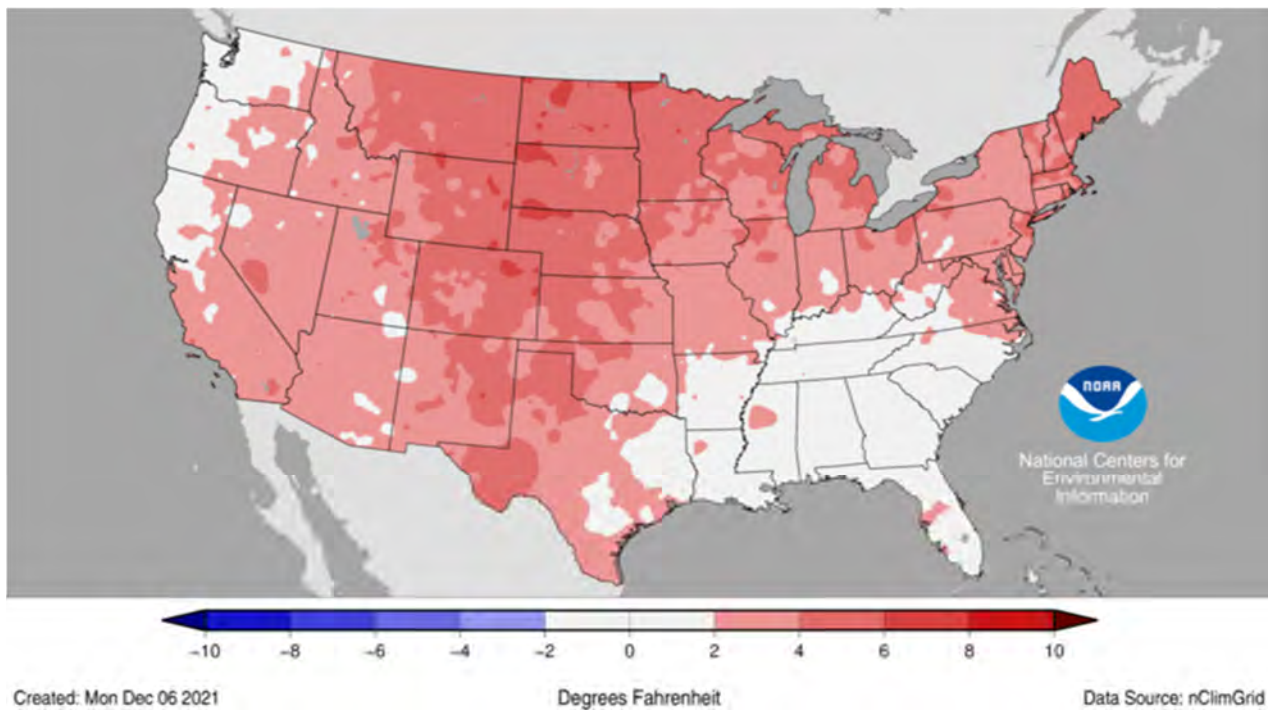
**Figure 3.** Total number of sites surveyed in each State, 2018 - 2021.



**Figure 4.** The average number of Eastern Population sandhill cranes at each site, 2017 - 2020.



**Figure 5.** Mean temperature departures from average for September – November 2021 (<https://www.ncdc.noaa.gov/sotc/national/202111>).



**Figure 6.** Percent of average precipitation for September – November 2021  
(<https://www.ncdc.noaa.gov/sotc/national/202111>).

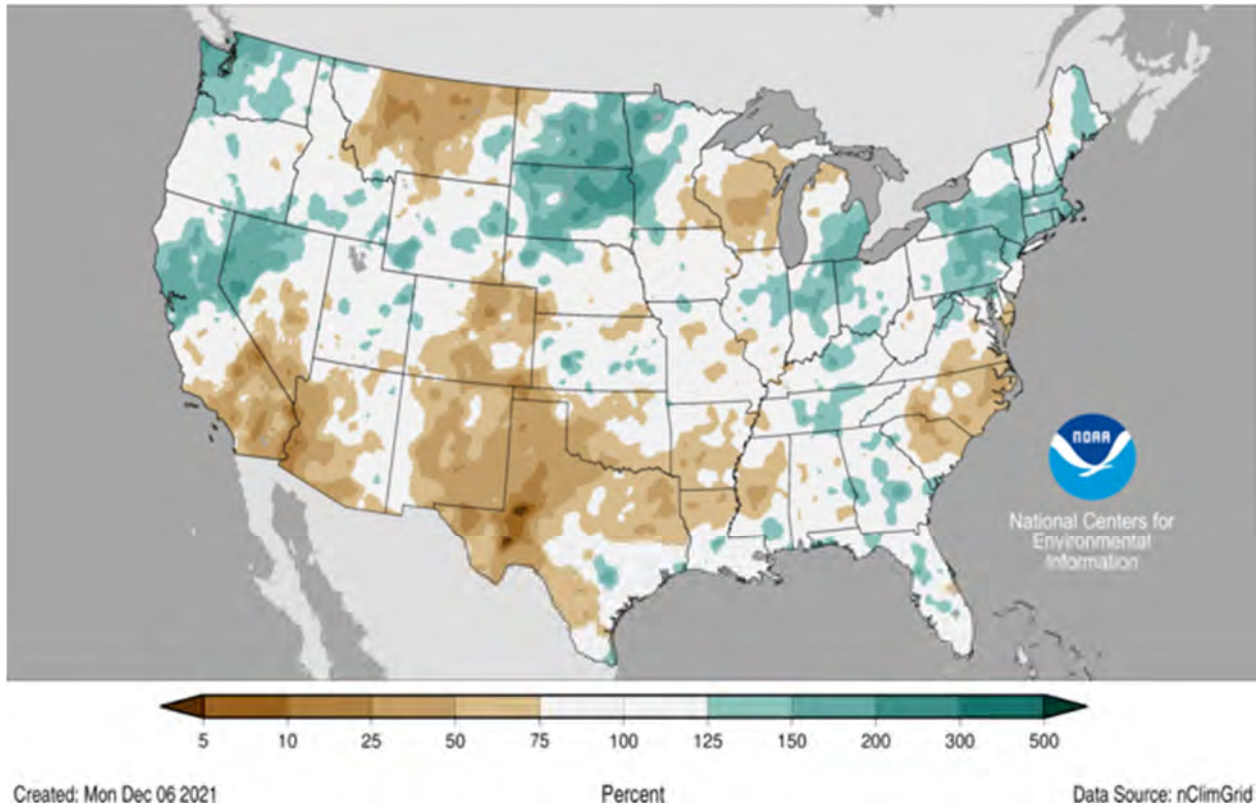


Table 1. Ten-year estimates of Eastern Population of greater sandhill cranes.

COUNTY / STATE / PROVINCE MUNICIPALITY	2012		2013		2014		2015		2016		2017		2018		2019		2020		2021	
	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites
Delaware New Castle														10	1	16	2	28	2	
<b>Delaware Total</b>														<b>10</b>	<b>1</b>	<b>16</b>	<b>2</b>	<b>28</b>	<b>2</b>	
Georgia Ware	48	1	45	1																
<b>Georgia Total</b>	<b>48</b>	<b>1</b>	<b>45</b>	<b>1</b>																
Illinois Carroll Grundy Jo Daviess Lake McHenry																			300	2
<b>Illinois Total</b>																			<b>424</b>	<b>7</b>
Indiana Brown Decatur Elkhart Franklin Greene Jackson Jasper Jennings Johnson Kosciusko LaPorte Monroe Newton Noble Pulaski Steuben Union Whitley					5	1	90	1	180	1	66	1	66	1	9	1	357	1	131	1
<b>Indiana Total</b>	<b>11126</b>	<b>5</b>	<b>9703</b>	<b>5</b>	<b>7234</b>	<b>6</b>	<b>10143</b>	<b>6</b>	<b>12435</b>	<b>8</b>	<b>6823</b>	<b>7</b>	<b>11077</b>	<b>8</b>	<b>17965</b>	<b>11</b>	<b>10030</b>	<b>18</b>	<b>6399</b>	<b>15</b>
Iowa Bremer Butler Hancock Jackson Louisa Polk Tama																	75	1	89	1
<b>Iowa Total</b>																	<b>238</b>	<b>4</b>	<b>354</b>	<b>8</b>
Maryland Garrett																			6	2
<b>Maryland Total</b>																			<b>6</b>	<b>2</b>
Michigan Allegan Barry Branch Calhoun Cass Charlevoix Cheboygan Chippewa Clinton Eaton Genesee Hillsdale Ingham Iosco Jackson Kalamazoo Lapeer Lenawee Livingston Mason Menominee Missaukee Montcalm Muskegon Oakland Ogemaw Ottawa Presque Isle Roscommon Saginaw Schoolcraft Shiawassee St. Joseph Washtenaw	197	1	64	1	428	1	465	1	1391	1	1287	1	1140	1	0	1			150	1
<b>Michigan Total</b>	<b>24785</b>	<b>24</b>	<b>18315</b>	<b>26</b>	<b>18955</b>	<b>24</b>	<b>23065</b>	<b>25</b>	<b>18856</b>	<b>18</b>	<b>16028</b>	<b>21</b>	<b>21127</b>	<b>22</b>	<b>13352</b>	<b>19</b>	<b>18874</b>	<b>51</b>	<b>11310</b>	<b>38</b>



Table 1. Ten-year estimates of Eastern Population of greater sandhill cranes.

COUNTY / STATE / PROVINCE MUNICIPALITY	2012		2013		2014		2015		2016		2017		2018		2019		2020		2021			
	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites	Count	# of Sites		
Minnesota Sherburne	4600	1	5918	1	8600	1	11331	1	7091	1	10026	1	8028	1	14578	1	11244	1	10411	2		
<b>Minnesota Total</b>	<b>4600</b>	<b>1</b>	<b>5918</b>	<b>1</b>	<b>8600</b>	<b>1</b>	<b>11331</b>	<b>1</b>	<b>7091</b>	<b>1</b>	<b>10026</b>	<b>1</b>	<b>8028</b>	<b>1</b>	<b>14578</b>	<b>1</b>	<b>11244</b>	<b>1</b>	<b>10411</b>	<b>2</b>		
New York Cayuga														0	1				21	2		
New York Genesee																			25	5		
New York Niagara																						
New York Seneca														71	1		34	1		0	2	
New York St. Lawrence																						
New York Wayne														0	1		71	2		120	1	
<b>New York Total</b>														<b>71</b>	<b>3</b>		<b>105</b>	<b>3</b>		<b>166</b>	<b>10</b>	
Ohio Lucas													0	1		4	1		12	1	3	1
Ohio Ottawa													41	1					10	1	24	1
Ohio Trumbull																					25	1
Ohio Wayne	47	1	47	1	105	1	78	1	110	1	165	1	137	1	212	1	45	1		179	2	
Ohio Williams													0	1					140	2		
Ohio Wyandot													0	1					0	1	2	1
<b>Ohio Total</b>	<b>47</b>	<b>1</b>	<b>47</b>	<b>1</b>	<b>105</b>	<b>1</b>	<b>78</b>	<b>1</b>	<b>110</b>	<b>1</b>	<b>165</b>	<b>1</b>	<b>178</b>	<b>5</b>	<b>216</b>	<b>2</b>	<b>207</b>	<b>6</b>		<b>233</b>	<b>6</b>	
Ontario Algoma District											563	1										
Ontario Dufferin														543	1							
Ontario Haldimand-Norfolk									224	1				64	1		262	1		256	1	
Ontario Renfrew																	1027	6		2384	1	
Ontario Simcoe														1517	1		1348	2		1186	1	
Ontario Victoria									298	1				1732	1		2500	3		1532	1	
Ontario Wellington																	527	1		745	1	
<b>Ontario Total</b>									<b>522</b>	<b>2</b>	<b>563</b>	<b>1</b>		<b>3856</b>	<b>4</b>		<b>5664</b>	<b>13</b>		<b>6103</b>	<b>5</b>	
Pennsylvania Berks																	6	1				
Pennsylvania Bradford			7	1	17	1	29	1					4	1	0	1			7	2		
Pennsylvania Crawford			71	1	67	1	84	1	96	1	76	1	71	1	195	1			77	5	216	1
Pennsylvania Erie														5	1							
Pennsylvania Lackawanna										6	1		3	1	4	1			3	1	4	1
Pennsylvania Lancaster														1	1							
Pennsylvania Lawrence			17	1	4	1	26	1	37	1	58	1	20	1	56	1			139	3	59	1
Pennsylvania Mercer														9	1				20	2		
Pennsylvania Pike														0	1							
Pennsylvania Somerset														0	1							
Pennsylvania Sullivan			3	1	3	1	2	1	7	1	30	1	5	1	4	1			11	2	2	1
Pennsylvania Susquehanna					2	1																
Pennsylvania Tioga														0	1							
Pennsylvania Wayne														0	1							
Pennsylvania Wyoming													3	1	4	1			2	1		
<b>Pennsylvania Total</b>			<b>98</b>	<b>4</b>	<b>93</b>	<b>5</b>	<b>141</b>	<b>4</b>	<b>140</b>	<b>3</b>	<b>170</b>	<b>4</b>	<b>106</b>	<b>6</b>	<b>278</b>	<b>13</b>		<b>265</b>	<b>17</b>		<b>281</b>	<b>4</b>
Tennessee Meigs	551	1	48	1	175	1			22	1	0	1	0	1								
Tennessee Obion													0	1					67	1	0	1
<b>Tennessee Total</b>	<b>551</b>	<b>1</b>	<b>48</b>	<b>1</b>	<b>175</b>	<b>1</b>			<b>22</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>				<b>67</b>	<b>1</b>		<b>0</b>	<b>1</b>
Wisconsin Adams							455	1			405	1							347	1	0	1
Wisconsin Burnett	12016	1	13327	1	21222	1	11352	1	11279	1	10929	1	9022	1	14543	1	10935	9	14634	13		
Wisconsin Columbia	4438	1	2263	1	3928	1	5068	1			2962	1	7222	1	2498	1	6731	6	3896	7		
Wisconsin Dane																				69	3	
Wisconsin Dodge	5465	1	593	1	120	1	0	1			2814	1	2152	1	7324	1	7490	1	9227	1		
Wisconsin Fond du Lac	0	1	0	1																		
Wisconsin Iowa	2539	1	1733	1			2131	1											172	1	2343	3
Wisconsin Juneau	2518	1	1940	1	1111	1	1227	1					2085	1	1881	1	90	1	258	1		
Wisconsin Kenosha	451	1	4	1	296	1	112	1	0	1	467	1	0	1	4	1	498	1				
Wisconsin Marathon	2101	1	1949	1	3105	1	1210	1	2152	1	3569	1	2321	1	2697	1	1663	1	3673	1		
Wisconsin Marquette	1436	1	1501	1	1421	1	1081	1							685	1			616	5		
Wisconsin Monroe																				17	1	
Wisconsin Oconto													765	1	807	1	1360	5				
Wisconsin Outagamie			19	1	622	1			107	1	2987	1	6275	1	1015	1	4572	1	2774	1		
Wisconsin Sauk					2452	1					1922	1	1900	1	2424	1	1830	6	512	6		
Wisconsin Shawano	9333	1	1909	1	7301	1	20626	1	12525	1	8812	1	15870	1	4124	1	3680	1	5888	1		
Wisconsin Walworth	1484	1	2323	1			156	1	20	1	280	1					472	1	750	1		
Wisconsin Waupaca	532	1	421	1	2761	1	786	1	385	1	1067	1			905	1	659	1				
Wisconsin Waushara	1969	1					555	1					2366	1			257	1				
Wisconsin Winnebago																					475	1
Wisconsin Wood	1550	1	2057	1	3193	1	5159	1	5214	1			5674	1	523	1	7413	1	6076	1		
<b>Wisconsin Total</b>	<b>45832</b>	<b>14</b>	<b>30039</b>	<b>14</b>	<b>47532</b>	<b>12</b>	<b>49918</b>	<b>14</b>	<b>31682</b>	<b>8</b>	<b>36214</b>	<b>11</b>	<b>56557</b>	<b>13</b>	<b>39178</b>	<b>13</b>	<b>48169</b>	<b>38</b>		<b>51208</b>	<b>47</b>	
<b>Grand Total</b>	<b>86989</b>	<b>47</b>	<b>64213</b>	<b>53</b>	<b>82694</b>	<b>50</b>	<b>94676</b>	<b>51</b>	<b>70858</b>	<b>42</b>	<b>69989</b>	<b>47</b>	<b>97073</b>	<b>57</b>	<b>89504</b>	<b>67</b>	<b>94879</b>	<b>154</b>		<b>86923</b>	<b>147</b>	