

# **East Central Landscape Resource Atlas**

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**A support document to the 2nd Generation MFRC East Central Landscape Plan**

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**May, 2018**



Minnesota Forest Resources Council (MFRC)

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# User's Guide

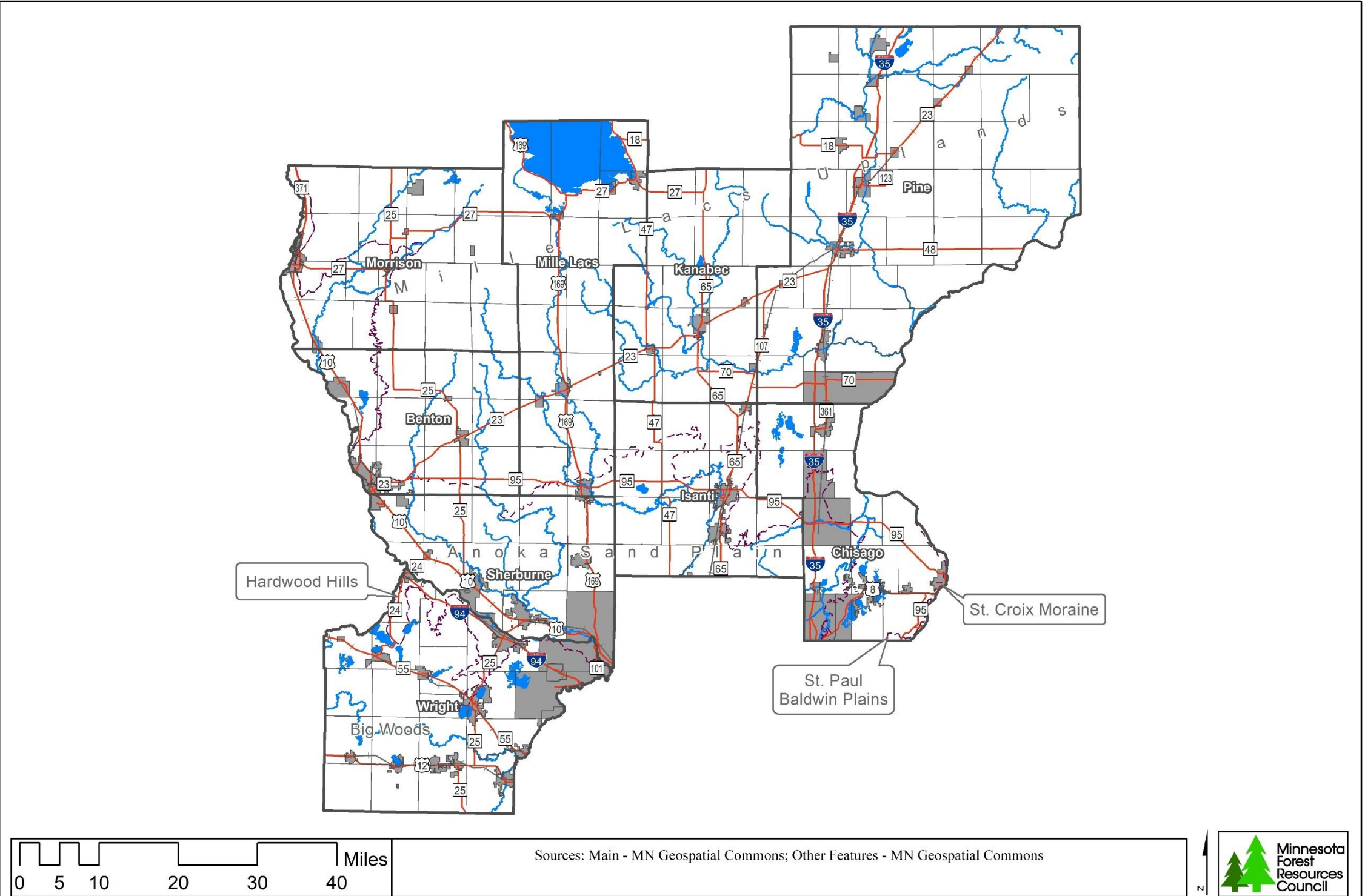
The purpose of this document is to provide geographic data as a reference for the Minnesota Forest Resources Council's Landscape Program. Included in this document are maps and tables regarding forest management topics for the East Central Landscape Region. When printed, the document is arranged with the maps on the left page and the tables regarding the map subject on the right page. This allows for easy side-by-side viewing of the maps and tables. In PDF format, the document contains bookmarks for easy navigation to map topics. Current geographical features are included on all maps (including presettlement land cover) to provide a spatial reference for the map user. Sources are listed for each map; more details regarding sources can be found in the bibliography at the end of the document. Boundaries for MFRC Landscape Regions are available upon request; users are encouraged to seek authoritative sources for other GIS data.




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# Political Boundaries

## East Central Landscape Region



 County Boundaries  
 Municipal Boundaries  
 Cities

 Highways  
 Railroads  
 Lakes  
 Rivers  
 ECS Subsections

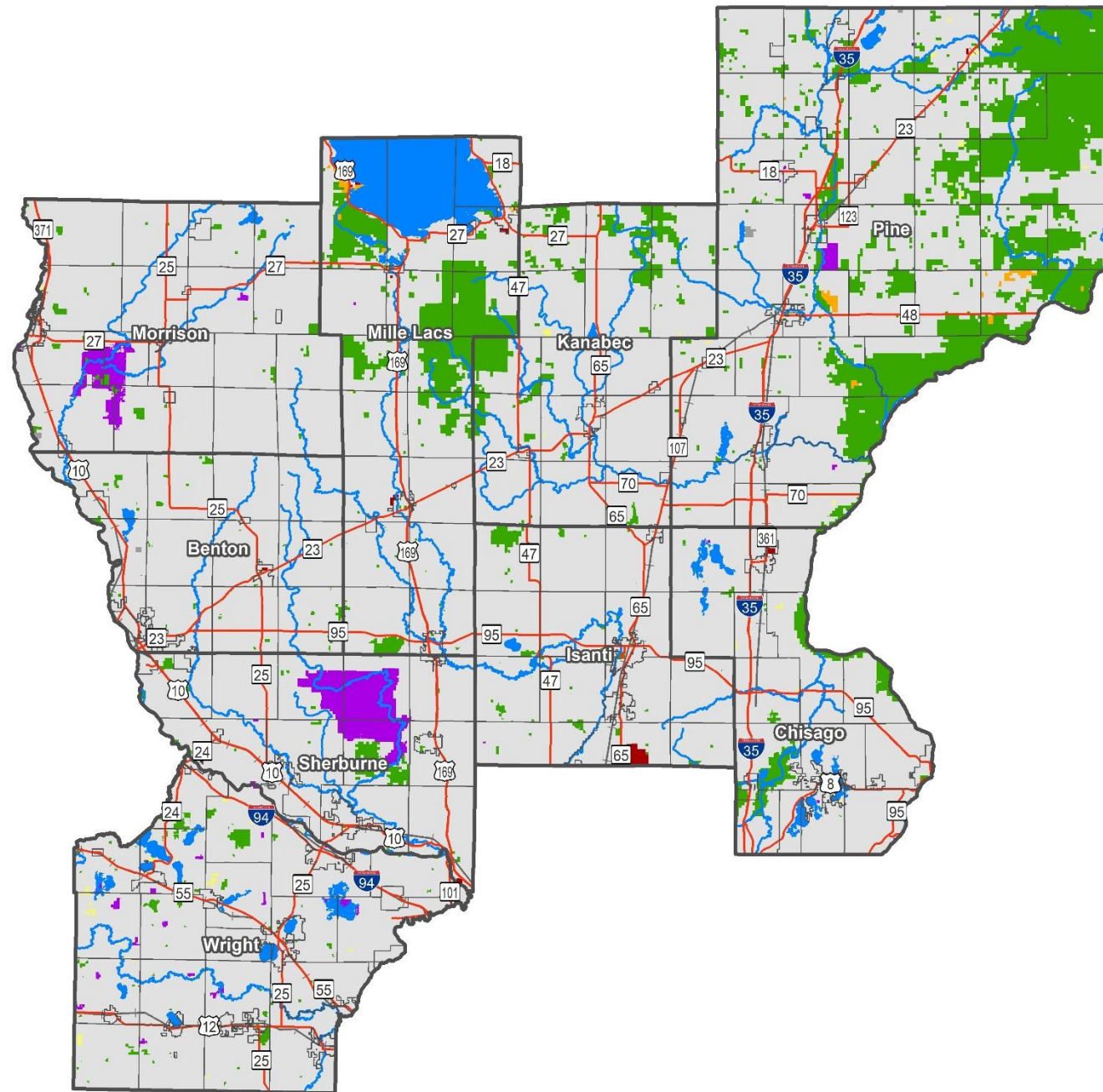


**Political Boundaries Table**

County	Area		Municipal Divisions			
	Acres	% of Region	Cities	Townships	Unorganized Territories	Total Municipal
Benton	264,245	7.2	7	12	0	<b>19</b>
Chisago	283,043	7.7	10	9	0	<b>19</b>
Isanti	288,811	7.8	4	13	0	<b>17</b>
Kanabec	341,250	9.3	5	15	0	<b>20</b>
Mille Lacs	435,754	11.8	8	17	0	<b>25</b>
East Morrison	406,807	11.0	8	17	0	<b>25</b>
Pine	917,457	24.9	14	33	0	<b>47</b>
Sherburne	288,373	7.8	7	10	0	<b>17</b>
Wright	456,982	12.4	16	18	0	<b>34</b>
Totals	<b>3,682,722</b>	<b>100.0</b>	<b>79</b>	<b>144</b>	<b>0</b>	<b>223</b>

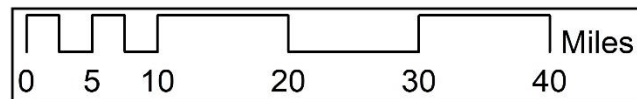
# Land Ownership Types (1976-2007)

## East Central Landscape Region



### GAP Land Ownership Types

- Federal
- State
- County
- Other Public
- Private Conservancy
- Tribal
- Private



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



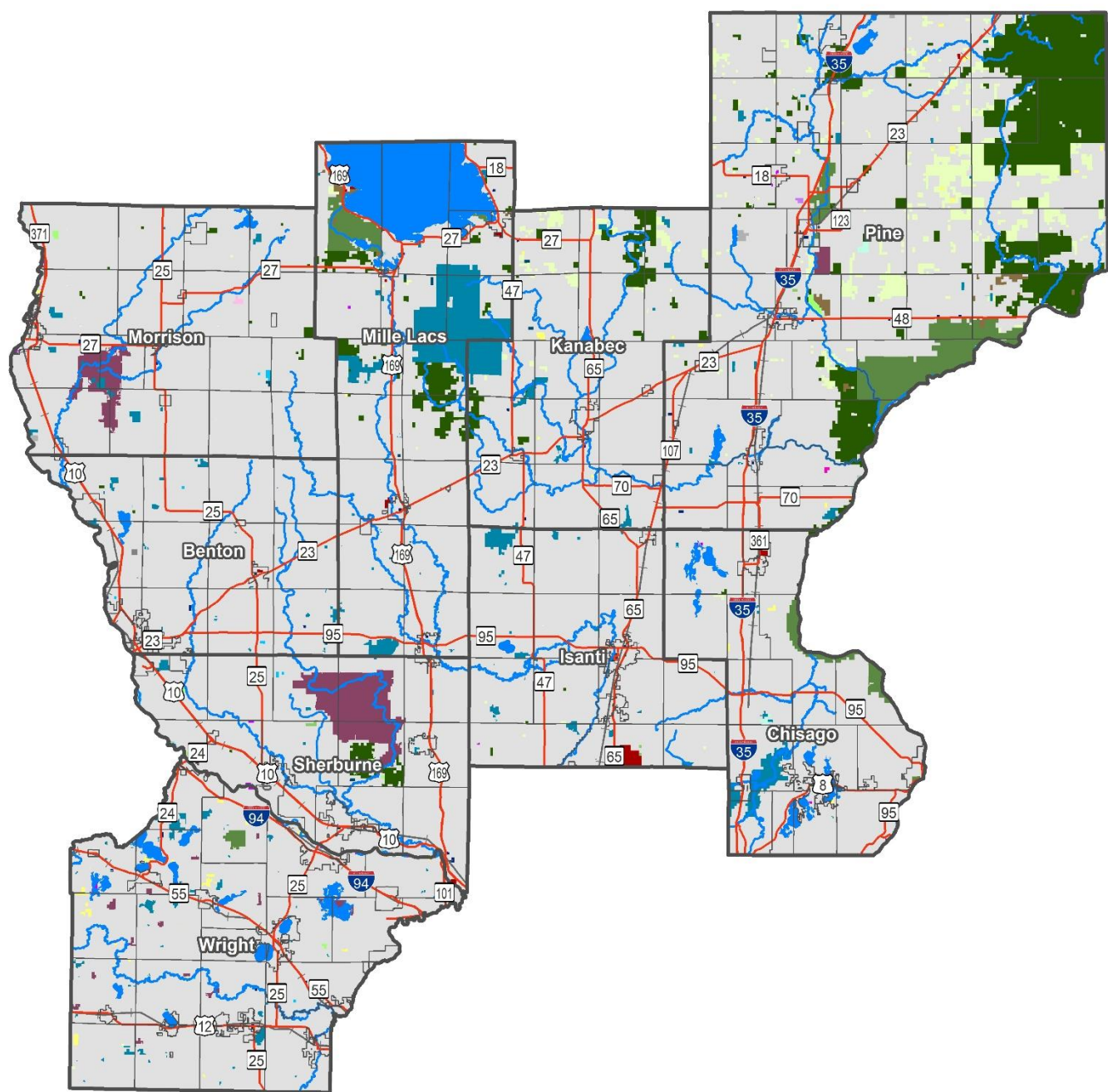


**Land Ownership Types (1976-2007) Table**

Ownership Type	Acres	% of Region
Federal	49,836	1.4
State	390,097	10.6
County	4,678	0.1
Other Public	3,406	0.1
Private Conservancy	1,067	0.0
Tribal	4,975	0.1
Private	3,226,776	87.7
Total East Central Region	3,680,836	100.0

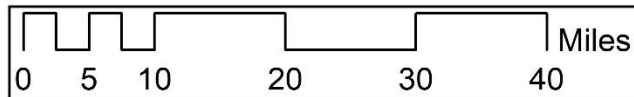
# Land Ownership (1976-2007)

## East Central Landscape Region



- GAP Land Ownership**
- Federal
- Army Corps of Engineers
  - Bureau of Land Management
  - Farmers Home Administration
  - U.S. Department of Agriculture
  - U.S. Fish and Wildlife Service
  - Unknown

- GAP Land Ownership**
- State
- County Admin/State Forest
  - County Admin/State Owned
  - County Admin/State Park
  - Department of Agriculture
  - Department of Corrections
  - Department of Military Affairs
  - Department of Transportation
  - Division of Ecological Services
  - Division of Fish and Wildlife
  - Division of Forestry
  - Division of Parks and Recreation
  - Division of Trails and Waterways
  - Division of Waters
  - Minnesota DNR (Undifferentiated)
  - State (Undifferentiated)
- County
- County
  - Other Public
  - Other Public
  - Private Conservancy
  - Private Conservancy
  - The Nature Conservancy
- Tribal
- Minnesota Chippewa Indians
- Private
- Private



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



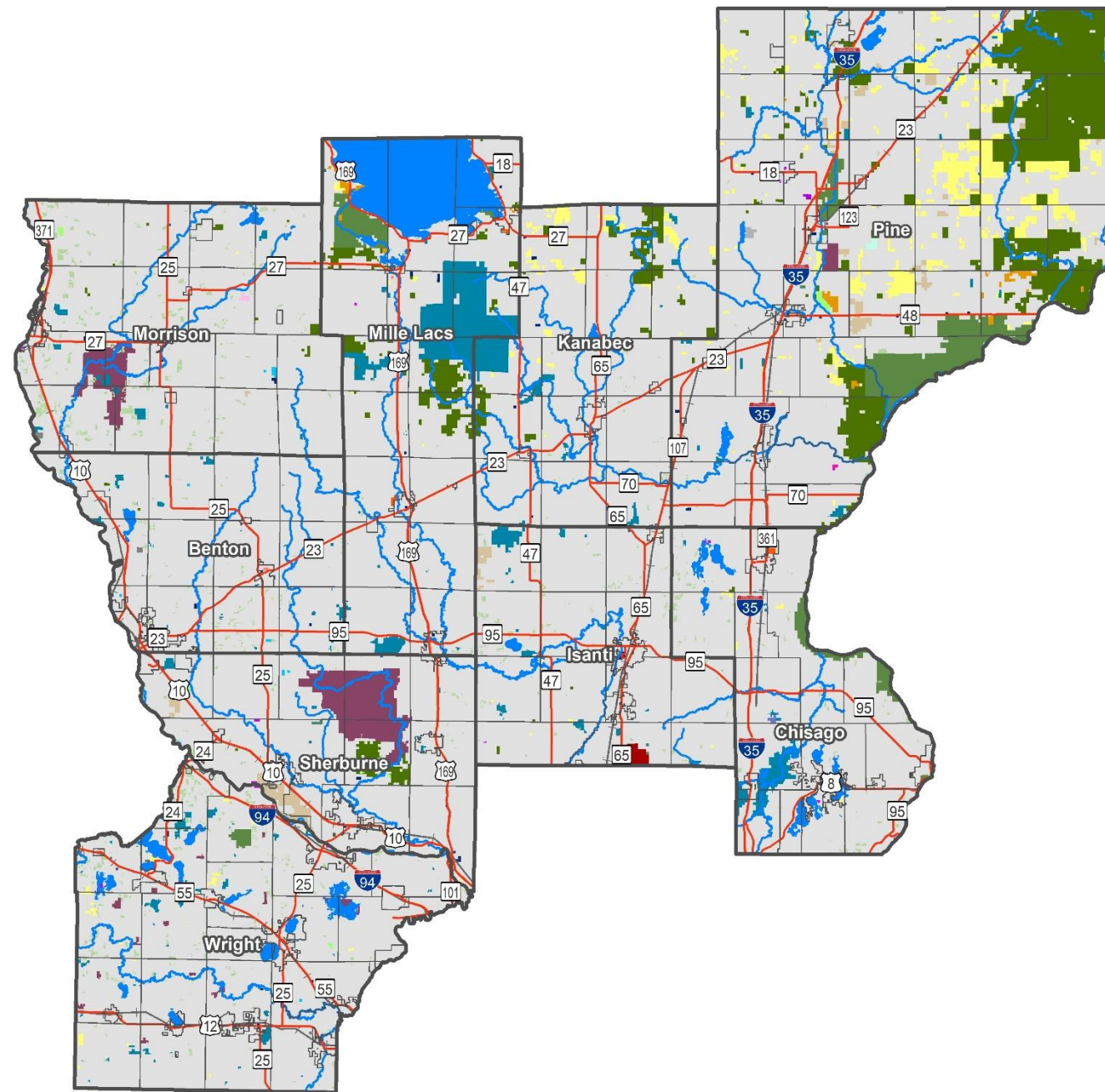
**Land Ownership (1976-2007) Table**

Ownership Type	Land Ownership	Acres	% of Total
Federal	Army Corps of Engineers	29	0.0
	Bureau of Land Management	1,127	0.0
	Farmers Home Administration	120	0.0
	U.S. Department of Agriculture	195	0.0
	U.S. Fish and Wildlife Service	48,014	1.3
	Unknown	351	0.0
<b>Total Federal</b>		<b>49,836</b>	<b>1.4</b>
State	County Admin/State Owned	58,504	1.6
	Department of Corrections	351	0.0
	Department of Military Affairs	215	0.0
	Department of Transportation	2,366	0.1
	Division of Ecological Services	2,207	0.1
	Division of Fish and Wildlife	80,180	2.2
	Division of Forestry	184,613	5.0
	Division of Parks and Recreation	55,872	1.5
	Division of Trails and Waterways	3,086	0.1
	Division of Waters	972	0.0
	Minnesota DNR (Undifferentiated)	800	0.0
	State (Undifferentiated)	931	0.0
<b>Total State</b>		<b>390,097</b>	<b>10.6</b>
County	County	4,678	0.1
<b>Total County</b>		<b>4,678</b>	<b>0.1</b>
Other Public	Other Public	3,406	0.1
<b>Total Other Public</b>		<b>3,406</b>	<b>0.1</b>
Private Conservancy	Private Conservancy	905	0.0
	The Nature Conservancy	162	0.0
<b>Total Private Conservancy</b>		<b>1,067</b>	<b>0.0</b>
<b>Total Public and Private Conservancy</b>		<b>449,085</b>	<b>12.2</b>
Tribal	Minnesota Chippewa Indians	4,975	0.1
<b>Total Tribal</b>		<b>4,975</b>	<b>0.1</b>
<b>Total Private</b>	<b>Private</b>	<b>3,226,776</b>	<b>87.7</b>
<b>Total East Central Region</b>		<b>3,680,836</b>	<b>100.0</b>



# Land Management (1976-2007)

## East Central Landscape Region

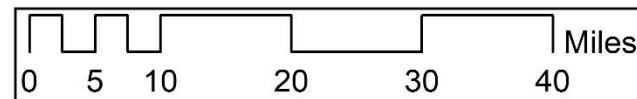


### GAP Land Management

- Army Corps of Engineers
- Bureau of Land Management
- Farmers Home Administration
- U.S. Department of Agriculture
- U.S. Fish and Wildlife Service
- Unknown

### GAP Land Management

- State
  - Board of Water and Soil Resources
  - Department of Corrections
  - Department of Military Affairs
  - Department of Transportation
  - Division of Ecological Services
  - Division of Fish and Wildlife
  - Division of Forestry
  - Division of Parks and Recreation
  - Division of Trails and Waterways
  - Division of Waters
  - Minnesota DNR (Other)
  - State of Minnesota (Other)
- County
  - County
- Other Public
  - Municipal
  - School District
  - University
  - Other Public
- Private Conservancy
  - Private Conservancy
  - The Nature Conservancy
- Tribal
  - Mille Lacs Band
- Private
  - Private
  - Private Industrial
  - Private CRP



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons

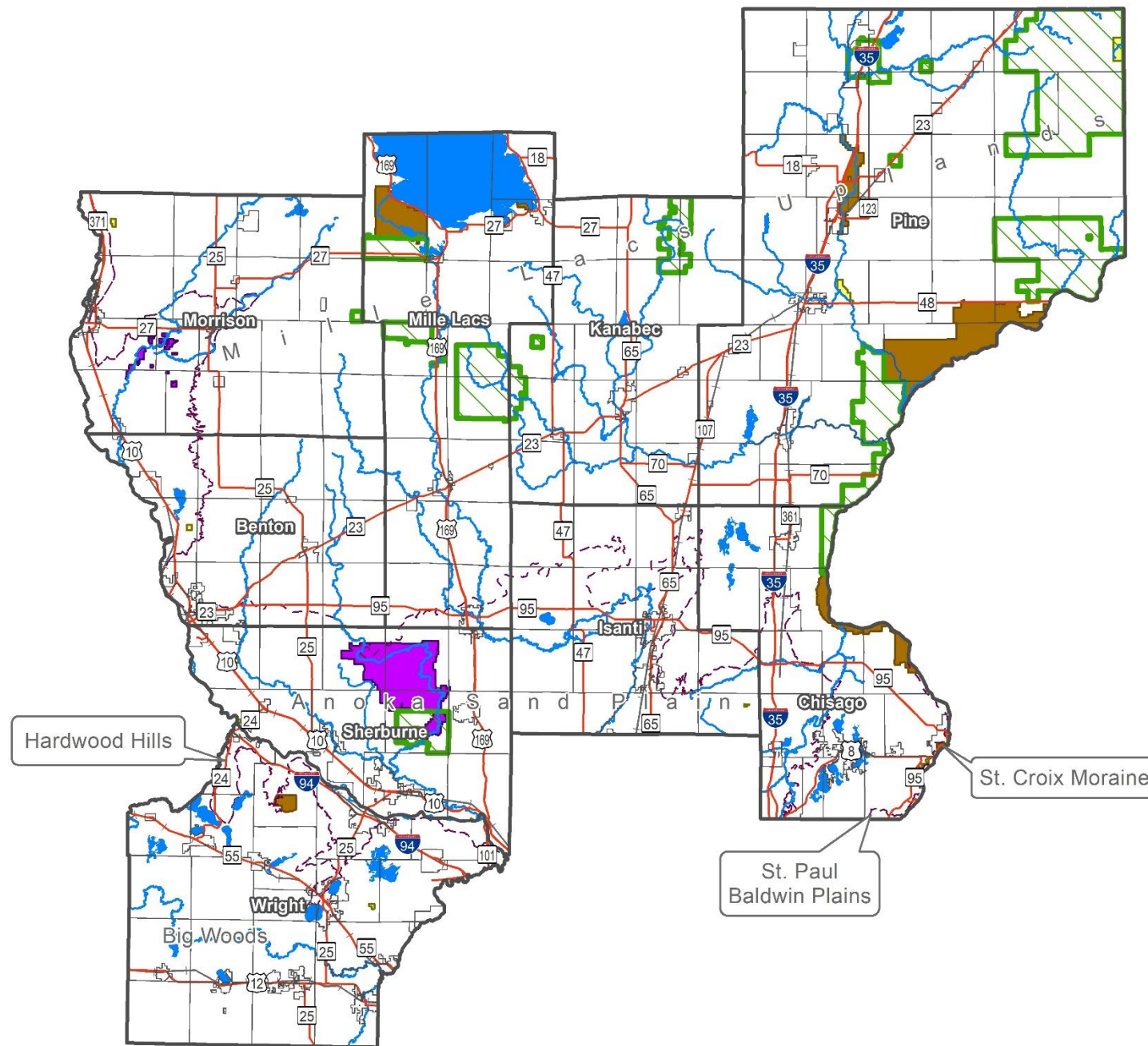


**Land Management (1976-2007) Table**

Management Type	Land Management	Acres	% of Total
Federal	Army Corps of Engineers	29	0.0
	Bureau of Land Management	1,127	0.0
	Farmers Home Administration	120	0.0
	U.S. Department of Agriculture	195	0.0
	U.S. Fish and Wildlife Service	48,014	1.3
	Unknown	351	0.0
<b>Total Federal</b>		<b>49,836</b>	<b>1.4</b>
State	Board of Water and Soil Resources	279	0.0
	Department of Corrections	351	0.0
	Department of Military Affairs	215	0.0
	Department of Transportation	2,366	0.1
	Division of Ecological Services	3,802	0.1
	Division of Fish and Wildlife	80,180	2.2
	Division of Forestry	183,018	5.0
	Division of Parks and Recreation	55,872	1.5
	Division of Trails and Waterways	3,086	0.1
	Division of Waters	972	0.0
	Minnesota DNR (undifferentiated)	521	0.0
	State of Minnesota (undifferentiated)	931	0.0
<b>Total State</b>		<b>331,593</b>	<b>9.0</b>
County	County	63,183	1.7
<b>Total County</b>		<b>63,183</b>	<b>1.7</b>
Other Public	Municipal	765	0.0
	School District	196	0.0
	University	2,189	0.1
	Other Public	255	0.0
<b>Total Other Public</b>		<b>3,406</b>	<b>0.1</b>
Private Conservancy	Private Conservancy	659	0.0
	The Nature Conservancy	408	0.0
<b>Total Private Conservancy</b>		<b>1,067</b>	<b>0.0</b>
<b>Total Public and Private Conservancy</b>		<b>449,085</b>	<b>12.2</b>
Tribal	Mille Lacs Band	4,975	0.1
<b>Total Tribal</b>		<b>4,975</b>	<b>0.1</b>
<b>Total Private</b>	<b>Private</b>	<b>3,226,776</b>	<b>87.7</b>
<b>Total East Central Region</b>		<b>3,680,836</b>	<b>100.0</b>

# Proclamation Areas

## East Central Landscape Region

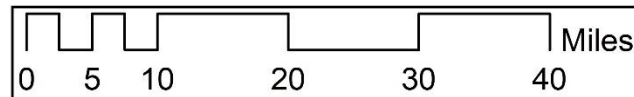


### Proclamation Areas

- State Forest Statutory Areas
- Scientific and Natural Areas
- State Park, Recreation Area, & Wayside Statutory Areas
- National Wildlife Refuges

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





Proclamation Areas Tables

State Forest Statutory Areas	Acres	% of Region
Chengwatana	28,953	0.8
D.A.R.	643	0.0
General C.C. Andrews	7,771	0.2
Nemadji	81,671	2.2
Rum River	40,605	1.1
Sand Dunes	11,041	0.3
Snake River	9,636	0.3
Solana	0	0.0
St. Croix	42,130	1.1
<b>Total State Forest Statutory Areas</b>	<b>222,450</b>	<b>6.0</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

Scientific and Natural Areas	Acres	% of Region
Black Lake Bog	1,461	0.0
Clear Lake	80	0.0
Englund Ecotone	165	0.0
Franconia Bluffs	87	0.0
Harry W. Cater Homestead Prairie	134	0.0
Kettle River	808	0.0
Lawrence Creek	72	0.0
Mary Schmidt Crawford Woods	118	0.0
Mississippi River Islands	203	0.0
Rice Lake Savanna	80	0.0
Ripley Esker	204	0.0
Rush Lake Island	23	0.0
Twin Lakes	46	0.0
Uncas Dunes	658	0.0
<b>Total SNAs</b>	<b>4,137</b>	<b>0.1</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

State Park, Recreation Area, & Wayside Statutory Areas	Acres	% of Region
Banning State Park	6,256	0.2
Charles A. Lindbergh State Park	14	0.0
Father Hennepin State Park	325	0.0
Interstate State Park	281	0.0
Lake Maria State Park	1,757	0.0
Mille Lacs Kathio State Park	11,624	0.3
St. Croix State Park	34,106	0.9
Wild River State Park	6,759	0.2
<b>Total Park, Rec, &amp; Wayside Statutory Areas</b>	<b>61,122</b>	<b>1.7</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

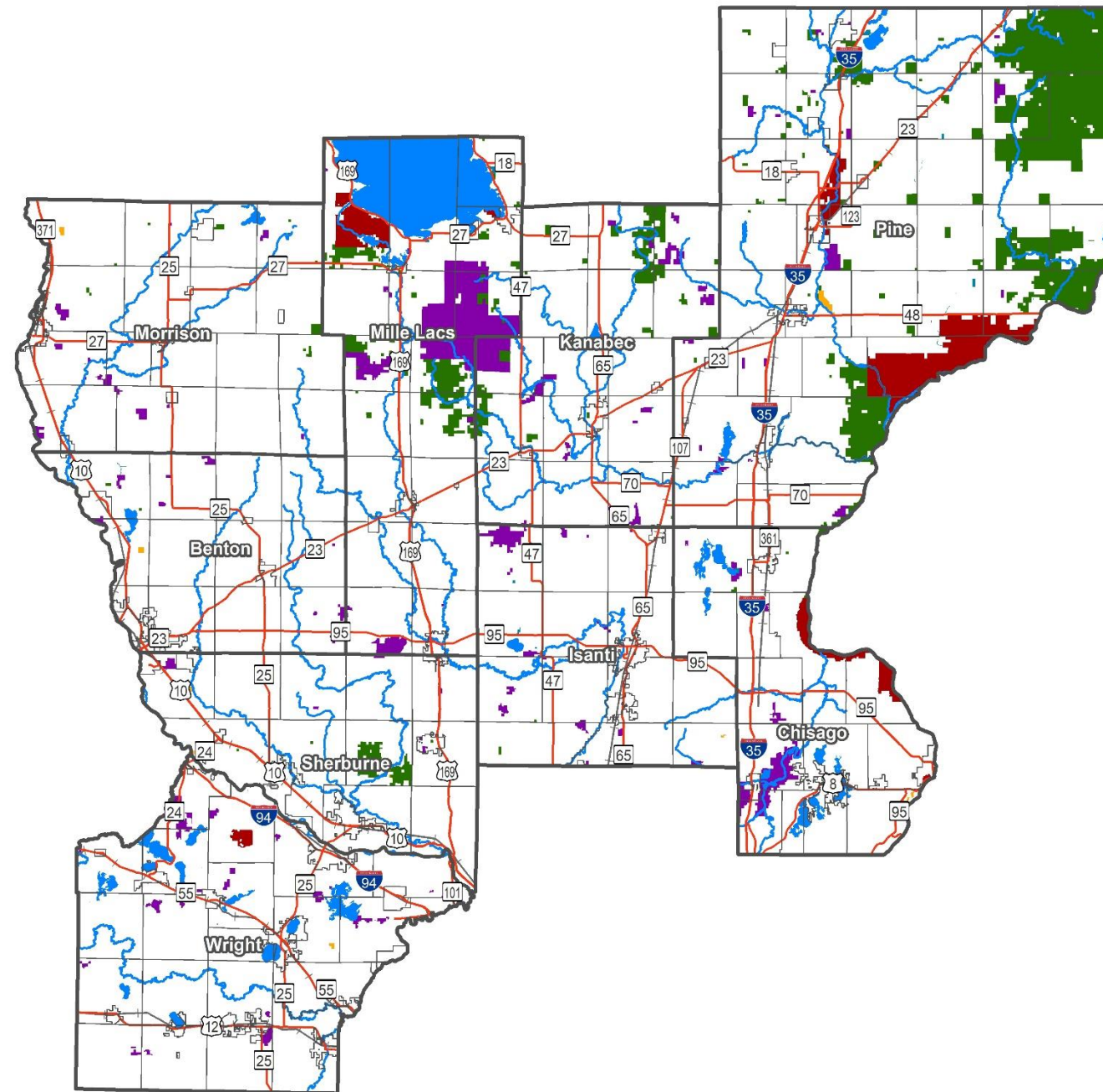
National Wildlife Refuges	Acres	% of Region
Crane Meadows National Wildlife Refuge	1,911	0.1
Mille Lacs National Wildlife Refuge	1	0.0
Sherburne National Wildlife Refuge	30,643	0.8
<b>Total National Wildlife Refuges</b>	<b>32,555</b>	<b>0.9</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

National Forest Statutory Areas	Acres
None	0

Proclamation Areas	Acres	% of Region
<b>Total State Forest Statutory Areas</b>	222,450	6.0
<b>Total SNAs</b>	4,137	0.1
<b>Total Park, Rec, &amp; Wayside Statutory Areas</b>	61,122	1.7
<b>Total National Wildlife Refuges</b>	32,555	0.9
<b>National Forest Statutory Areas</b>	0	0.0
<b>Total Proclamation Areas - no overlaps</b>	315,861	8.6
<b>Total East Central Region</b>	<b>3,680,836</b>	N/A

# DNR Administered Lands (2016)

## East Central Landscape Region

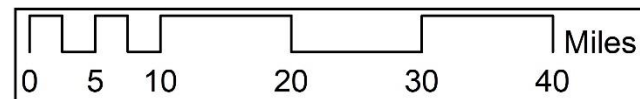


### DNR Administered Lands by Administrative Division

- Ecological and Water Resources
- Fisheries
- Forestry
- Parks and Trails
- Wildlife
- Unknown

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



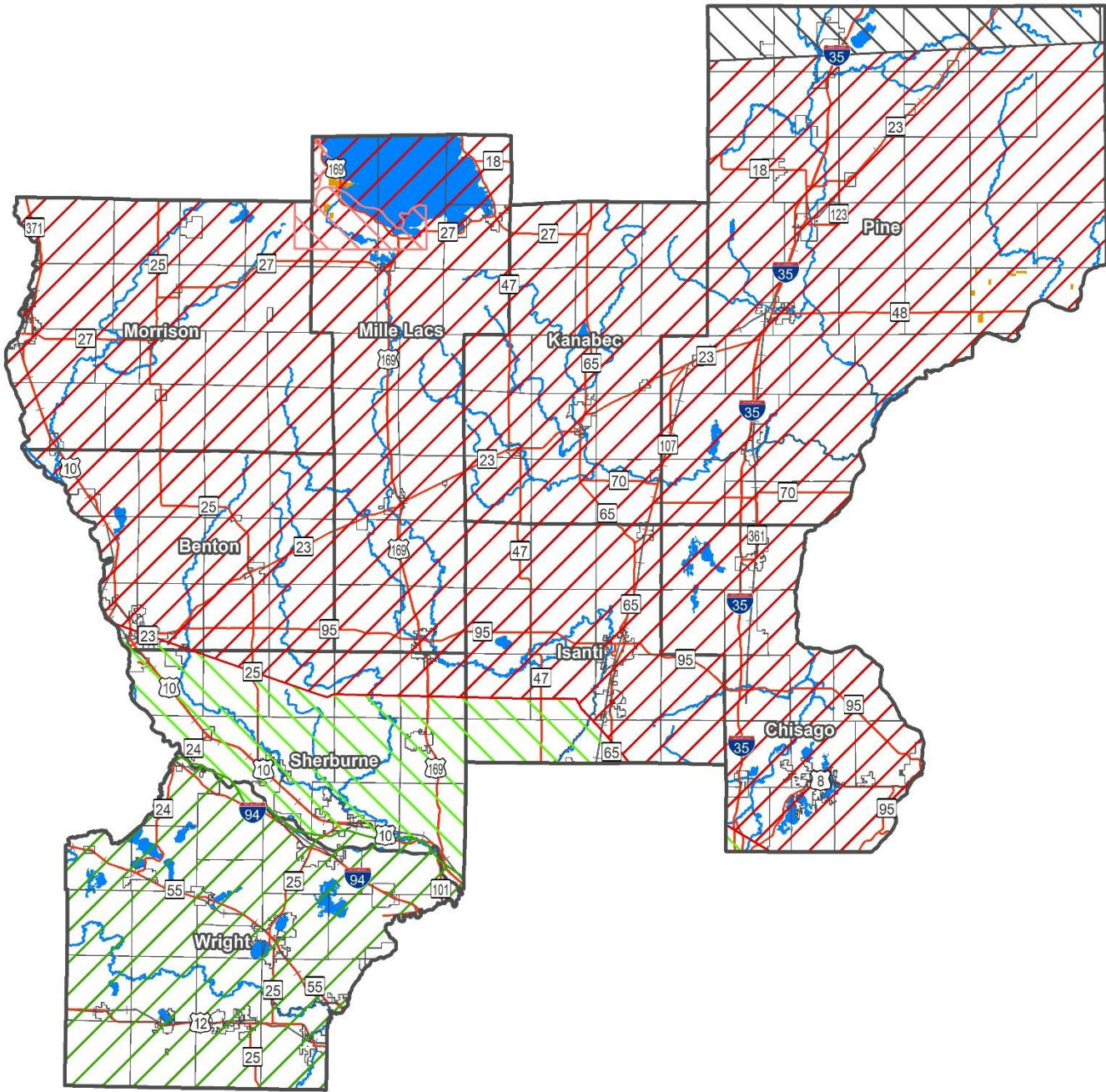


**DNR Administered Lands (2016) Table**

DNR Administered Lands by Administrative Division	Acres	% of Region
Ecological and Water Resources	2,062	0.1
Fisheries	2,024	0.1
Forestry	190,244	5.2
Parks and Trails	55,598	1.5
Wildlife	88,334	2.4
<b>DNR Administered Lands in East Central Region</b>	<b>338,261</b>	<b>9.2</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

# Native American Reservations and Treaty Boundaries

## East Central Landscape Region



### Native American Treaty Boundaries

- 1837 - Chippewa
- 1837 - Sioux
- 1847 - Chippewa of the Mississippi and Lake Superior
- 1851 - Sioux (Sissaton and Wahpoton bands)
- 1854 - Chippewa of the Mississippi and Lake Superior
- 1855 - Winnebago
- 1864 - Chippewa

### Native American Reservations

- Mille Lacs

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



## Native American Reservations and Treaty Boundaries Tables

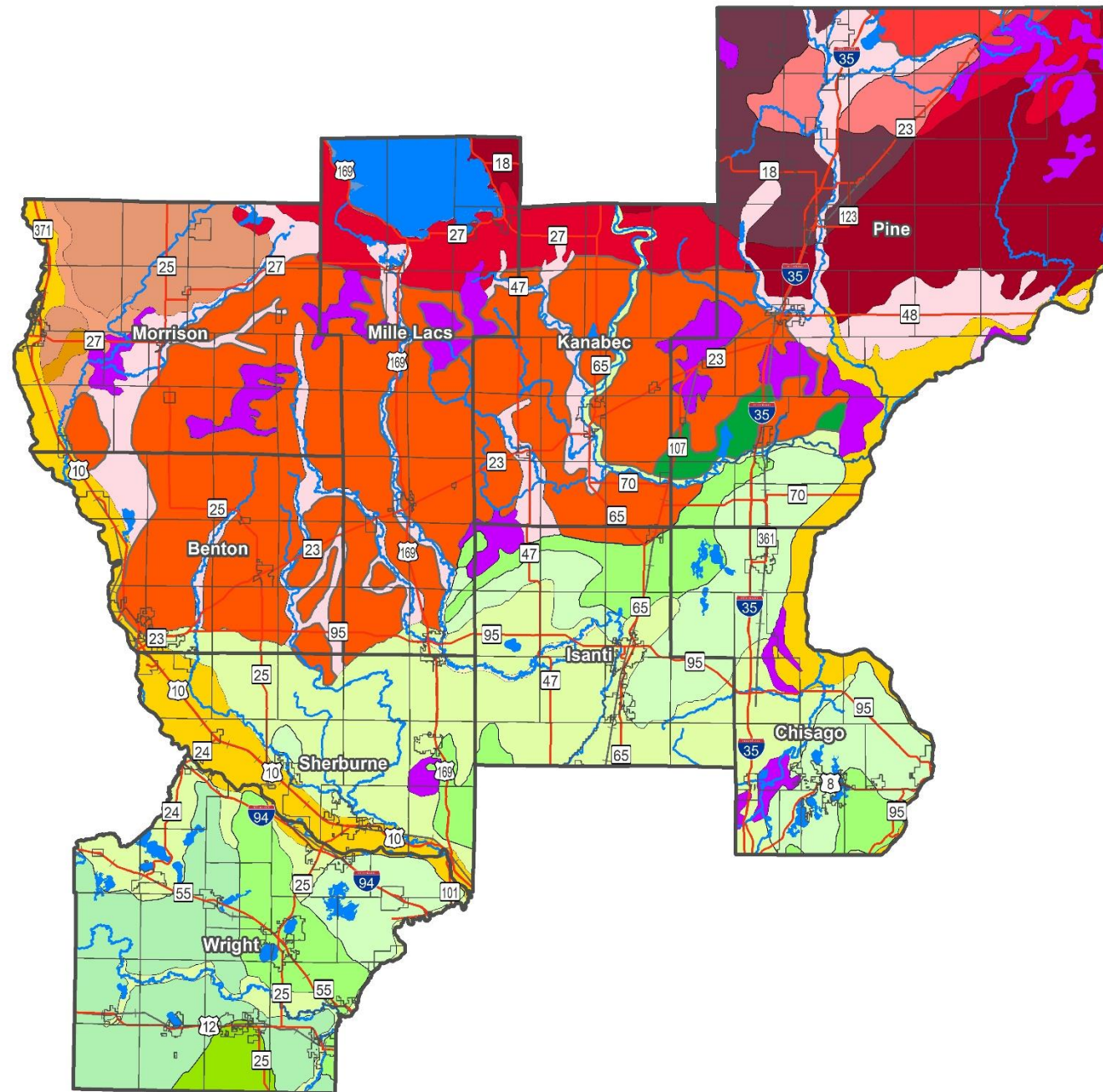
Reservation	Acres	% of Region
Mille Lacs	2,930	0.1
<b>Total Reservation Areas</b>	<b>2,930</b>	<b>0.1</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

Treaty	Acres	% of Region
1837 - Chippewa	2,831,540	76.9
1837 - Sioux	286,661	7.8
1847 - Chippewa of the Mississippi and Lake Superior	992	0.0
1851 - Sioux (Sisseton and Wahpeton bands)	464,547	12.6
1854 - Chippewa of the Mississippi and Lake Superior	96,175	2.6
1855 - Winnebago	992	0.0
1864 - Chippewa	35,202	1.0
<b>Total Treaty Areas</b>	<b>3,716,110</b>	<b>101.0</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	



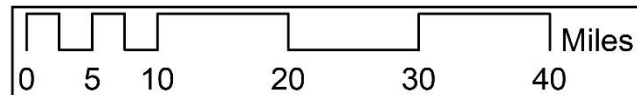
# Quaternary Geology

## East Central Landscape Region



### Quaternary Geology

- dag - Ground moraine
- das - Stagnation moraine
- dlc - Clay and clayey silt
- dpe - End moraine
- dpg - Ground moraine
- do - Outwash
- hal - Alluvium
- hp - Peat
- scg - Ground moraine
- scs - Stagnation moraine
- smg - Ground moraine
- sme - End moraine
- sne - End moraine
- ssg - Ground moraine
- so - Outwash
- rsg - Ground moraine
- rse - End moraine
- ro - Outwash
- td - Terraces (Holocene to Pleistocene)
- wat - Water



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



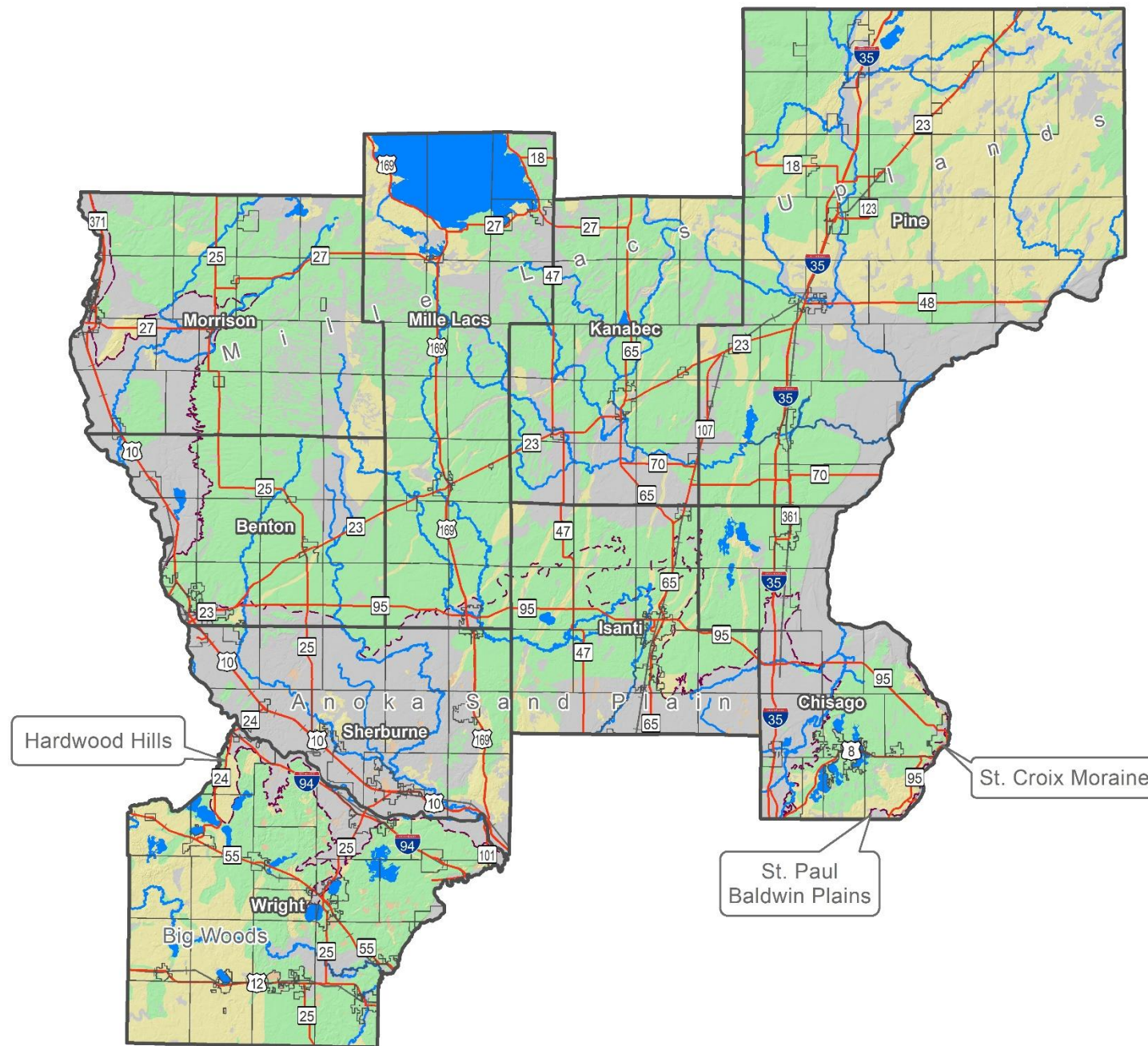
## Quaternary Geology Table

Quaternary Geology	Acres	% of Region
dag - Ground moraine	25,698	0.7
das - Stagnation moraine	202,074	5.5
dlc - Clay and clayey silt	25,629	0.7
do - Outwash	517,005	14.0
dpe - End moraine	197,960	5.4
dpg - Ground moraine	304,915	8.3
hal - Alluvium	8,357	0.2
hp - Peat	176,037	4.8
ro - Outwash	25,082	0.7
rse - End moraine	5,494	0.1
rsg - Ground moraine	109,926	3.0
scg - Ground moraine	121,921	3.3
scs - Stagnation moraine	56,809	1.5
sme - End moraine	166,750	4.5
smg - Ground moraine	270,818	7.4
sne - End moraine	27,533	0.7
so - Outwash	309,498	8.4
ssg - Ground moraine	820,245	22.3
td - Terraces (Holocene to Pleistocene)	242,183	6.6
wat - Water	66,688	1.8
<b>Total East Central Region</b>	<b>3,680,622</b>	<b>100.0</b>



# Landforms

## East Central Landscape Region

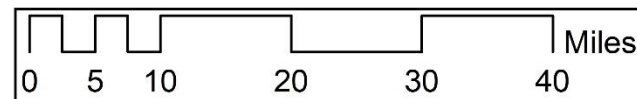


### Landforms

- Level
- Rolling to Undulating
- Hummocky
- Inclined Slopes (Rolling-Steep)
- Steep
- Undifferentiated

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



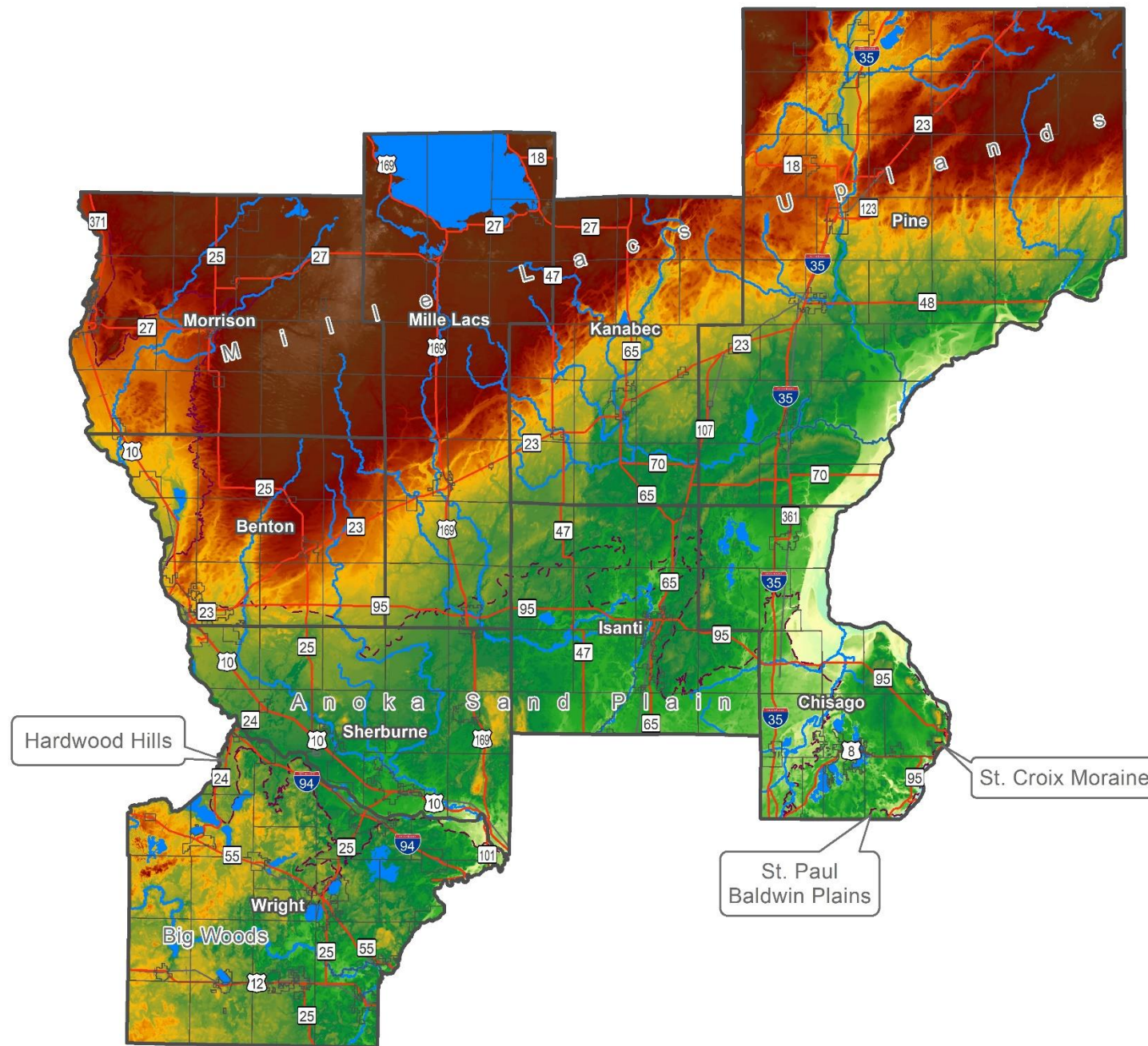
**Landforms Table**

Landforms	Acres	% of Region
Level	1,113,561	30.3
Rolling to Undulating	1,758,161	47.8
Hummocky	724,192	19.7
Inclined Slopes (Rolling-Steep)	0	0.0
Steep	405	0.0
Undifferentiated	84,451	2.3
Total East Central Region	3,680,769	100.0



# Topography

## East Central Landscape Region

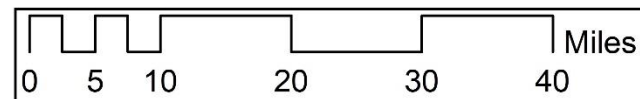


### Elevation (feet)

High : 1605  
Low : 595

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- + Railroads
- Lakes
- Rivers
- ECS Subsections



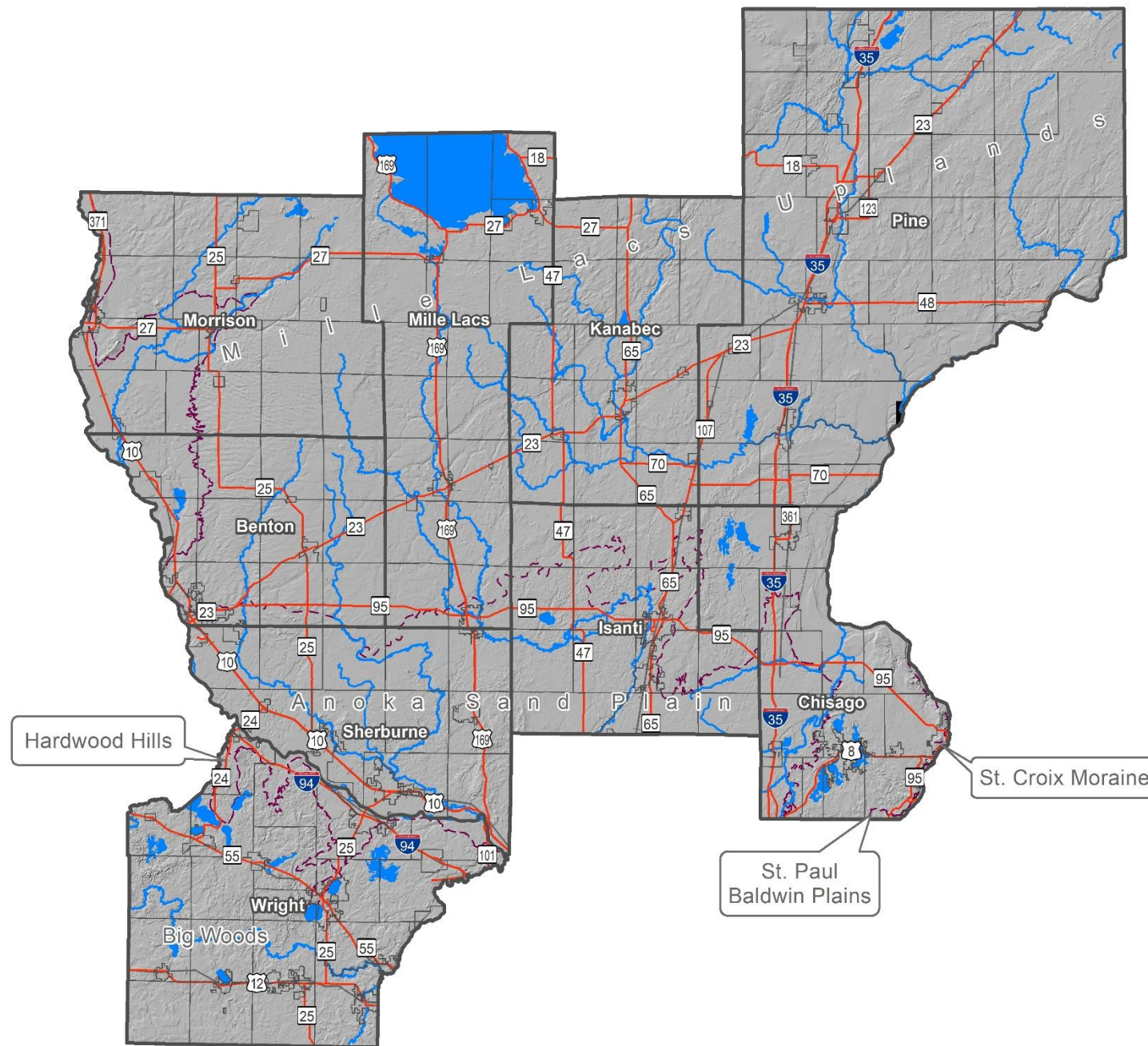
Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





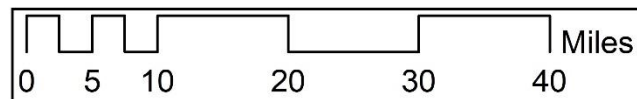
# Shaded Relief

## East Central Landscape Region



### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



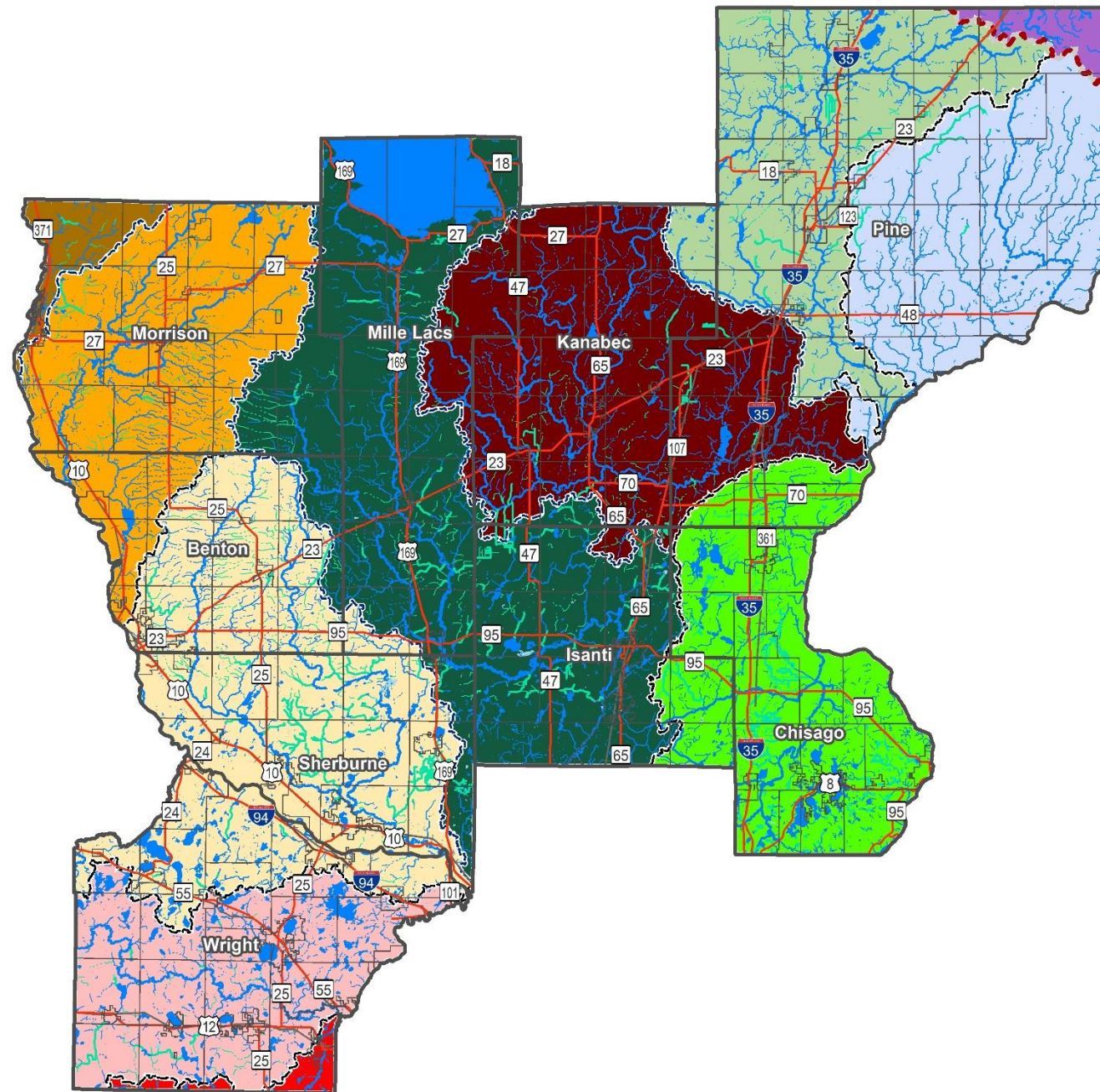
Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





# Major Watersheds

## East Central Landscape Region



### Water Features

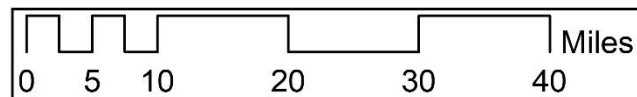
- Lake, Pond or Reservoir; River or Stream
- Gravel, Mine Pit or Quarry
- Inundation Area or Intermittent Water
- River
- Stream (Perennial)
- Stream (Intermittent)
- Drainage Ditch (Perennial)
- Drainage Ditch (Intermittent)

### Continental Divides

- - - St. Lawrence Divide

### DNR Level 04 - HUC 08 - Majors

- Kettle River
- Lower St. Croix River
- Mississippi River - Brainerd
- Mississippi River - Sartell
- Mississippi River - St. Cloud
- Nemadji River
- North Fork Crow River
- Rum River
- Snake River
- South Fork Crow River
- Upper St. Croix River



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



## Major Watersheds Tables

Major Watershed	Acres	% of Region
Kettle River	374,412	10.2
Lower St. Croix River	370,392	10.1
Mississippi River - Brainerd	44,747	1.2
Mississippi River - Sartell	359,844	9.8
Mississippi River - St. Cloud	577,881	15.7
Mississippi River - Twin Cities	176	0.0
Nemadji River	33,311	0.9
North Fork Crow River	300,824	8.2
Rum River	736,736	20.0
Snake River	513,427	13.9
South Fork Crow River	21,367	0.6
Upper St. Croix River	347,720	9.4
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>

DNR Hydrography Water Features	Acres
Lake, Pond or Reservoir; River or Stream	18,436
Gravel, Mine Pit or Quarry	188
Tailings Pond	15,768
Inundation Area or Intermittent Water	3,584

Streams (displayed in map)	Miles
Centerline (River)	1,148.2
Connector (River)	17.0
Stream (Perennial)	1,446.2
Stream (Intermittent)	2,265.7
Drainage Ditch (Perennial)	506.8
Drainage Ditch (Intermittent)	841.2
<b>Total East Central Region</b>	<b>6,225.0</b>

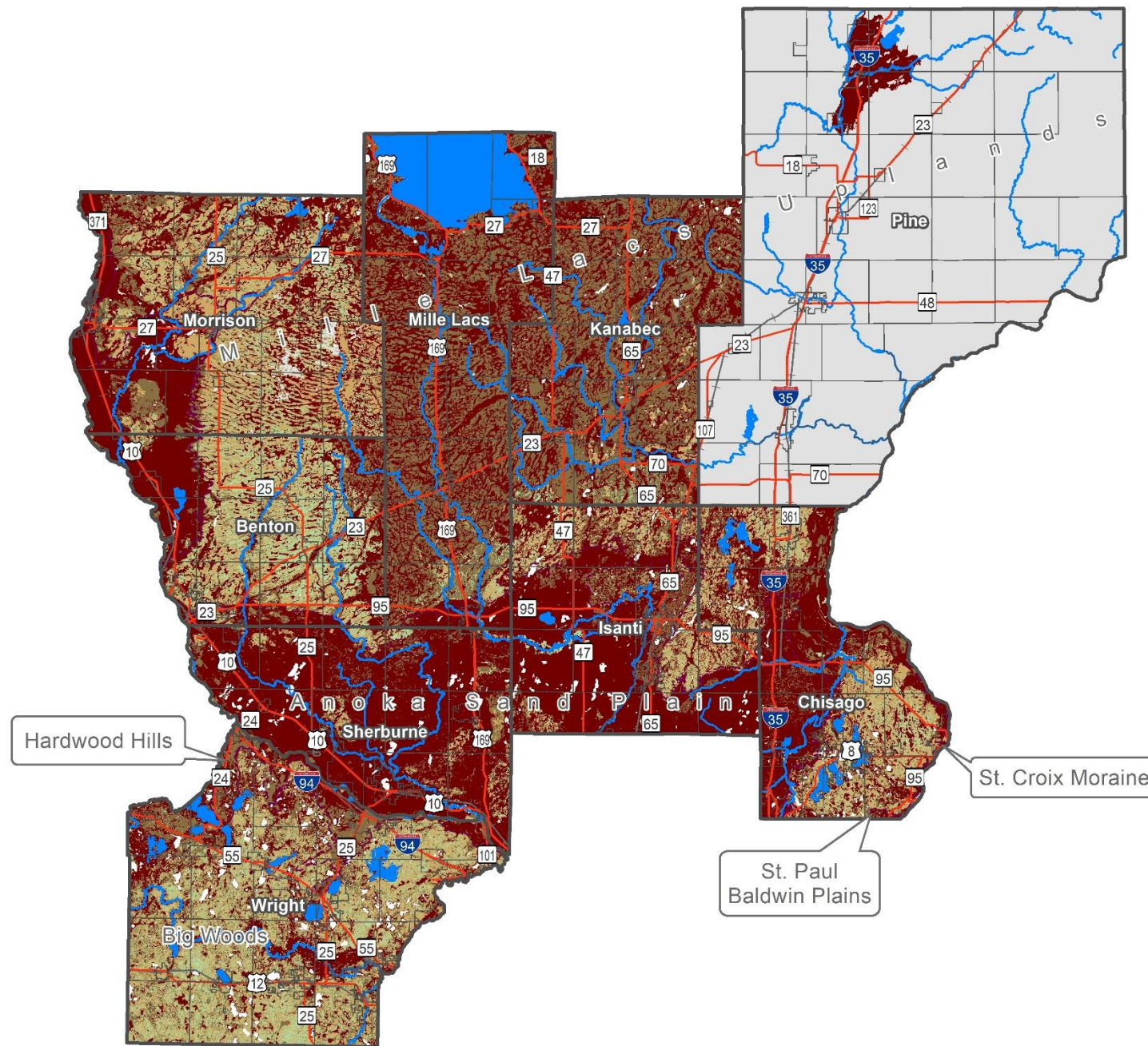
Streams (not displayed in map)	Miles
Arbitrary Flow Connector	0.2
Connector (Lake)	395.9
Connector (Wetland)	60.4
Drain Tile	0.9
Drainage Ditch (Undifferentiated)	279.6
Interpreted Arc Connector	7.2
Road Culvert	3.1
Stream (Perennial)	1,446.2
Underground Storm Sewer	1.3
<b>Total East Central Region</b>	<b>2,194.8</b>

<b>Stream Density (total miles/square mile)</b>	<b>1.46</b>
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# Soils - Farmland Class

## East Central Landscape Region

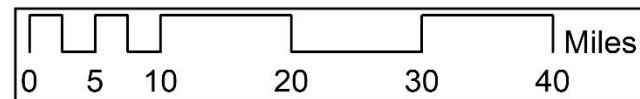


### gSSURGO Soils - Farmland Class

- All areas are prime farmland
- Farmland of statewide importance
- Not prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Not rated or not available

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - NRCS; Other Features - MN Geospatial Commons



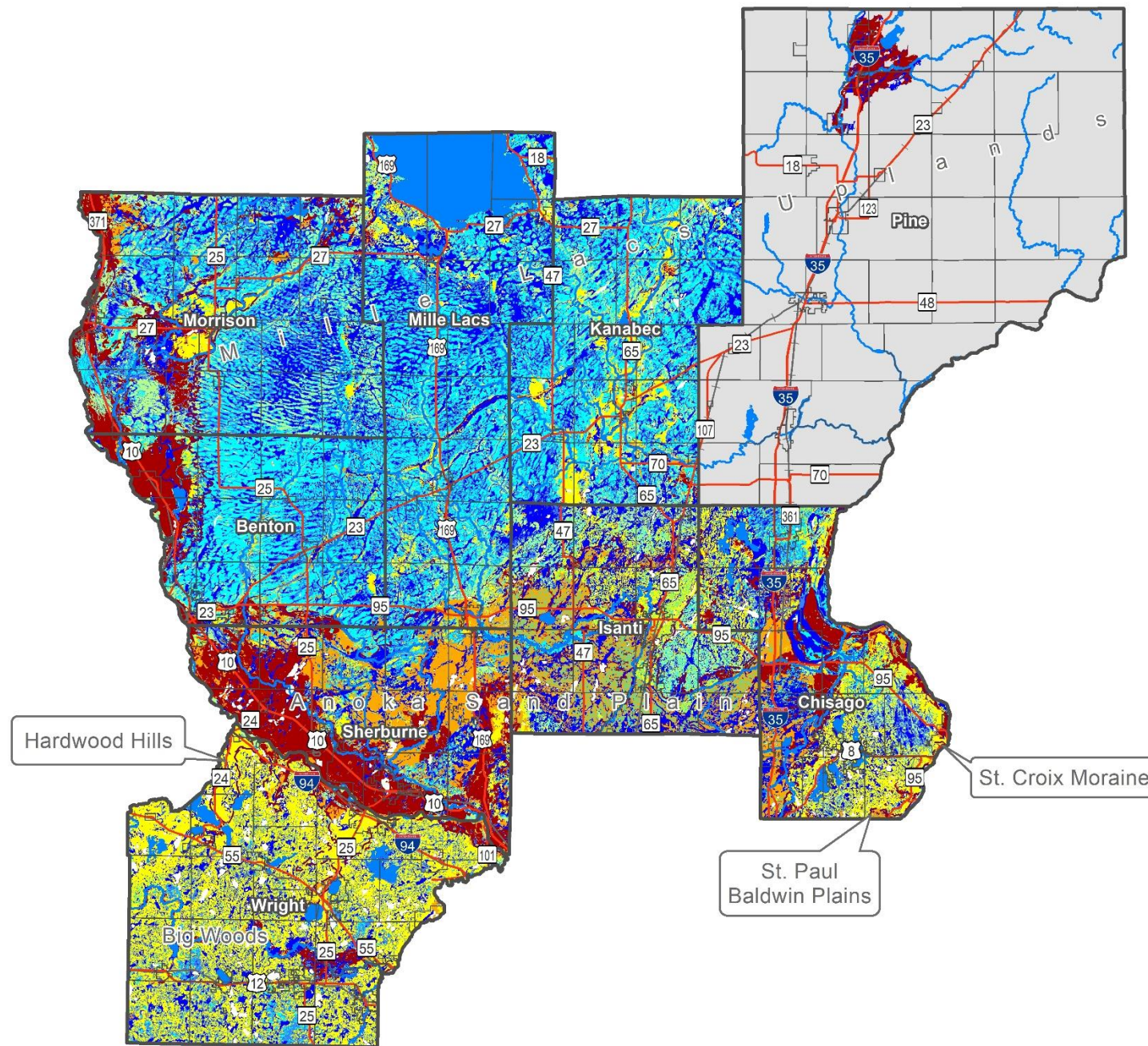
**Soils - Farmland Class Table**

gSSURGO Farmland Class	Acres	% of Region
All areas are prime farmland	408,845	11.1
Farmland of statewide importance	653,036	17.7
Not prime farmland	1,332,698	36.2
Prime farmland if drained	230,689	6.3
Prime farmland if protected from flooding or not frequently flooded during the growing season	1,657	0.0
Not rated or not available	1,053,294	28.6
<b>Total East Central Region</b>	<b>3,680,218</b>	<b>100.0</b>



# Soils - Drainage Class

## East Central Landscape Region

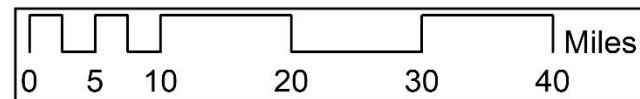


### gSSURGO Soils - Drainage Class

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Not rated or not available

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - NRCS; Other Features - MN Geospatial Commons



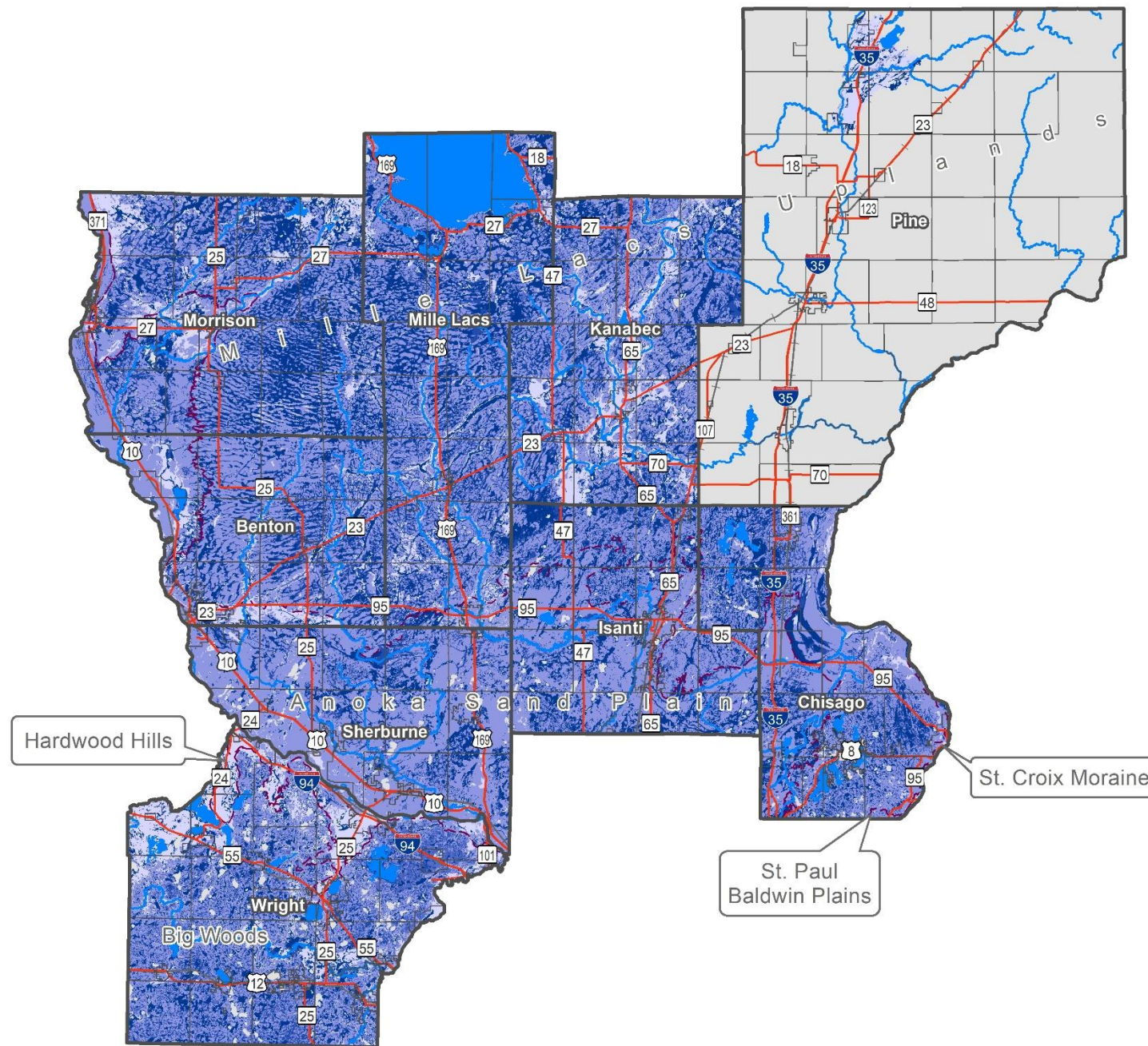
### Soils - Drainage Class Table

gSSURGO Drainage Class	Acres	% of Region
Excessively drained	274,750	7.5
Somewhat excessively drained	192,619	5.2
Well drained	444,402	12.1
Moderately well drained	263,517	7.2
Somewhat poorly drained	538,746	14.6
Poorly drained	323,131	8.8
Very poorly drained	584,363	15.9
Not rated or not available	1,058,690	28.8
<b>Total East Central Region</b>	<b>3,680,218</b>	<b>100.0</b>



# Soils - Hydric Rating

## East Central Landscape Region

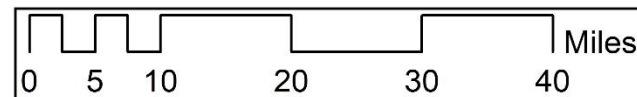


### gSSURGO Soils - Hydric Rating

- All Hydric (100%)
- Partially Hydric (66 - 99%)
- Partially Hydric (33 - 65%)
- Partially Hydric (1 - 32%)
- Not Hydric (0 %)
- Not rated or not available

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - NRCS; Other Features - MN Geospatial Commons



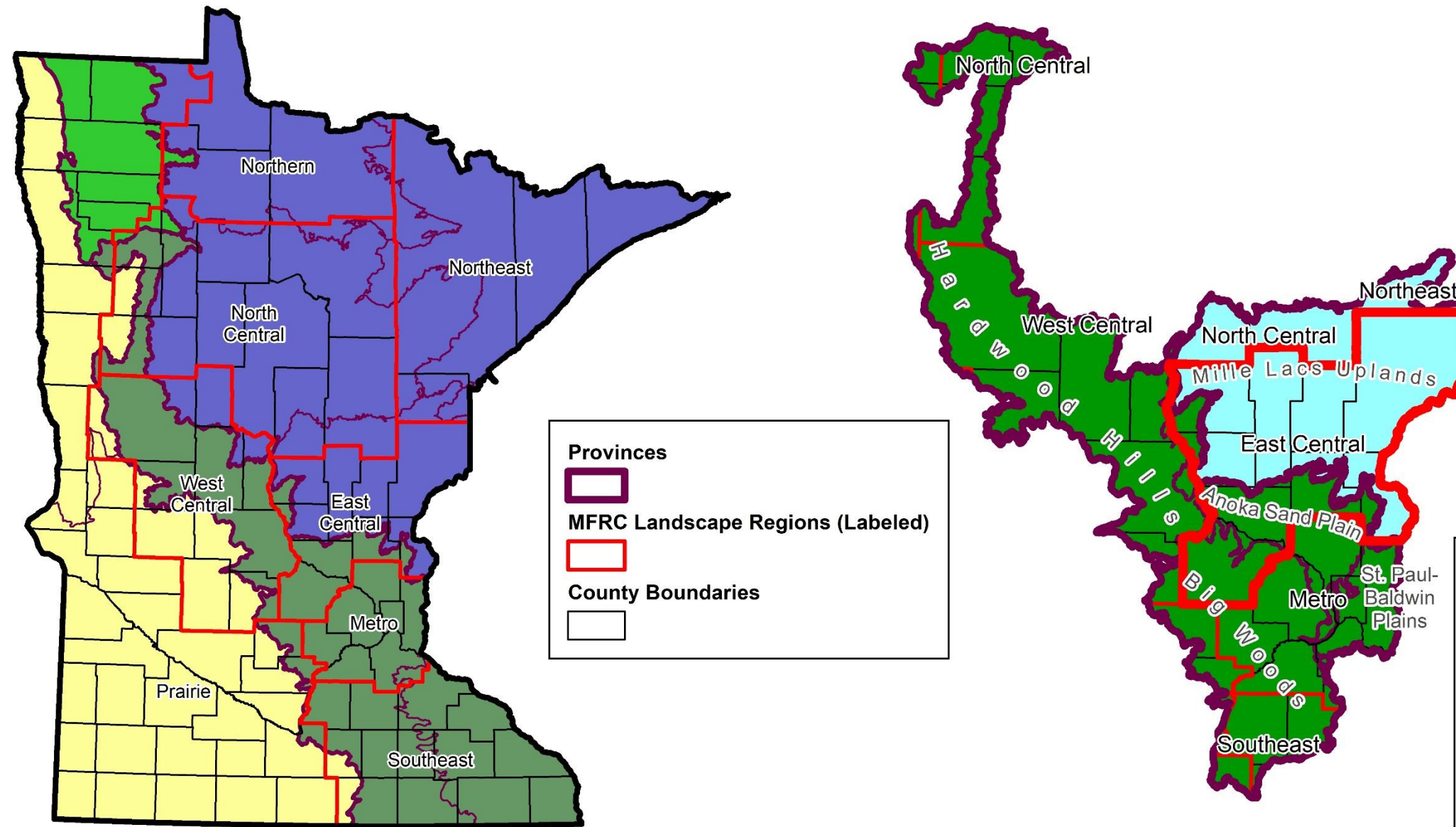


Soils - Hydric Rating Table

gSSURGO Hydric Rating	Acres	% of Region
All Hydric	529,186	14.4
Partially Hydric (66 - 99%)	366,050	9.9
Partially Hydric (33 - 65%)	34,804	0.9
Partially Hydric (1 - 32%)	1,423,008	38.7
Not Hydric	279,036	7.6
Not Available	1,048,133	28.5
Total East Central Region	3,680,218	100.0

# ECS Provinces, Sections, and Subsections

## East Central Landscape Region



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons

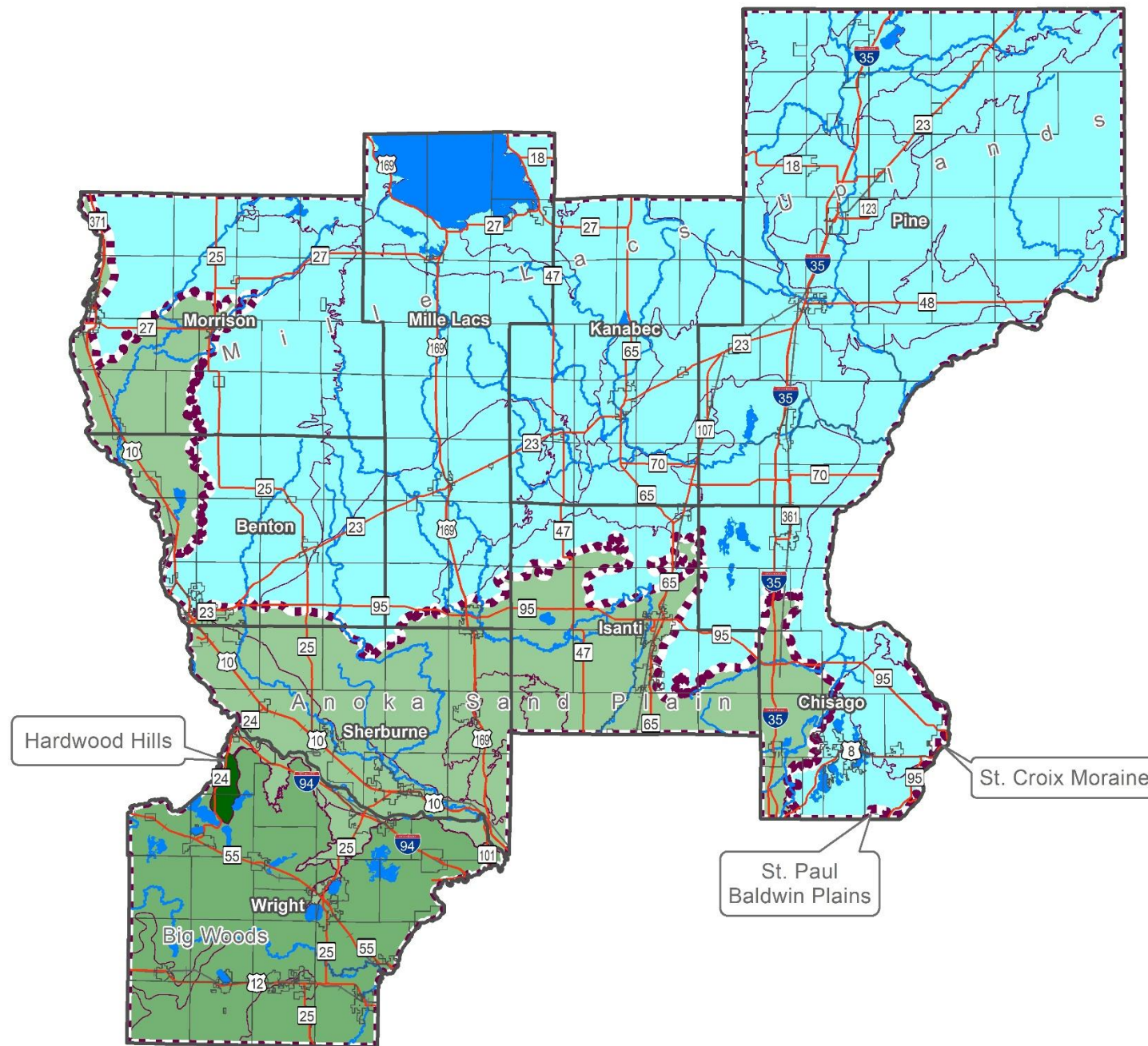


**ECS Provinces, Sections, and Subsections Table**

ECS Provinces	ECS Sections	ECS Subsections	Acres in Region	% of Region	# of LTAs
Eastern Broadleaf Forest Province	Minnesota & NE Iowa Morainal	Anoka Sand Plain	738,730	20.1	5
		Big Woods	409,130	11.1	3
		Hardwood Hills	8,805	0.2	2
		St. Paul-Baldwin Plains	3,465	0.1	3
	Subtotal (Section)		1,160,130	31.5	13
Subtotal (Province)			1,160,130	31.5	13
Laurentian Mixed Forest Province	Southern Superior Uplands	St. Croix Moraine	2,946	0.1	2
	Subtotal (Section)		2,946	0.1	2
	Western Superior Uplands	Mille Lacs Uplands	2,517,760	68.4	26
	Subtotal (Section)		2,517,760	68.4	26
Subtotal (Province)			2,520,706	68.5	28
Total East Central Region			3,680,836	100.0	41

# ECS Sections, Subsections, and Land Type Associations

## East Central Landscape Region



### ECS

- ECS Sections (Labeled)
- ECS Land Type Associations

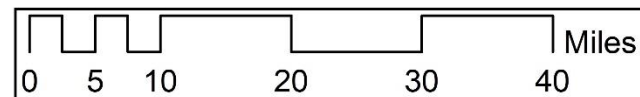
### ECS Subsections by ECS Sections

Minnesota & NE Iowa Morainel

- Anoka Sand Plain
- Big Woods
- Hardwood Hills
- St. Paul-Baldwin Plains
- Southern Superior Uplands
- St. Croix Moraine
- Western Superior Uplands
- Mille Lacs Uplands

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





ECS Sections, Subsections, and Land Type Associations Table

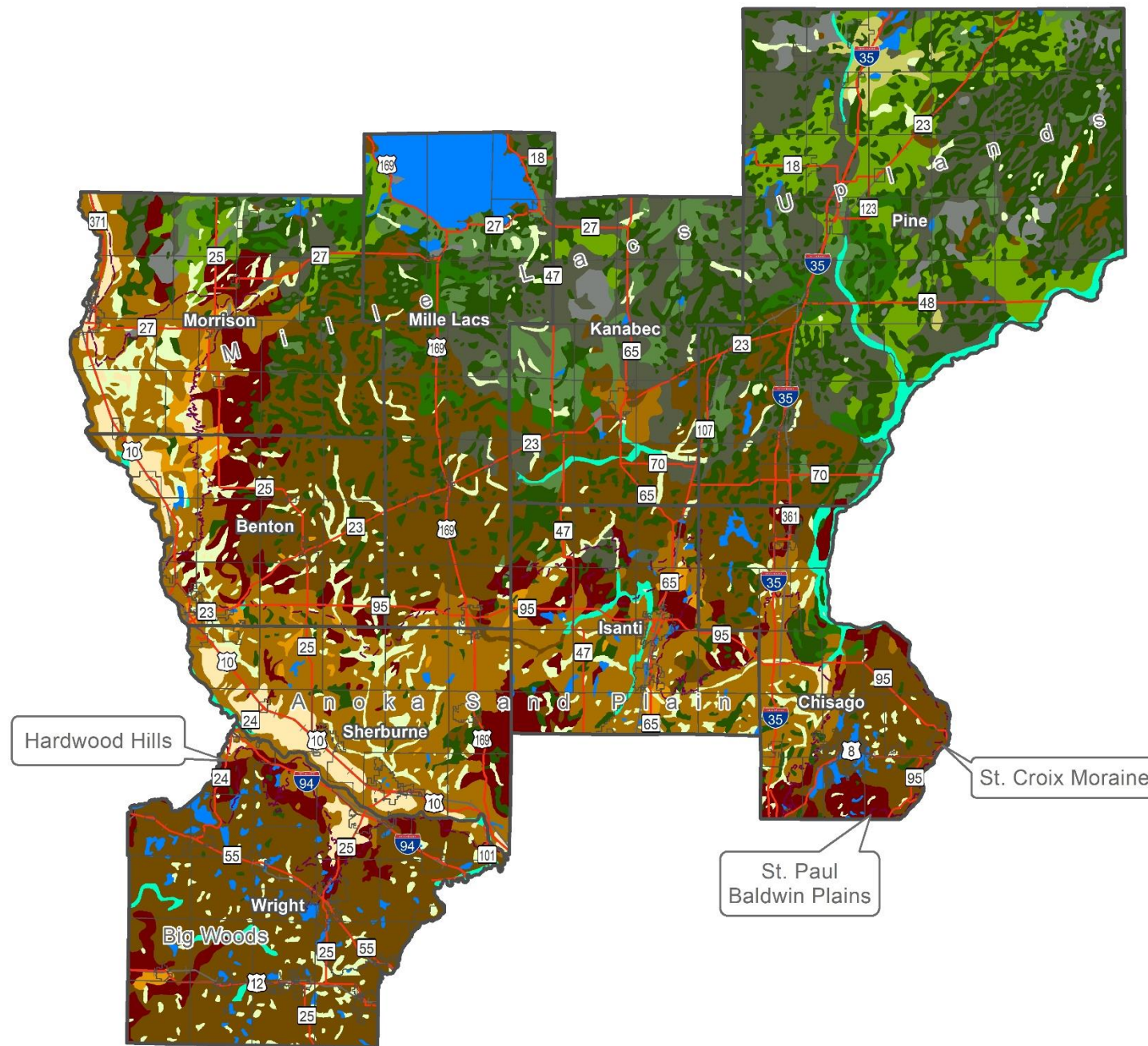
Section	Subsection	Land Type Association	Acres in Region	% of Region
Minnesota & NE Iowa Morainial	Anoka Sand Plain	Agram Sand Plain	108,885	3.0
		Anoka Lake Plain	425,666	11.6
		Burns Till Plain	26,552	0.7
		Elk River Moraine	25,042	0.7
		Mississippi Sand Plain	152,586	4.1
	Subtotal (Subsection)		738,730	20.1
	Big Woods	Hamburg Moraine	23,019	0.6
		Komensky Moraine	20,703	0.6
		Maple Plain Moraine	365,408	9.9
	Subtotal (Subsection)		409,130	11.1
	Hardwood Hills	Luxemburg Sand Plain	8,767	0.2
		Vawler Moraine	38	0.0
	Subtotal (Subsection)		8,805	0.2
	St. Paul-Baldwin Plains	St. Croix Terraces	1,131	0.0
		Stanchfield Lake Plain	1,178	0.0
		Willow River Sand Plain	1,155	0.0
	Subtotal (Subsection)		3,465	0.1
Subtotal (Section)			1,160,130	31.5
Southern Superior Uplands	St. Croix Moraine	Frederic Knolls	2,020	0.1
		Polk Basalt Moraines	925	0.0
	Subtotal (Subsection)		2,946	0.1
Subtotal (Section)			2,946	0.1

Section	Subsection	Land Type Association	Acres in Region	% of Region
Western Superior Uplands	Mille Lacs Uplands	Almelund Moraine	49,957	1.4
		Ann Lake Drumlin Plain	375,199	10.2
		Brainerd Drumlin Plain	134,218	3.6
		Brooke Park Till Plain	132,594	3.6
		Bruno Moraine	73,241	2.0
		Chisago Moraine	51,574	1.4
		Cloverdale Sand Plain	63,401	1.7
		Duxbury Moraine	276,233	7.5
		Eastside Till Plain	41,497	1.1
		Elm Park Till Plain	52,249	1.4
		Finlayson Till Plain	76,162	2.1
		Kathio Moraine	40,051	1.1
		Kettle River Drumlin Plain	38,149	1.0
		Milaca Till Plain	179,485	4.9
		Mille Lacs Lake	64,007	1.7
		Mille Lacs Moraine	9,775	0.3
		Mora Sand Plain	48,600	1.3
		Nickerson Moraine	40,797	1.1
		Nokay Sand Plain	18,204	0.5
		Pierz Drumlin Plain	234,812	6.4
		Pine Lake Till Plain	71,636	1.9
		Rush City Moraine	196,435	5.3
		Solana Till Plain	6,160	0.2
		St. Croix Terraces	123,926	3.4
		Stanchfield Lake Plain	79,629	2.2
		Willow River Sand Plain	39,770	1.1
	Subtotal (Subsection)		2,517,760	68.4
Subtotal (Section)		2,517,760	68.4	
Total East Central Region		3,680,836	100.0	



# Presettlement Land Cover (1895)

## East Central Landscape Region



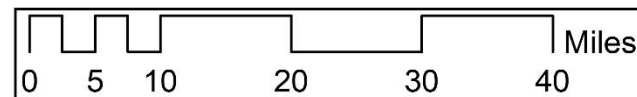
### Presettlement Land Cover (Marschner's)

- Aspen-Birch (trending to Conifers)
- Aspen-Birch (trending to hardwoods)
- Aspen-Oak Land
- Big Woods - Hardwoods (oak, maple, basswood, hickory)
- Brush Prairie
- Conifer Bogs and Swamps
- Jack Pine Barrens and Openings
- Lakes (open water)
- Mixed Hardwood and Pine (Maple, White Pine, Basswood, etc)
- Mixed White Pine and Red Pine
- Oak openings and barrens
- Open Muskeg
- Prairie
- River Bottom Forest
- Undefined
- Wet Prairie
- White Pine

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections

Note: Current political boundaries and roads are displayed to provide a spatial reference for Presettlement Land Cover data.



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



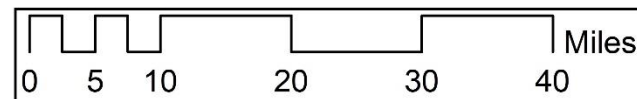
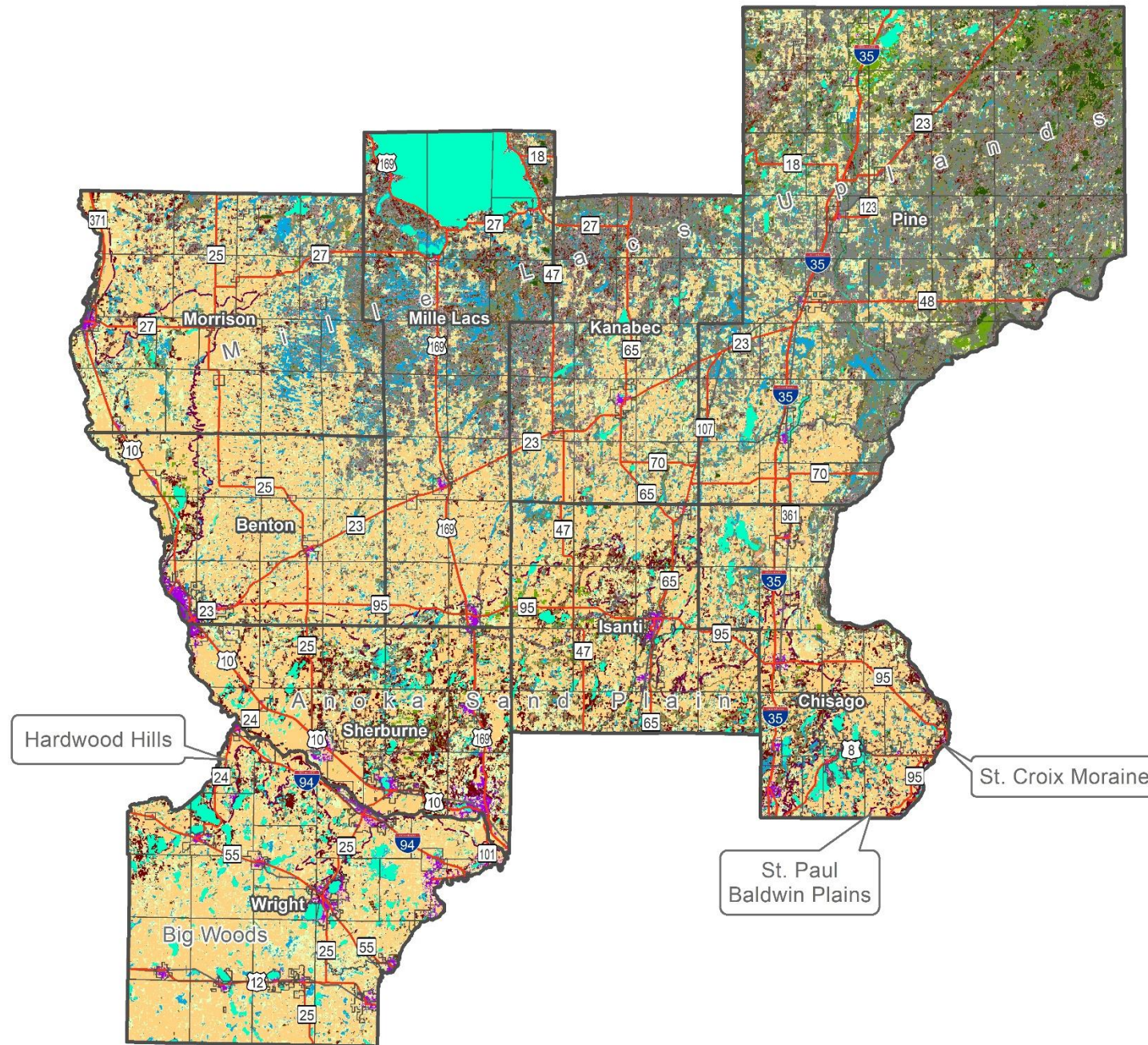
**Presettlement Land Cover (1895) Table**

Comparative Class	Presettlement Land Cover (Marschner's)	Acres	% of Region
Upland Forest	Upland Coniferous Forest	258,504	7.0
	Upland Deciduous Forest	1,612,576	43.8
	Upland Mixed Forest	140,071	3.8
<b>Subtotal (Upland Forest)</b>		<b>2,011,151</b>	<b>54.6</b>
Upland Shrub	Upland Deciduous Shrubland	41,148	1.1
<b>Subtotal (Upland Shrub)</b>		<b>41,148</b>	<b>1.1</b>
Upland Grass	Grassland	83,884	2.3
	Grassland (Sparse Deciduous Trees)	546,645	14.9
	Grassland (Sparse Mixed Trees)	18,411	0.5
<b>Subtotal (Upland Grass)</b>		<b>648,940</b>	<b>17.6</b>
Lowland Vegetation	Emergent Herbaceous Wetlands	195,548	5.3
	Woody Wetlands	668,627	18.2
<b>Subtotal (Lowland Vegetation)</b>		<b>864,174</b>	<b>23.5</b>
Open Water	Lakes (open water)	115,325	3.1
<b>Subtotal (Open Water)</b>		<b>115,325</b>	<b>3.1</b>
Unclassified	Undefined	3	0.0
<b>Subtotal (Unclassified)</b>		<b>3</b>	<b>0.0</b>
<b>Total East Central Region</b>		<b>3,680,742</b>	<b>100.0</b>



# Land Cover (1992)

## East Central Landscape Region



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



### GAP Level 3 - Reclassified

- Lowland Black Spruce
- Lowland Conifer-Deciduous mix
- Stagnant Conifer
- Lowland Northern White-Cedar
- Tamarack
- Pine
- Spruce/Fir
- Upland Cedar
- Upland Conifer
- Pine-Deciduous mix
- Spruce/Fir-Deciduous mix
- Upland Conifer-Deciduous mix
- Black Ash
- Lowland Deciduous
- Silver Maple
- Aspen/White Birch
- Maple/Basswood
- Oak
- Upland Deciduous
- Aquatic
- Marsh
- Cropland
- Grassland
- Barren
- Developed
- Lowland Shrub
- Upland Shrub

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections

**Land Cover (1992) Table**

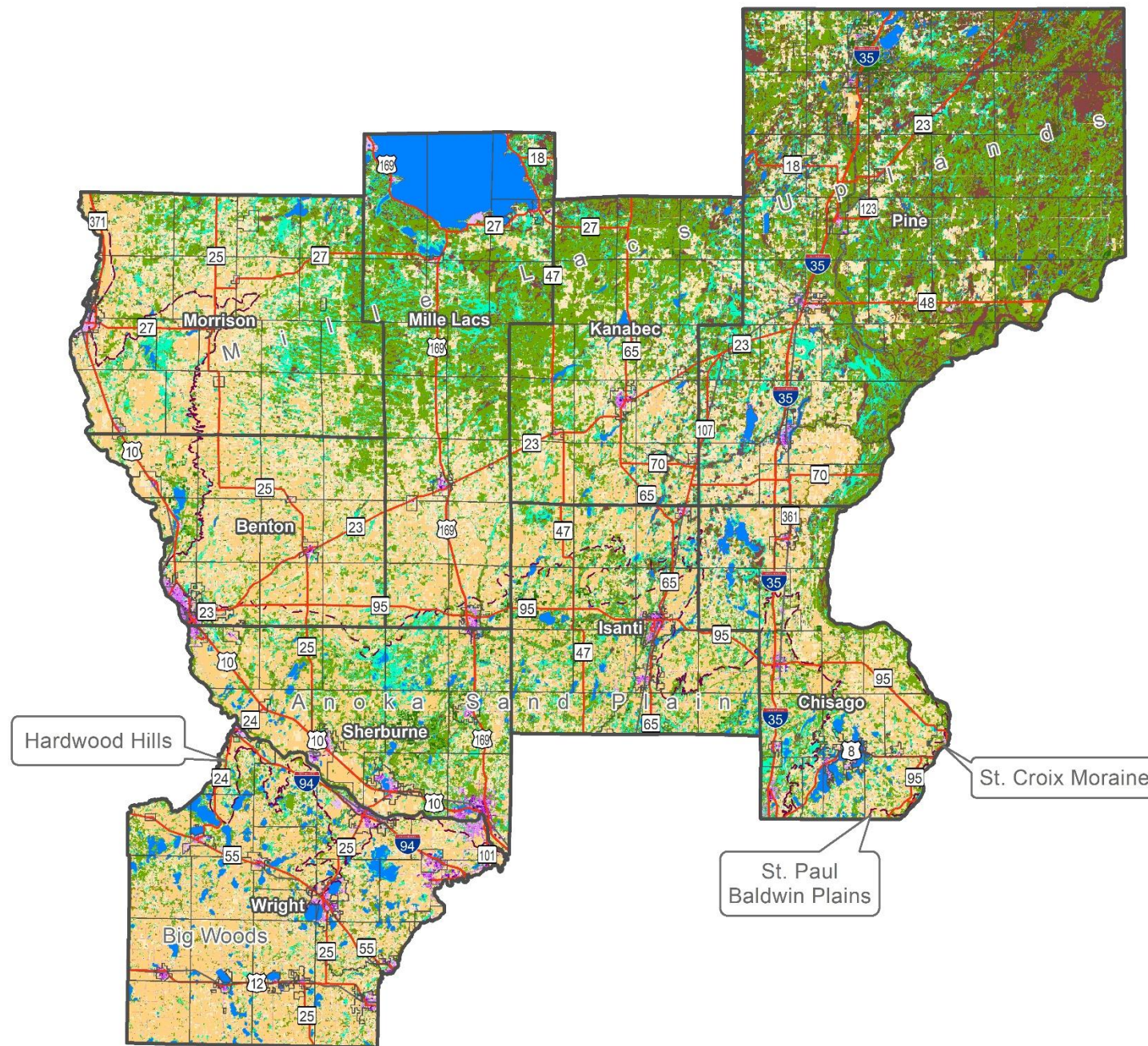
Comparative Class	GAP Level 3	Acres	% of Region
Upland Forest	Aspen/White Birch	557,054	15.1
	Maple/Basswood	41,941	1.1
	Oak	201,052	5.5
	Pine	39,862	1.1
	Spruce/Fir	8,619	0.2
	Upland Conifer-Deciduous mix	285	0.0
	Upland Deciduous	68,806	1.9
<b>Subtotal (Upland Forest)</b>		<b>917,619</b>	<b>24.9</b>
Upland Shrub	Upland Shrub	27,402	0.7
<b>Subtotal (Upland Shrub)</b>		<b>27,402</b>	<b>0.7</b>
Upland Grass	Grassland	566,177	15.4
<b>Subtotal (Upland Grass)</b>		<b>566,177</b>	<b>15.4</b>
Lowland Vegetation	Aquatic	2,091	0.1
	Black Ash	60,278	1.6
	Lowland Black Spruce	24,230	0.7
	Cottonwood	1,611	0.0
	Lowland Deciduous	18,858	0.5
	Lowland Northern White-Cedar	765	0.0
	Lowland Shrub	277,175	7.5
	Marsh	213,521	5.8
	Silver Maple	4,738	0.1
	Tamarack	20,667	0.6
<b>Subtotal (Lowland Vegetation)</b>		<b>623,933</b>	<b>17.0</b>

Comparative Class	GAP Level 3	Acres	% of Region
Agriculture	Cropland	1,302,602	35.4
<b>Subtotal (Agriculture)</b>		<b>1,302,602</b>	<b>35.4</b>
Open Water	Aquatic	179,395	4.9
<b>Subtotal (Open Water)</b>		<b>179,395</b>	<b>4.9</b>
Barren	Barren	21,909	0.6
<b>Subtotal (Barren)</b>		<b>21,909</b>	<b>0.6</b>
Developed	Developed	41,780	1.1
<b>Subtotal (Developed)</b>		<b>41,780</b>	<b>1.1</b>
<b>Total East Central Region</b>		<b>3,680,816</b>	<b>100.0</b>



# Land Cover (2001)

## East Central Landscape Region

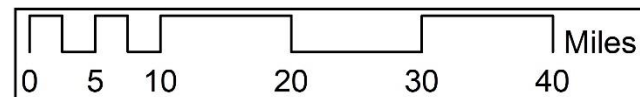


### National Land Cover Dataset 2001

- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Woody Wetlands
- Emergent Herbaceous Wetlands
- Cultivated Crops
- Open Water
- Barren Land (Rock/Sand/Clay)
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Unclassified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - MRLC; Other Features - MN Geospatial Commons



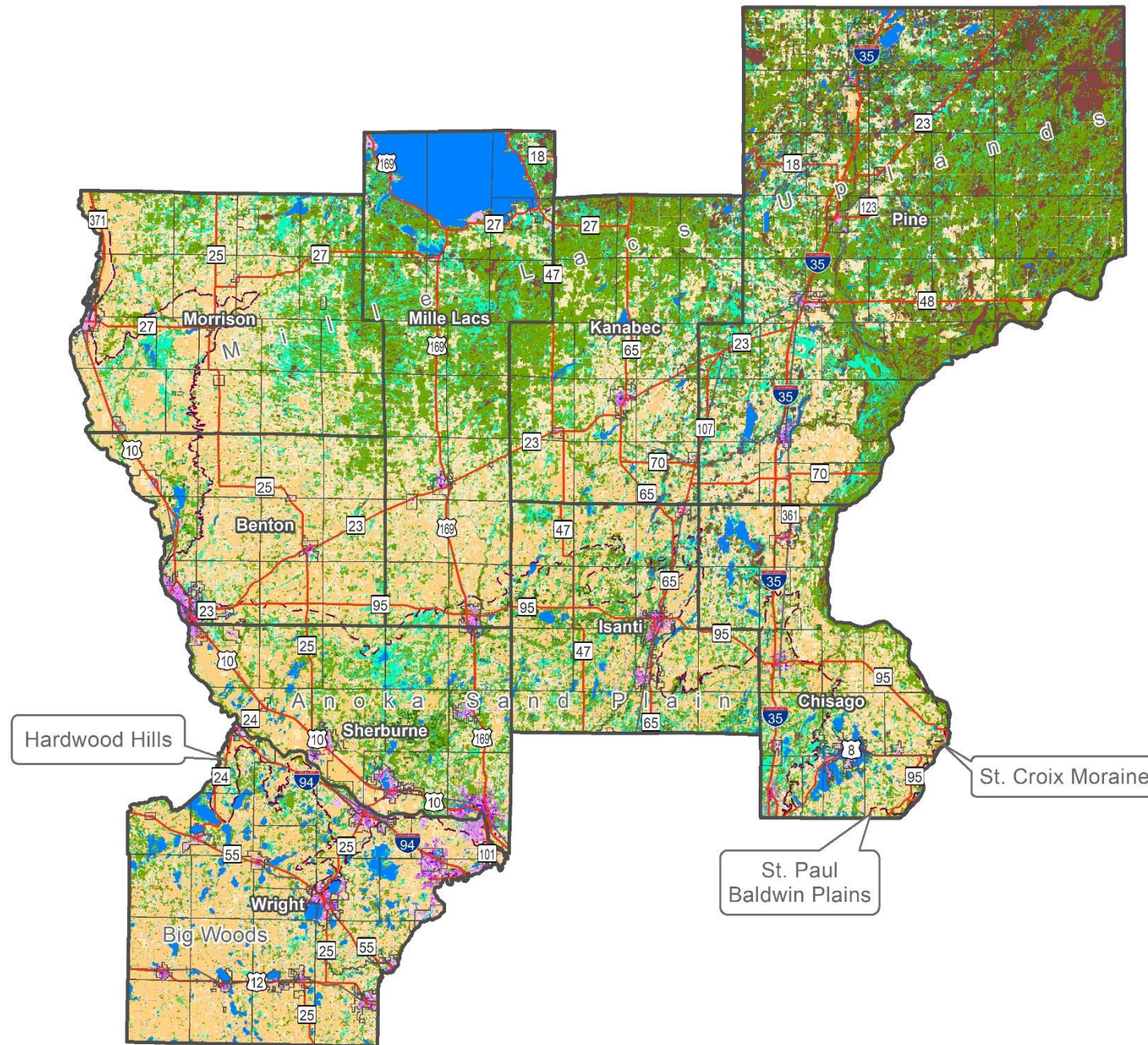


**Land Cover (2001) Table**

Comparative Class	National Land Cover Dataset 2001	Acres	% of Region
Upland Forest	Deciduous Forest	921,040	25.0
	Evergreen Forest	45,092	1.2
	Mixed Forest	10,103	0.3
<b>Subtotal (Upland Forest)</b>		<b>976,235</b>	<b>26.5</b>
Upland Shrub	Shrub/Scrub	54,448	1.5
<b>Subtotal (Upland Shrub)</b>		<b>54,448</b>	<b>1.5</b>
Upland Grass	Grassland/Herbaceous	100,599	2.7
	Pasture/Hay	703,398	19.1
<b>Subtotal (Upland Grass)</b>		<b>803,997</b>	<b>21.8</b>
Lowland Vegetation	Woody Wetlands	291,343	7.9
	Emergent Herbaceous Wetlands	346,796	9.4
<b>Subtotal (Lowland Vegetation)</b>		<b>638,139</b>	<b>17.3</b>
Agriculture	Cultivated Crops	835,376	22.7
<b>Subtotal (Agriculture)</b>		<b>835,376</b>	<b>22.7</b>
Open Water	Open Water	174,336	4.7
<b>Subtotal (Open Water)</b>		<b>174,336</b>	<b>4.7</b>
Barren	Barren Land (Rock/Sand/Clay)	424	0.0
<b>Subtotal (Barren)</b>		<b>424</b>	<b>0.0</b>
Developed	Developed, Open Space	138,903	3.8
	Developed, Low Intensity	40,997	1.1
	Developed, Medium Intensity	13,710	0.4
	Developed, High Intensity	4,270	0.1
<b>Subtotal (Developed)</b>		<b>197,881</b>	<b>5.4</b>
<b>Total East Central Region</b>		<b>3,680,836</b>	<b>100.0</b>

# Land Cover (2006)

## East Central Landscape Region

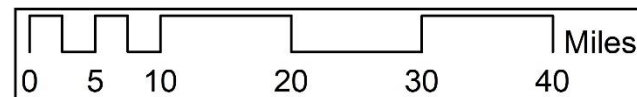


### National Land Cover Dataset 2006

- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Woody Wetlands
- Emergent Herbaceous Wetlands
- Cultivated Crops
- Open Water
- Barren Land (Rock/Sand/Clay)
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Unclassified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - MRLC; Other Features - MN Geospatial Commons



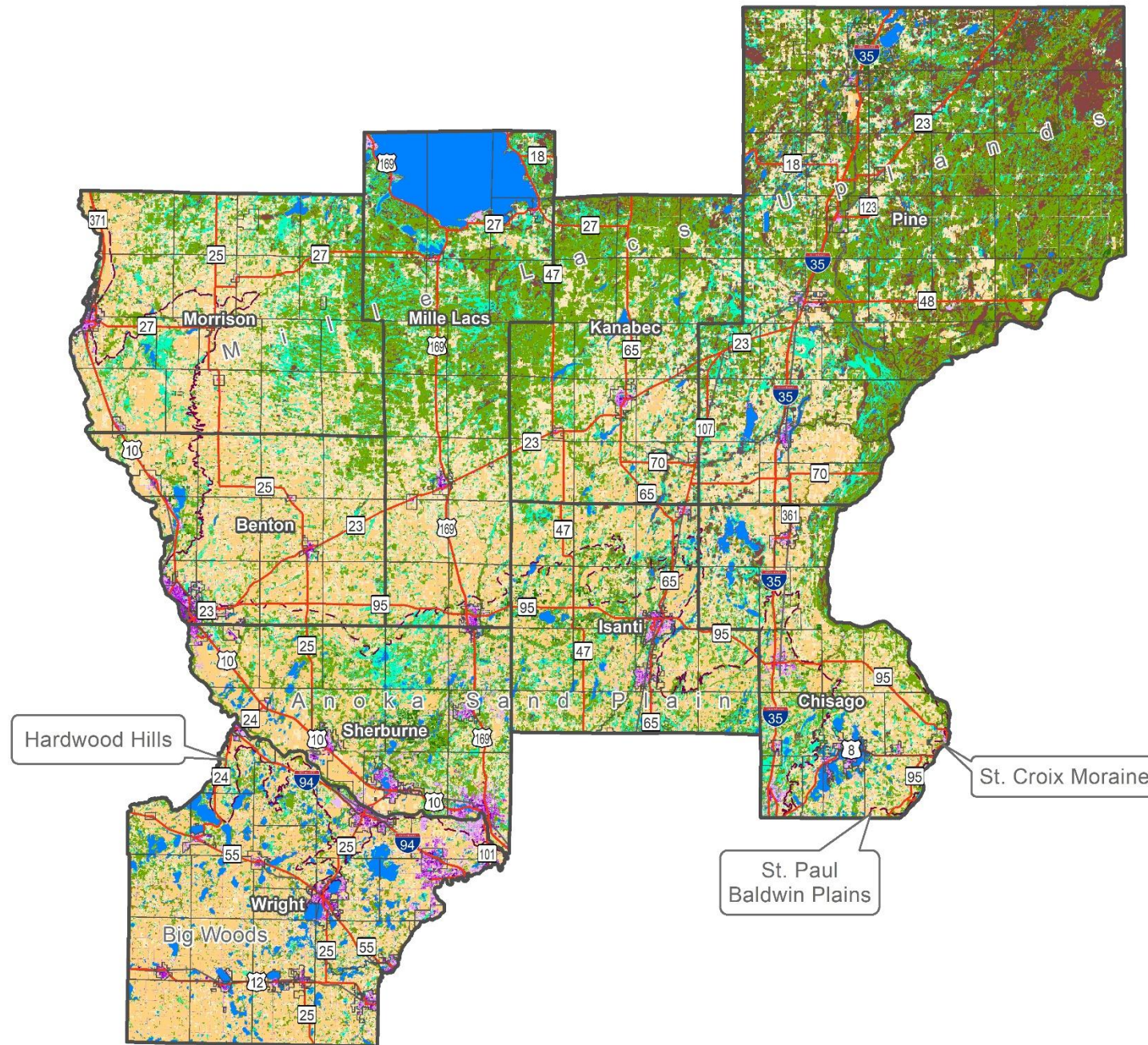
**Land Cover (2006) Table**

Comparative Class	National Land Cover Dataset 2006	Acres	% of Region
Upland Forest	Deciduous Forest	913,059	24.8
	Evergreen Forest	44,195	1.2
	Mixed Forest	9,984	0.3
<b>Subtotal (Upland Forest)</b>		<b>967,238</b>	<b>26.3</b>
Upland Shrub	Shrub/Scrub	55,066	1.5
<b>Subtotal (Upland Shrub)</b>		<b>55,066</b>	<b>1.5</b>
Upland Grass	Grassland/Herbaceous	98,659	2.7
	Pasture/Hay	699,918	19.0
<b>Subtotal (Upland Grass)</b>		<b>798,578</b>	<b>21.7</b>
Lowland Vegetation	Woody Wetlands	290,220	7.9
	Emergent Herbaceous Wetlands	353,878	9.6
<b>Subtotal (Lowland Vegetation)</b>		<b>644,098</b>	<b>17.5</b>
Agriculture	Cultivated Crops	828,643	22.5
<b>Subtotal (Agriculture)</b>		<b>828,643</b>	<b>22.5</b>
Open Water	Open Water	176,346	4.8
<b>Subtotal (Open Water)</b>		<b>176,346</b>	<b>4.8</b>
Barren	Barren Land (Rock/Sand/Clay)	461	0.0
<b>Subtotal (Barren)</b>		<b>461</b>	<b>0.0</b>
Developed	Developed, Open Space	144,042	3.9
	Developed, Low Intensity	44,975	1.2
	Developed, Medium Intensity	16,619	0.5
	Developed, High Intensity	4,772	0.1
<b>Subtotal (Developed)</b>		<b>210,408</b>	<b>5.7</b>
<b>Total East Central Region</b>		<b>3,680,836</b>	<b>100.0</b>



# Land Cover (2011)

## East Central Landscape Region

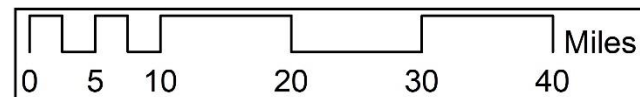


### National Land Cover Dataset 2011

- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Woody Wetlands
- Emergent Herbaceous Wetlands
- Cultivated Crops
- Open Water
- Barren Land (Rock/Sand/Clay)
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Unclassified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - MRLC; Other Features - MN Geospatial Commons



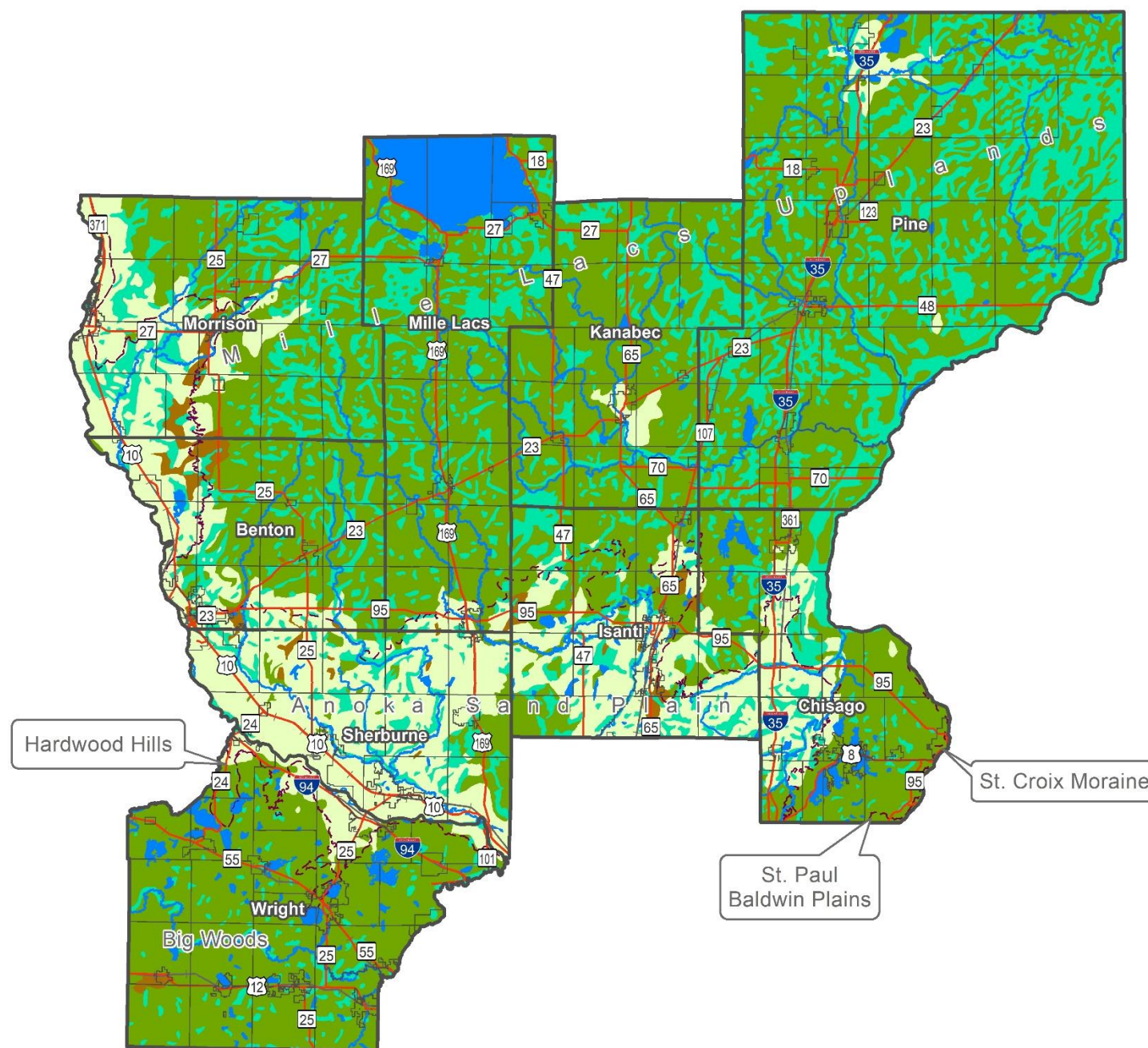
**Land Cover (2011) Table**

Comparative Class	National Land Cover Dataset 2011	Acres	% of Region
Upland Forest	Deciduous Forest	899,106	24.4
	Evergreen Forest	41,972	1.1
	Mixed Forest	9,654	0.3
<b>Subtotal (Upland Forest)</b>		<b>950,732</b>	<b>25.8</b>
Upland Shrub	Shrub/Scrub	62,728	1.7
<b>Subtotal (Upland Shrub)</b>		<b>62,728</b>	<b>1.7</b>
Upland Grass	Grassland/Herbaceous	103,178	2.8
	Pasture/Hay	692,415	18.8
<b>Subtotal (Upland Grass)</b>		<b>795,593</b>	<b>21.6</b>
Lowland Vegetation	Woody Wetlands	289,852	7.9
	Emergent Herbaceous Wetlands	346,526	9.4
<b>Subtotal (Lowland Vegetation)</b>		<b>636,378</b>	<b>17.3</b>
Agriculture	Cultivated Crops	811,715	22.1
<b>Subtotal (Agriculture)</b>		<b>811,715</b>	<b>22.1</b>
Open Water	Open Water	188,730	5.1
<b>Subtotal (Open Water)</b>		<b>188,730</b>	<b>5.1</b>
Barren	Barren Land (Rock/Sand/Clay)	1,617	0.0
<b>Subtotal (Barren)</b>		<b>1,617</b>	<b>0.0</b>
Developed	Developed, Open Space	152,141	4.1
	Developed, Low Intensity	50,037	1.4
	Developed, Medium Intensity	24,444	0.7
	Developed, High Intensity	6,720	0.2
<b>Subtotal (Developed)</b>		<b>233,342</b>	<b>6.3</b>
<b>Total East Central Region</b>		<b>3,680,836</b>	<b>100.0</b>



# Presettlement Land Cover (1895) - Reclassified

## East Central Landscape Region

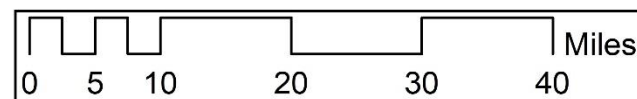


### Presettlement Land Cover (Marschner's) - Reclassified

- Upland Forest
- Upland Shrub
- Upland Grass
- Lowland Vegetation
- Open Water
- Unclassified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



### Presettlement Land Cover (1895) - Reclassified Table

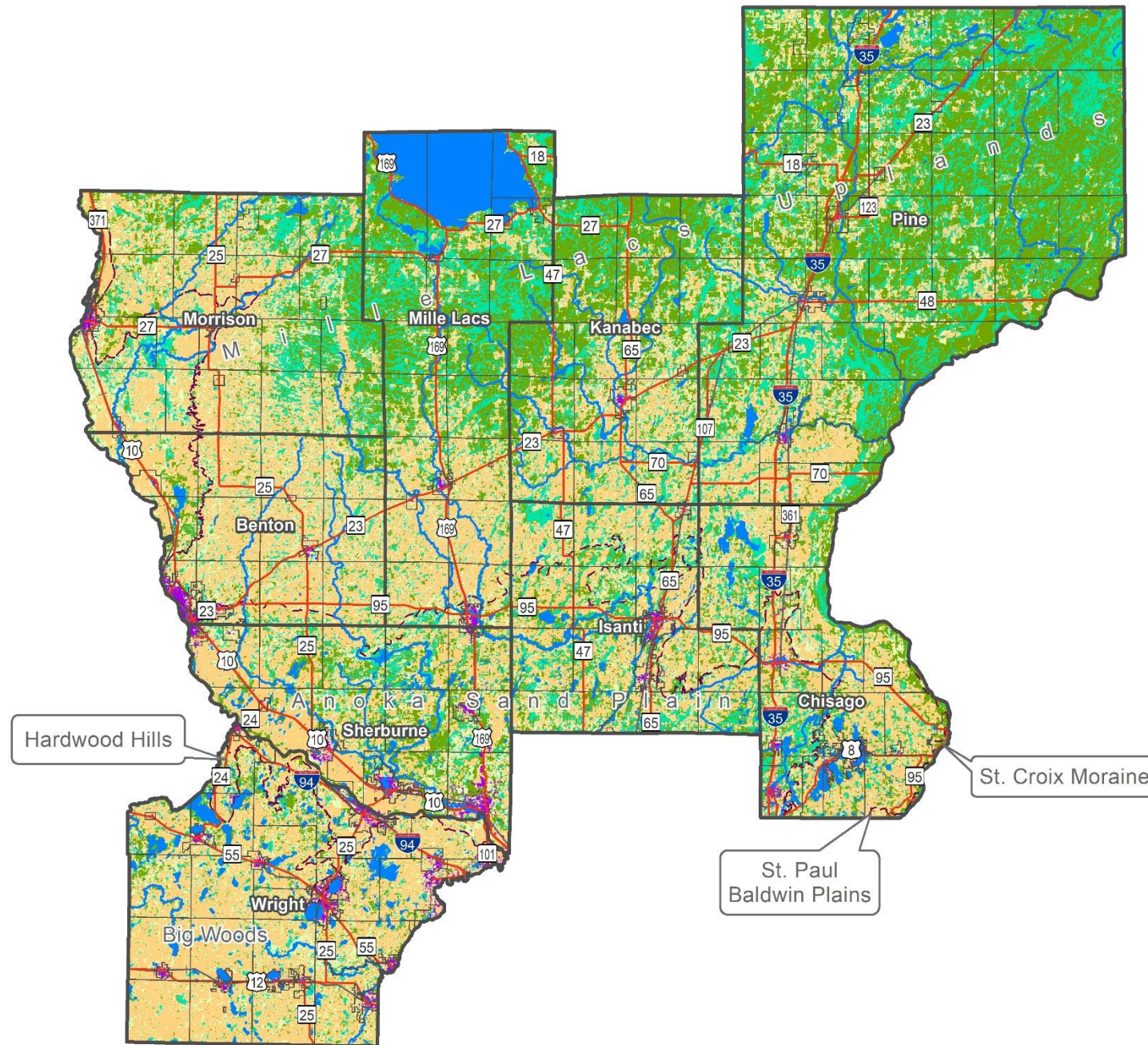
	Marschner's Presettlement (1895)				GAP Land Cover (1992)			
Comparative Class	Area (Acres)	% of Total	NA	NA	Area (Acres)	% of Total	Change 1895 to 1992 (Acres)	Change 1895 to 1992 (% Cover)
Upland Forest	2,011,151	54.6	-	-	917,619	24.9	-1,093,532	-29.7
Upland Shrub	41,148	1.1	-	-	27,402	0.7	-13,746	-0.4
Upland Grass	648,940	17.6	-	-	566,177	15.4	-82,764	-2.2
Lowland Vegetation	864,174	23.5	-	-	623,933	17.0	-240,241	-6.5
Agriculture	0	0.0	-	-	1,302,602	35.4	1,302,602	35.4
Open Water	115,325	3.1	-	-	179,395	4.9	64,070	1.7
Barren	0	0.0	-	-	21,909	0.6	21,909	0.6
Developed	0	0.0	-	-	41,780	1.1	41,780	1.1
Unclassified	3	0.0	-	-	5	0.0	2	0.0
<b>Total East Central Region</b>	<b>3,680,742</b>	<b>100.0</b>			<b>3,680,821</b>	<b>100.0</b>		

	NLCD (2001)				NLCD (2006)				NLCD (2011)			
Comparative Class	Area (Acres)	% of Total	Change 1992 to 2001 (Acres)	Change 1992 to 2001 (% Cover)	Area (Acres)	% of Total	Change 2001 to 2006 (Acres)	Change 2001 to 2006 (% Cover)	Area (Acres)	% of Total	Change 2006 to 2011 (Acres)	Change 2006 to 2011 (% Cover)
Upland Forest	976,235	26.5	58,616	1.6	967,238	26.3	-8,997	-0.2	950,732	25.8	-16,506	-0.4
Upland Shrub	54,448	1.5	27,047	0.7	55,066	1.5	617	0.0	62,728	1.7	7,663	0.2
Upland Grass	803,997	21.8	237,820	6.5	798,578	21.7	-5,419	-0.1	795,593	21.6	-2,984	-0.1
Lowland Vegetation	638,139	17.3	14,206	0.4	644,098	17.5	5,958	0.2	636,378	17.3	-7,720	-0.2
Agriculture	835,376	22.7	-467,226	-12.7	828,643	22.5	-6,733	-0.2	811,715	22.1	-16,928	-0.5
Open Water	174,336	4.7	-5,059	-0.1	176,346	4.8	2,010	0.1	188,730	5.1	12,384	0.3
Barren	424	0.0	-21,484	-0.6	461	0.0	37	0.0	1,617	0.0	1,156	0.0
Developed	197,881	5.4	156,101	4.2	210,408	5.7	12,527	0.3	233,342	6.3	22,935	0.6
Unclassified	0	0.0	-5	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>		



# Land Cover (1992) - Reclassified

## East Central Landscape Region

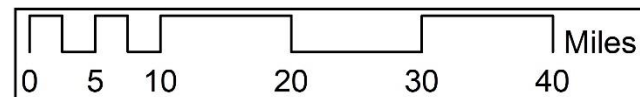


### GAP Level 4 - Reclassified

- Upland Forest
- Upland Shrub
- Upland Grass
- Lowland Vegetation
- Agriculture
- Open Water
- Barren
- Developed
- Unclassified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



### Land Cover (1992) - Reclassified Table

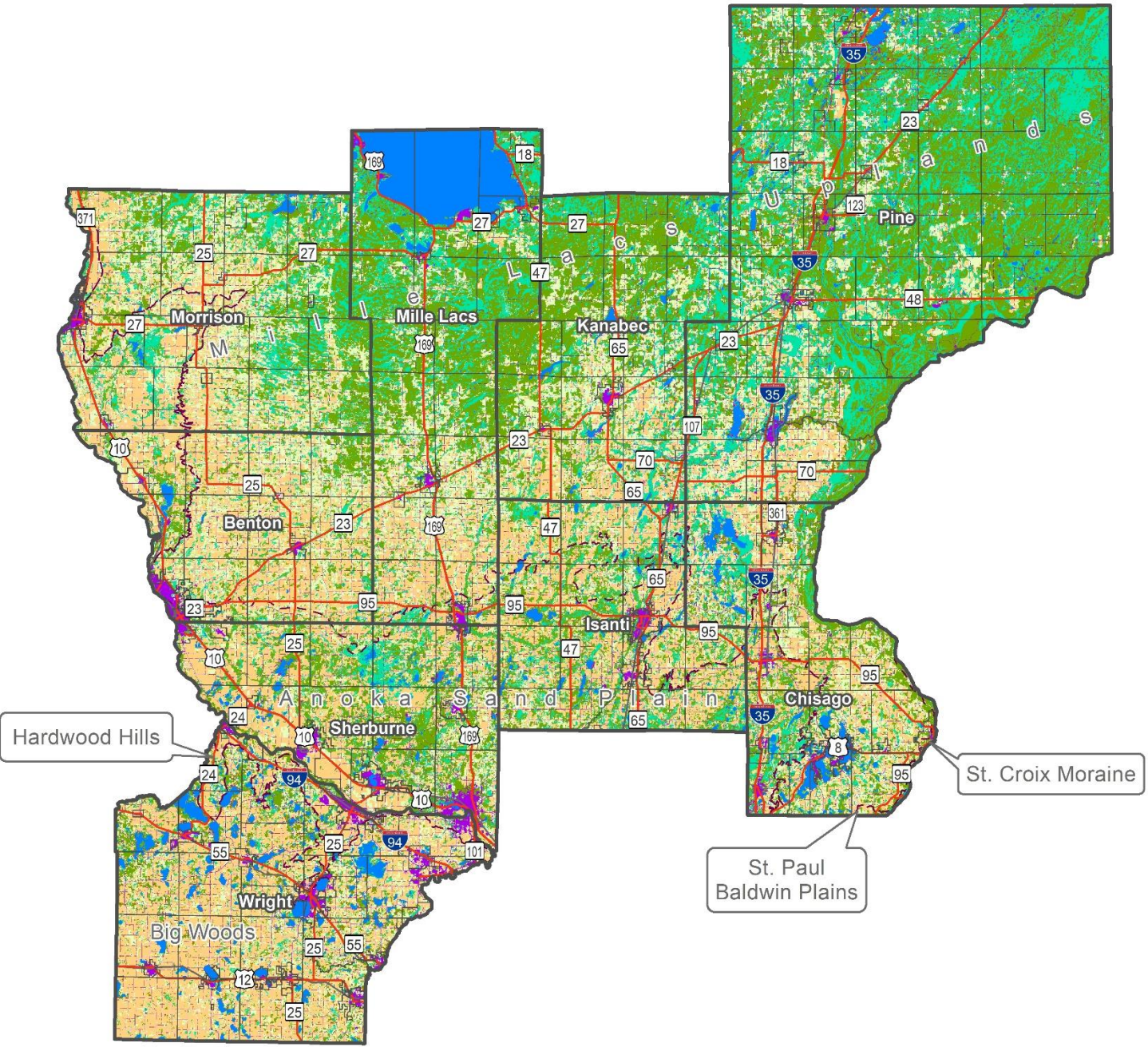
	Marschner's Presettlement (1895)				GAP Land Cover (1992)			
Comparative Class	Area (Acres)	% of Total	NA	NA	Area (Acres)	% of Total	Change 1895 to 1992 (Acres)	Change 1895 to 1992 (% Cover)
Upland Forest	2,011,151	54.6	-	-	917,619	24.9	-1,093,532	-29.7
Upland Shrub	41,148	1.1	-	-	27,402	0.7	-13,746	-0.4
Upland Grass	648,940	17.6	-	-	566,177	15.4	-82,764	-2.2
Lowland Vegetation	864,174	23.5	-	-	623,933	17.0	-240,241	-6.5
Agriculture	0	0.0	-	-	1,302,602	35.4	1,302,602	35.4
Open Water	115,325	3.1	-	-	179,395	4.9	64,070	1.7
Barren	0	0.0	-	-	21,909	0.6	21,909	0.6
Developed	0	0.0	-	-	41,780	1.1	41,780	1.1
Unclassified	3	0.0	-	-	5	0.0	2	0.0
<b>Total East Central Region</b>	<b>3,680,742</b>	<b>100.0</b>			<b>3,680,821</b>	<b>100.0</b>		

	NLCD (2001)				NLCD (2006)				NLCD (2011)			
Comparative Class	Area (Acres)	% of Total	Change 1992 to 2001 (Acres)	Change 1992 to 2001 (% Cover)	Area (Acres)	% of Total	Change 2001 to 2006 (Acres)	Change 2001 to 2006 (% Cover)	Area (Acres)	% of Total	Change 2006 to 2011 (Acres)	Change 2006 to 2011 (% Cover)
Upland Forest	976,235	26.5	58,616	1.6	967,238	26.3	-8,997	-0.2	950,732	25.8	-16,506	-0.4
Upland Shrub	54,448	1.5	27,047	0.7	55,066	1.5	617	0.0	62,728	1.7	7,663	0.2
Upland Grass	803,997	21.8	237,820	6.5	798,578	21.7	-5,419	-0.1	795,593	21.6	-2,984	-0.1
Lowland Vegetation	638,139	17.3	14,206	0.4	644,098	17.5	5,958	0.2	636,378	17.3	-7,720	-0.2
Agriculture	835,376	22.7	-467,226	-12.7	828,643	22.5	-6,733	-0.2	811,715	22.1	-16,928	-0.5
Open Water	174,336	4.7	-5,059	-0.1	176,346	4.8	2,010	0.1	188,730	5.1	12,384	0.3
Barren	424	0.0	-21,484	-0.6	461	0.0	37	0.0	1,617	0.0	1,156	0.0
Developed	197,881	5.4	156,101	4.2	210,408	5.7	12,527	0.3	233,342	6.3	22,935	0.6
Unclassified	0	0.0	-5	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>		



# Land Cover (2001) - Reclassified

## East Central Landscape Region



### NLCD 2001 - Reclassified

- Upland Forest
- Upland Shrub
- Upland Grass
- Lowland Vegetation
- Agriculture
- Open Water
- Barren
- Developed

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - MRLC; Other Features - MN Geospatial Commons



### Land Cover (2001) - Reclassified Table

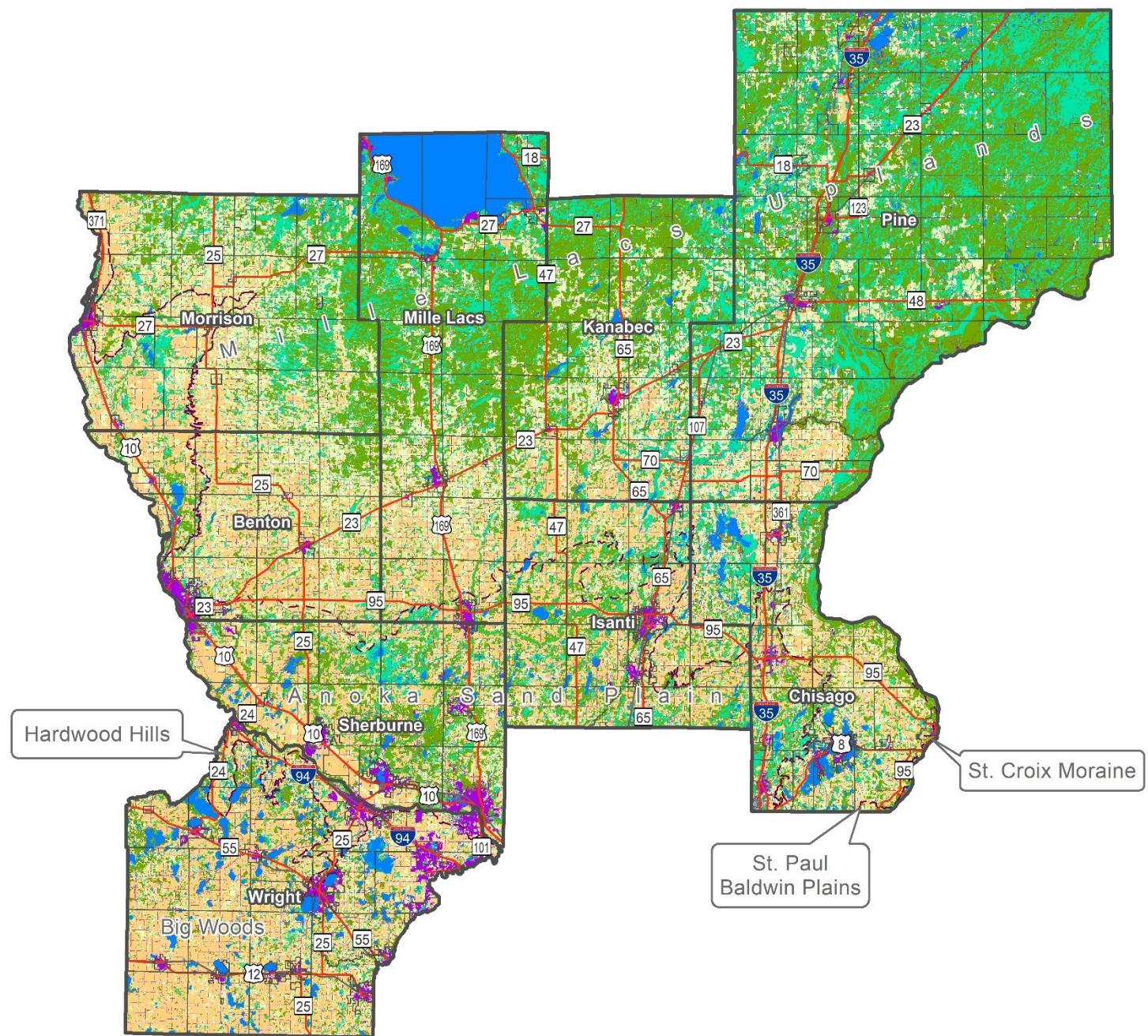
	Marschner's Presettlement (1895)				GAP Land Cover (1992)			
Comparative Class	Area (Acres)	% of Total	NA	NA	Area (Acres)	% of Total	Change 1895 to 1992 (Acres)	Change 1895 to 1992 (% Cover)
Upland Forest	2,011,151	54.6	-	-	917,619	24.9	-1,093,532	-29.7
Upland Shrub	41,148	1.1	-	-	27,402	0.7	-13,746	-0.4
Upland Grass	648,940	17.6	-	-	566,177	15.4	-82,764	-2.2
Lowland Vegetation	864,174	23.5	-	-	623,933	17.0	-240,241	-6.5
Agriculture	0	0.0	-	-	1,302,602	35.4	1,302,602	35.4
Open Water	115,325	3.1	-	-	179,395	4.9	64,070	1.7
Barren	0	0.0	-	-	21,909	0.6	21,909	0.6
Developed	0	0.0	-	-	41,780	1.1	41,780	1.1
Unclassified	3	0.0	-	-	5	0.0	2	0.0
<b>Total East Central Region</b>	<b>3,680,742</b>	<b>100.0</b>			<b>3,680,821</b>	<b>100.0</b>		

	NLCD (2001)				NLCD (2006)				NLCD (2011)			
Comparative Class	Area (Acres)	% of Total	Change 1992 to 2001 (Acres)	Change 1992 to 2001 (% Cover)	Area (Acres)	% of Total	Change 2001 to 2006 (Acres)	Change 2001 to 2006 (% Cover)	Area (Acres)	% of Total	Change 2006 to 2011 (Acres)	Change 2006 to 2011 (% Cover)
Upland Forest	976,235	26.5	58,616	1.6	967,238	26.3	-8,997	-0.2	950,732	25.8	-16,506	-0.4
Upland Shrub	54,448	1.5	27,047	0.7	55,066	1.5	617	0.0	62,728	1.7	7,663	0.2
Upland Grass	803,997	21.8	237,820	6.5	798,578	21.7	-5,419	-0.1	795,593	21.6	-2,984	-0.1
Lowland Vegetation	638,139	17.3	14,206	0.4	644,098	17.5	5,958	0.2	636,378	17.3	-7,720	-0.2
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Barren	424	0.0	-21,484	-0.6	461	0.0	37	0.0	1,617	0.0	1,156	0.0
Developed	197,881	5.4	156,101	4.2	210,408	5.7	12,527	0.3	233,342	6.3	22,935	0.6
Unclassified	0	0.0	-5	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>		

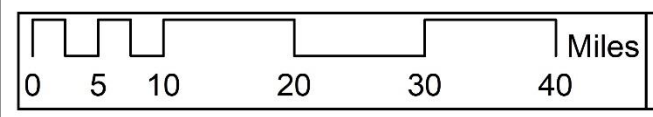


# Land Cover (2006) - Reclassified

## East Central Landscape Region



- NLCD 2006 - Reclassified**
- Upland Forest
  - Upland Shrub
  - Upland Grass
  - Lowland Vegetation
  - Agriculture
  - Open Water
  - Barren
  - Developed
- Other Features**
- County Boundaries
  - Municipal Boundaries
  - Highways
  - Railroads
  - ECS Subsections



Sources: Main - MRLC; Other Features - MN Geospatial Commons



### Land Cover (2006) - Reclassified Table

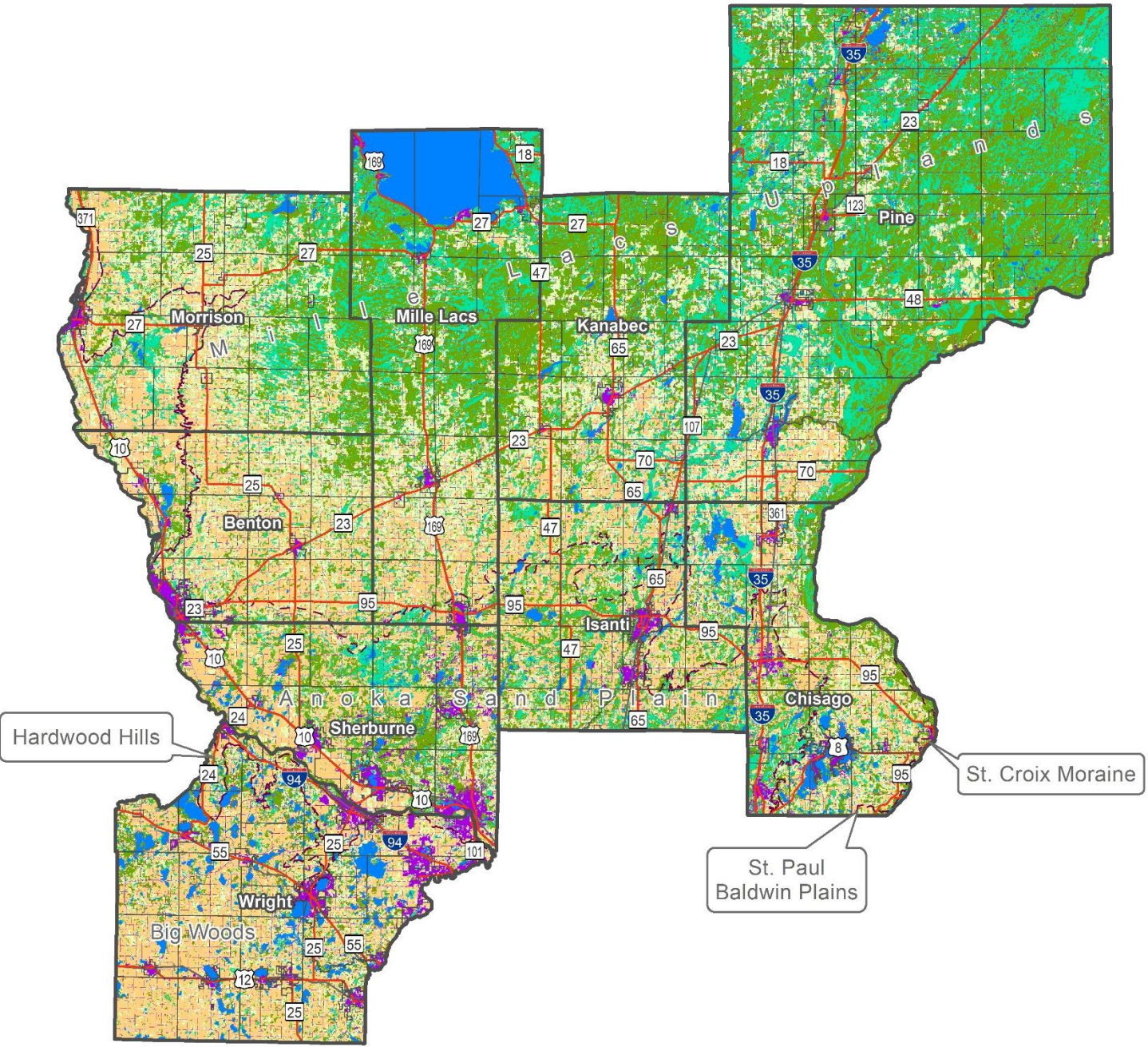
	Marschner's Presettlement (1895)				GAP Land Cover (1992)			
Comparative Class	Area (Acres)	% of Total	NA	NA	Area (Acres)	% of Total	Change 1895 to 1992 (Acres)	Change 1895 to 1992 (% Cover)
Upland Forest	2,011,151	54.6	-	-	917,619	24.9	-1,093,532	-29.7
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Upland Grass	648,940	17.6	-	-	566,177	15.4	-82,764	-2.2
Lowland Vegetation	864,174	23.5	-	-	623,933	17.0	-240,241	-6.5
Agriculture	0	0.0	-	-	1,302,602	35.4	1,302,602	35.4
Open Water	115,325	3.1	-	-	179,395	4.9	64,070	1.7
Barren	0	0.0	-	-	21,909	0.6	21,909	0.6
Developed	0	0.0	-	-	41,780	1.1	41,780	1.1
Unclassified	3	0.0	-	-	5	0.0	2	0.0
<b>Total East Central Region</b>	<b>3,680,742</b>	<b>100.0</b>			<b>3,680,821</b>	<b>100.0</b>		

	NLCD (2001)				NLCD (2006)				NLCD (2011)			
Comparative Class	Area (Acres)	% of Total	Change 1992 to 2001 (Acres)	Change 1992 to 2001 (% Cover)	Area (Acres)	% of Total	Change 2001 to 2006 (Acres)	Change 2001 to 2006 (% Cover)	Area (Acres)	% of Total	Change 2006 to 2011 (Acres)	Change 2006 to 2011 (% Cover)
Upland Forest	976,235	26.5	58,616	1.6	967,238	26.3	-8,997	-0.2	950,732	25.8	-16,506	-0.4
Upland Shrub	54,448	1.5	27,047	0.7	55,066	1.5	617	0.0	62,728	1.7	7,663	0.2
Upland Grass	803,997	21.8	237,820	6.5	798,578	21.7	-5,419	-0.1	795,593	21.6	-2,984	-0.1
Lowland Vegetation	638,139	17.3	14,206	0.4	644,098	17.5	5,958	0.2	636,378	17.3	-7,720	-0.2
Agriculture	835,376	22.7	-467,226	-12.7	828,643	22.5	-6,733	-0.2	811,715	22.1	-16,928	-0.5
Open Water	174,336	4.7	-5,059	-0.1	176,346	4.8	2,010	0.1	188,730	5.1	12,384	0.3
Barren	424	0.0	-21,484	-0.6	461	0.0	37	0.0	1,617	0.0	1,156	0.0
Developed	197,881	5.4	156,101	4.2	210,408	5.7	12,527	0.3	233,342	6.3	22,935	0.6
Unclassified	0	0.0	-5	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>		



# Land Cover (2011) - Reclassified

## East Central Landscape Region



### NLCD 2011 - Reclassified

- Upland Forest
- Upland Shrub
- Upland Grass
- Lowland Vegetation
- Agriculture
- Open Water
- Barren
- Developed

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - MRLC; Other Features - MN Geospatial Commons



### Land Cover (2011) - Reclassified Table

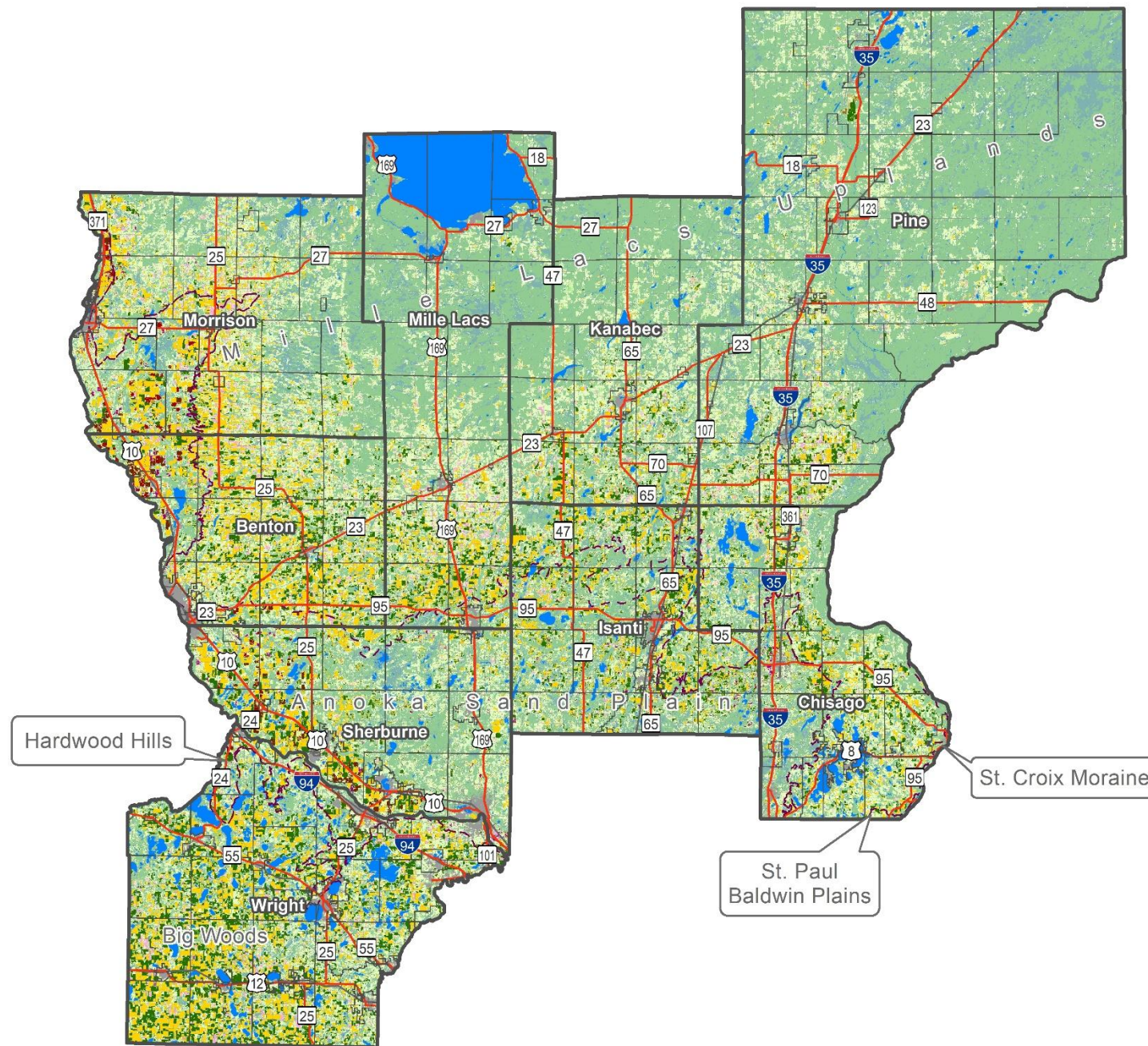
	Marschner's Presettlement (1895)				GAP Land Cover (1992)			
Comparative Class	Area (Acres)	% of Total	NA	NA	Area (Acres)	% of Total	Change 1895 to 1992 (Acres)	Change 1895 to 1992 (% Cover)
Upland Forest	2,011,151	54.6	-	-	917,619	24.9	-1,093,532	-29.7
Upland Shrub	41,148	1.1	-	-	27,402	0.7	-13,746	-0.4
Upland Grass	648,940	17.6	-	-	566,177	15.4	-82,764	-2.2
Lowland Vegetation	864,174	23.5	-	-	623,933	17.0	-240,241	-6.5
Agriculture	0	0.0	-	-	1,302,602	35.4	1,302,602	35.4
Open Water	115,325	3.1	-	-	179,395	4.9	64,070	1.7
Barren	0	0.0	-	-	21,909	0.6	21,909	0.6
Developed	0	0.0	-	-	41,780	1.1	41,780	1.1
Unclassified	3	0.0	-	-	5	0.0	2	0.0
<b>Total East Central Region</b>	<b>3,680,742</b>	<b>100.0</b>			<b>3,680,821</b>	<b>100.0</b>		

	NLCD (2001)				NLCD (2006)				NLCD (2011)			
Comparative Class	Area (Acres)	% of Total	Change 1992 to 2001 (Acres)	Change 1992 to 2001 (% Cover)	Area (Acres)	% of Total	Change 2001 to 2006 (Acres)	Change 2001 to 2006 (% Cover)	Area (Acres)	% of Total	Change 2006 to 2011 (Acres)	Change 2006 to 2011 (% Cover)
Upland Forest	976,235	26.5	58,616	1.6	967,238	26.3	-8,997	-0.2	950,732	25.8	-16,506	-0.4
Upland Shrub	54,448	1.5	27,047	0.7	55,066	1.5	617	0.0	62,728	1.7	7,663	0.2
Upland Grass	803,997	21.8	237,820	6.5	798,578	21.7	-5,419	-0.1	795,593	21.6	-2,984	-0.1
Lowland Vegetation	638,139	17.3	14,206	0.4	644,098	17.5	5,958	0.2	636,378	17.3	-7,720	-0.2
Agriculture	835,376	22.7	-467,226	-12.7	828,643	22.5	-6,733	-0.2	811,715	22.1	-16,928	-0.5
Open Water	174,336	4.7	-5,059	-0.1	176,346	4.8	2,010	0.1	188,730	5.1	12,384	0.3
Barren	424	0.0	-21,484	-0.6	461	0.0	37	0.0	1,617	0.0	1,156	0.0
Developed	197,881	5.4	156,101	4.2	210,408	5.7	12,527	0.3	233,342	6.3	22,935	0.6
Unclassified	0	0.0	-5	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>			<b>3,680,836</b>	<b>100.0</b>		



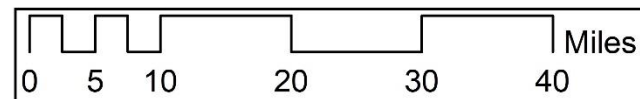
# Cropland (2013)

## East Central Landscape Region



### Cropland Data Layer 2013

- Alfalfa
- Barley
- Barren
- Camelina
- Canola
- Carrots
- Clover/Wildflowers
- Corn
- Deciduous Forest
- Developed
- Dry Beans
- Evergreen Forest
- Fallow/Idle Cropland
- Flaxseed
- Grassland Herbaceous
- Herbaceous Wetlands
- Herbs
- Millet
- Mixed Forest
- Oats
- Open Water
- Other Crops
- Other Hay
- Pasture/Grass
- Pasture/Hay
- Peas
- Potatoes
- Rye
- Shrubland
- Sod/Grass Seed
- Sorghum
- Soybeans
- Spring Wheat
- Sugarbeets
- Sunflower
- Sweet Corn
- Triticale
- Vetch
- Wetlands
- Winter Wheat
- Woodland
- Woody Wetlands



Sources: Main - USDA; Other Features - MN Geospatial Commons





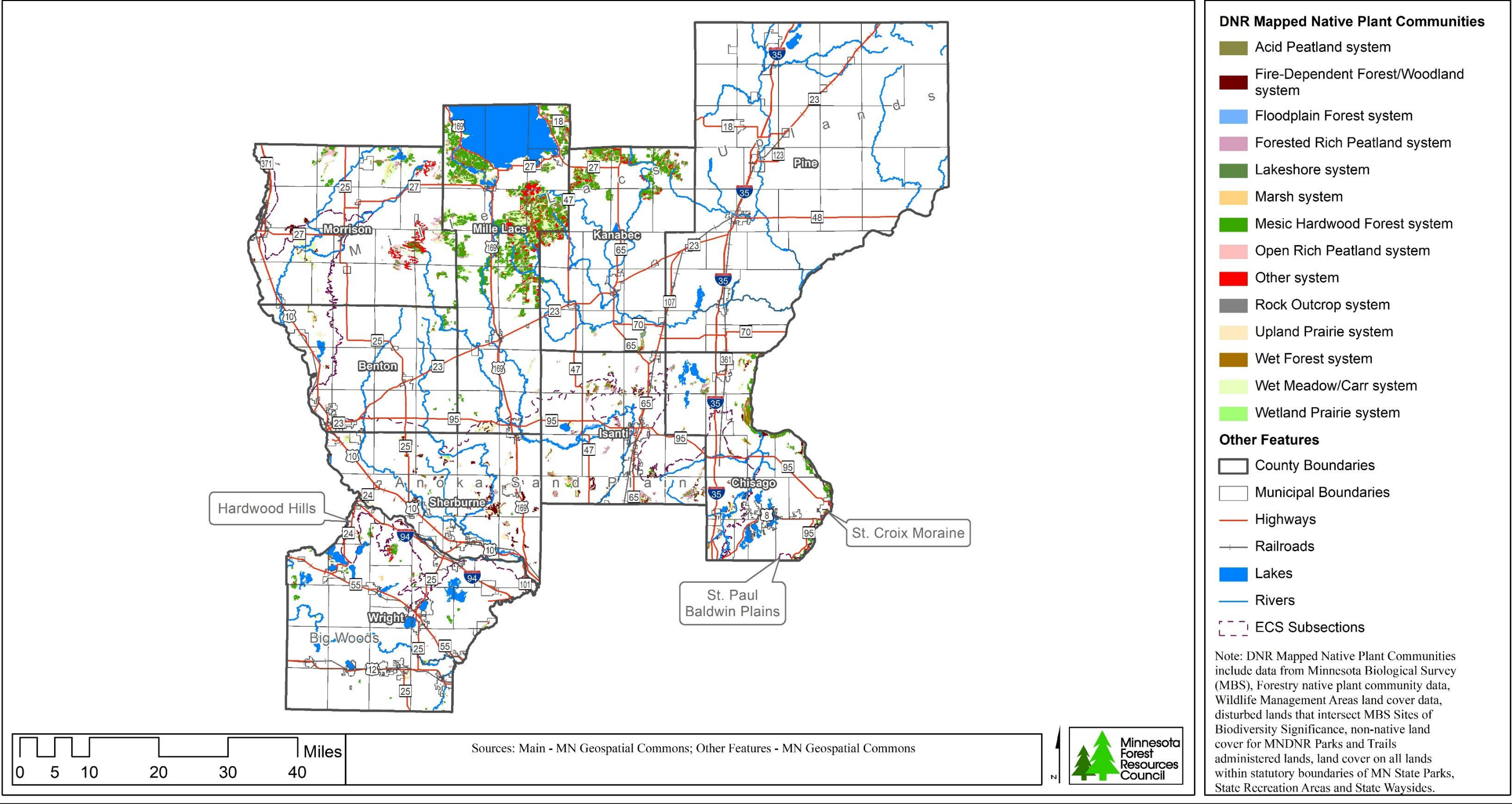
**Cropland (2013) Table**

Cropland Type	Acres	% of Region
Alfalfa	54,220	1.5
Barley	77	0.0
Barren	269	0.0
Canola	20	0.0
Carrots	40	0.0
Clover/Wildflowers	321	0.0
Corn	301,561	8.2
Deciduous Forest	1,281,731	34.8
Developed	182,256	5.0
Dry Beans	6,189	0.2
Evergreen Forest	45,106	1.2
Fallow/Idle Cropland	2,467	0.1
Flaxseed	2	0.0
Grassland Herbaceous	51,650	1.4
Herbaceous Wetlands	349,936	9.5
Millet	0	0.0
Misc. Veggies. & Fruits	1	0.0
Mixed Forest	159	0.0
Oats	3,470	0.1
Open Water	164,576	4.5
Other Crops	159	0.0

Cropland Type	Acres	% of Region
Other Hay	16,741	0.5
Pasture/Grass	27,285	0.7
Pasture/Hay	883,655	24.0
Peas	103	0.0
Potatoes	7,701	0.2
Rye	7,593	0.2
Shrubland	3,660	0.1
Sod/Grass Seed	264	0.0
Sorghum	57	0.0
Soybeans	225,302	6.1
Spring Wheat	10,788	0.3
Sugarbeets	39	0.0
Sunflower	391	0.0
Sweet Corn	235	0.0
Tomatoes	0	0.0
Triticale	64	0.0
Vetch	1	0.0
Wetlands	39	0.0
Winter Wheat	1,155	0.0
Woodland	590	0.0
Woody Wetlands	50,739	1.4
<b>Total East Central Region</b>	<b>3,680,615</b>	<b>100.0</b>

# DNR Mapped Native Plant Communities

## East Central Landscape Region



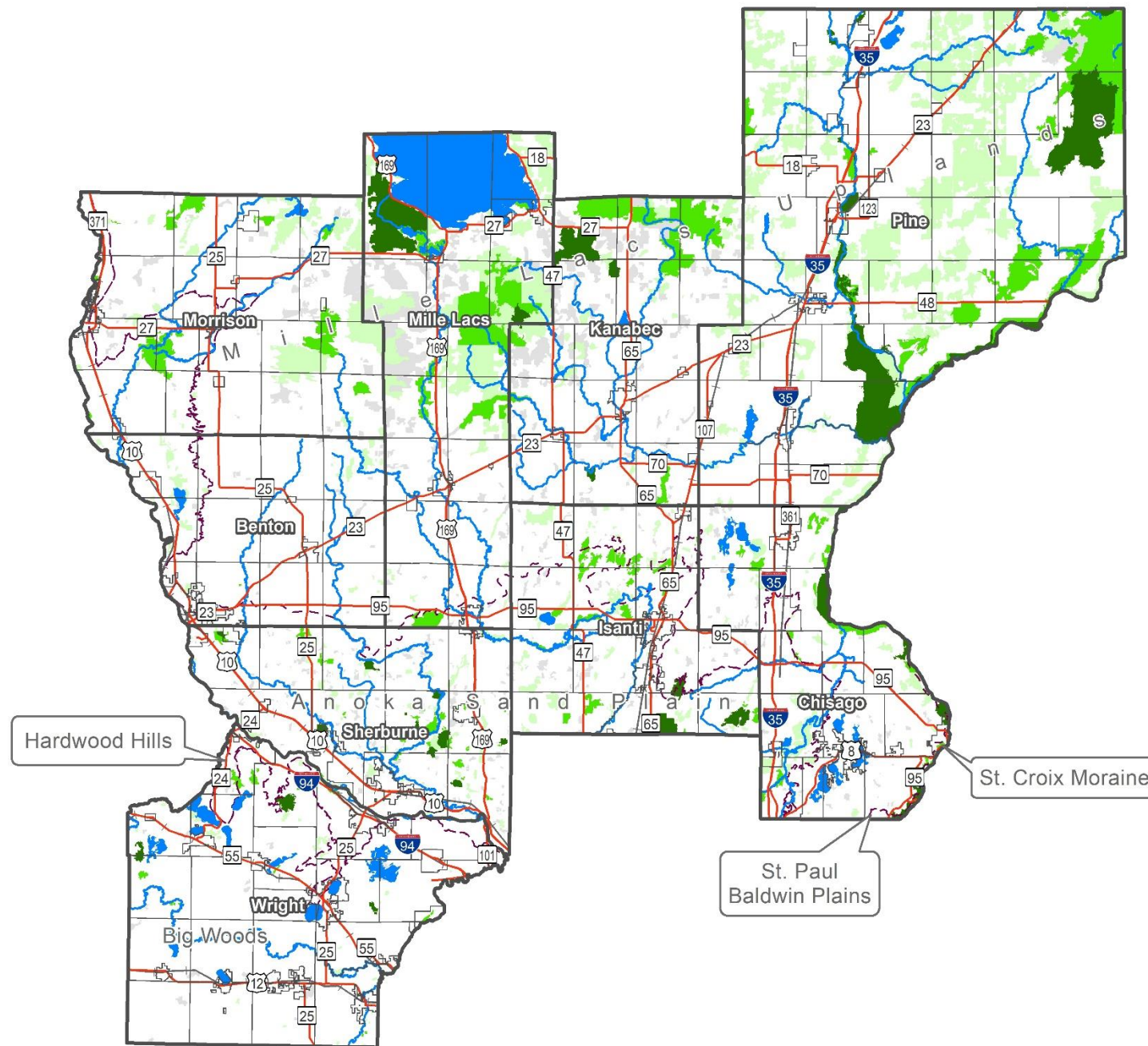
## DNR Mapped Native Plant Communities Table

DNR Mapped Native Plant Communities	Acres	% of Region
Acid Peatland System	8,601	0.2
Fire-Dependent Forest/Woodland System	12,709	0.3
Floodplain Forest System	6,284	0.2
Forested Rich Peatland System	13,467	0.4
Lakeshore System	3	0.0
Marsh System	5,292	0.1
Mesic Hardwood Forest System	87,549	2.4
Open Rich Peatland System	4,121	0.1
Other	21,499	0.6
Rock Outcrop	58	0.0
Upland Prairie System	4,310	0.1
Wet Forest System	16,797	0.5
Wet Meadow/Carr System	49,496	1.3
Wetland Prairie System	209	0.0
<b>Total DNR Mapped Native Plant Communities</b>	<b>230,396</b>	<b>6.3</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	



# MBS Biodiversity Significance

## East Central Landscape Region

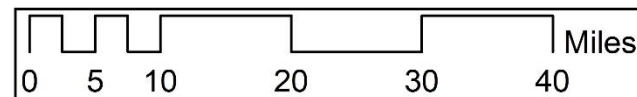


### MBS Biodiversity Significance

- Outstanding
- High
- Moderate
- Below

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



Note: MBS Biodiversity Significance Sites are preliminary for the Counties of Beltrami, Cass, Clearwater, Crow Wing, and Itasca.

**Biodiversity Significance Tables**

Minnesota Biological Survey (MBS) Status (December, 2015)	Acres	% of Region
<b>Completed</b> (Benton, Chisago, Isanti, Kanabec, Mille Lacs, Morrison, Sherburne, Wright)	2,763,669	75.1
<b>Preliminary</b> (Pine)	917,167	24.9
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>

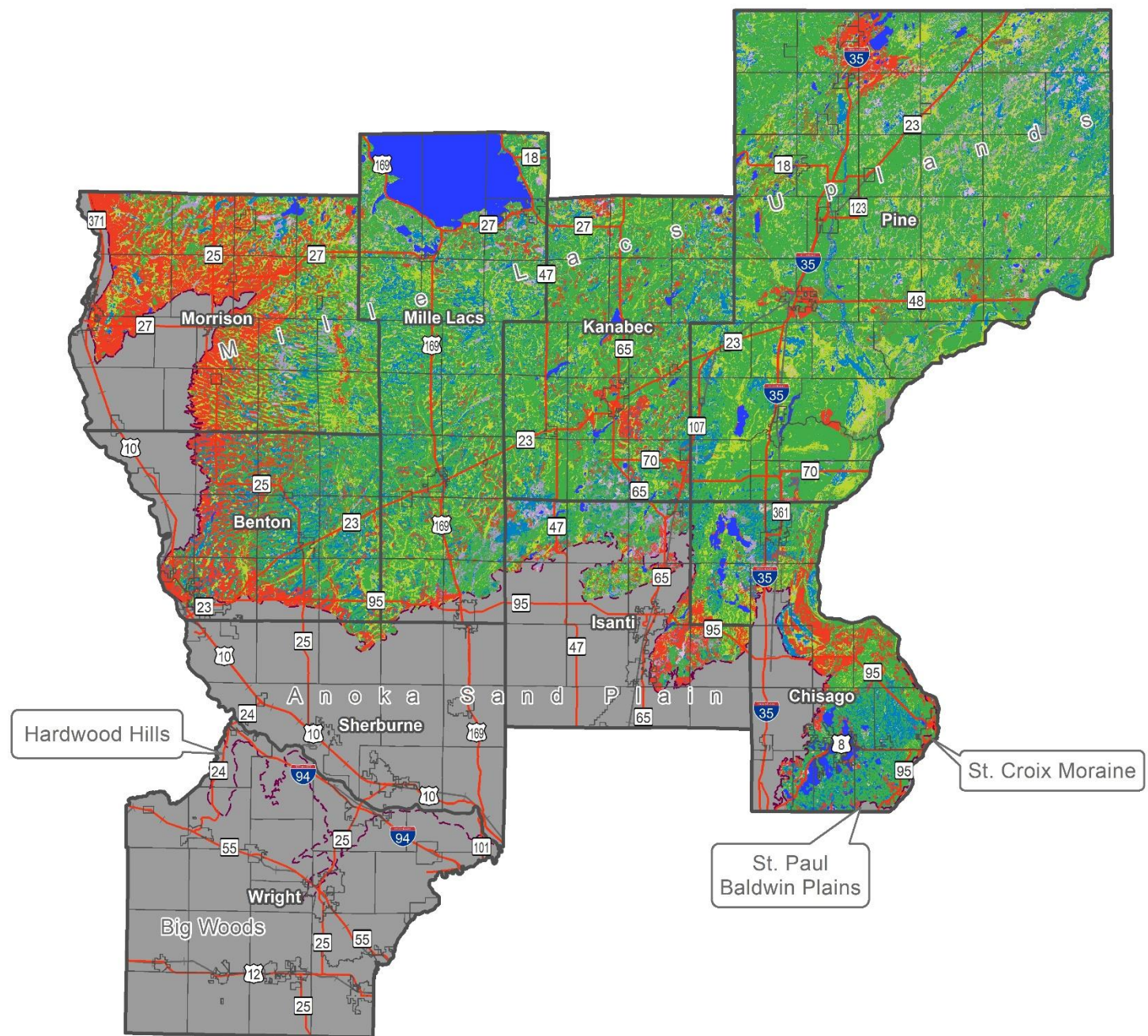
	Acres	% of Completed Area
<b>Biodiversity Significance</b>		
Outstanding	43,677	1.6
High	100,289	3.6
Moderate	153,220	5.5
Below	119,007	4.3
<b>Total Biodiversity Significance in Completed MBS Area</b>	<b>416,192</b>	<b>15.1</b>
<b>Total Completed MBS Area</b>	<b>2,763,669</b>	<b>-</b>

	Acres	% of Preliminary Area
<b>Preliminary Biodiversity Significance</b>		
Outstanding	58,587	6.4
High	55,404	6.0
Moderate	170,515	18.6
Below	3,677	0.4
<b>Total Biodiversity Significance in Preliminary MBS Area</b>	<b>288,182</b>	<b>31.4</b>
<b>Total Preliminary MBS Area</b>	<b>917,167</b>	<b>-</b>



# Potential Native Plant Communities

## East Central Landscape Region

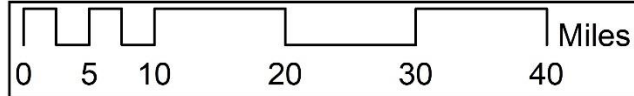


### Potential Native Plant Communities

- Acid Peatland
- Fire Dependent Forest
- Forested Rich Peatland
- Mesic Hardwood
- Open Rich Peatland
- Water
- Wet Forest
- Wet Meadow/Carr
- Not classified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - NRRI; Other Features - MN Geospatial Commons



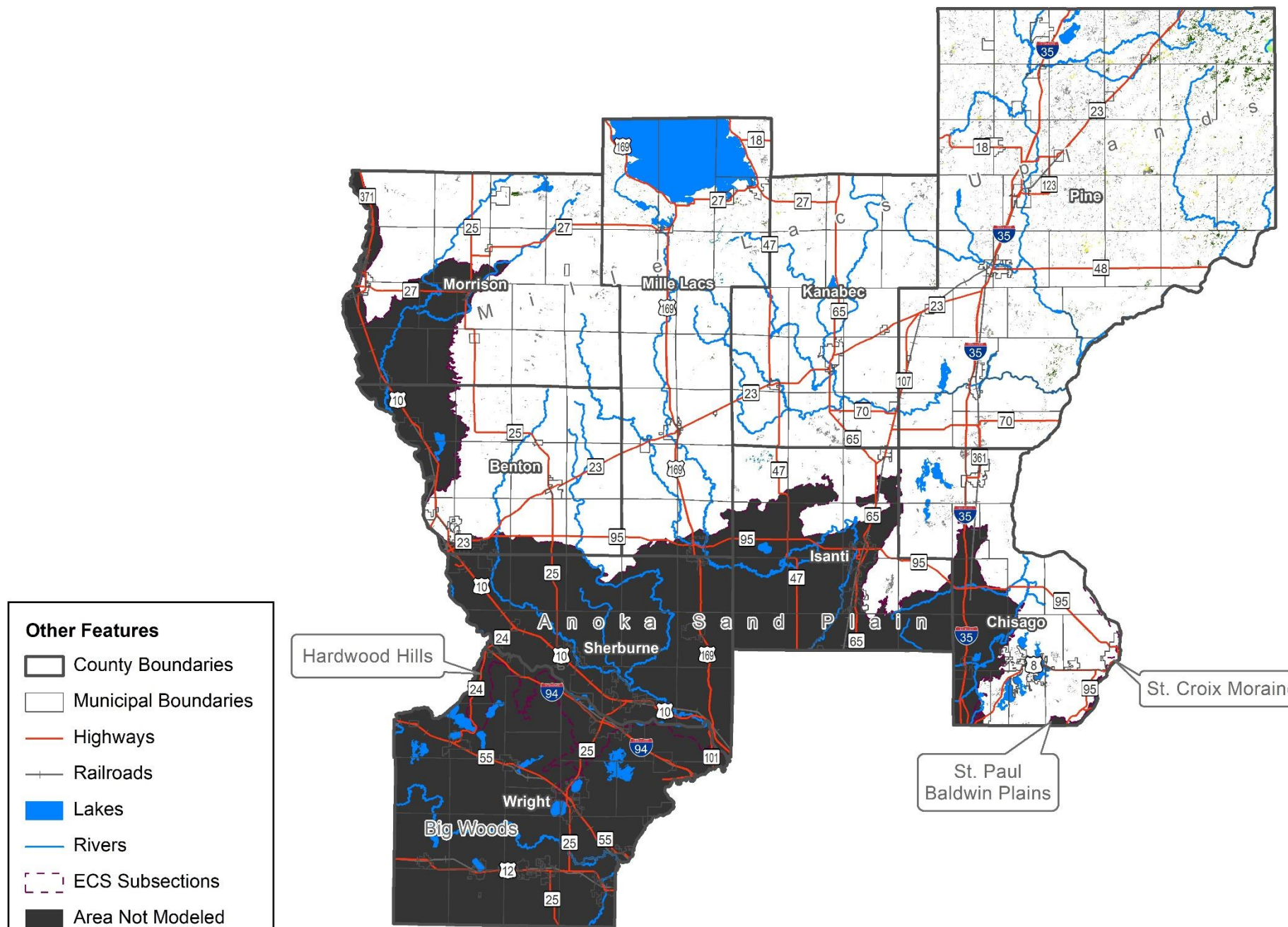


Potential Native Plant Communities Table

Potential NPC Systems	Acres	% of Region
Acid Peatland	45,041	1.2
Fire-Dependent Forest/Woodland	320,308	8.7
Forested Rich Peatland	80,865	2.2
Mesic Hardwood Forest	1,240,927	33.7
Open Rich Peatland	314	0.0
Water	103,790	2.8
Wet Forest	301,250	8.2
Wet Meadow/Carr	426,518	11.6
Not classified (not in LMF)	1,161,823	31.6
Total East Central Region	3,680,836	100.0

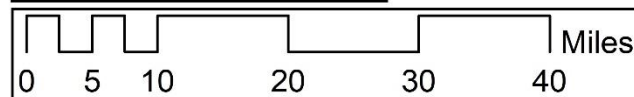
# Management for Acid Peatland

## East Central Landscape Region



- Federal
  - Army Corps of Engineers
  - Bureau of Indian Affairs
  - Bureau of Land Management
  - Farmers Home Administration
  - U.S. Fish and Wildlife Service
  - U.S. Forest Service
  - Unknown
- State
  - Department of Military Affairs
  - Department of Transportation
  - Division of Ecological Services
  - Division of Fish and Wildlife
  - Division of Forestry
  - Division of Lands and Minerals
  - Division of Parks and Recreation
  - Division of Trails and Waterways
  - Division of Waters
  - Minnesota DNR
  - State of Minnesota
- County
  - County
  - Other Public
  - Municipal
  - School District
  - University
  - Private Conservancy
  - Private Conservancy
  - The Nature Conservancy
  - Tribal
  - Mille Lacs Band
  - Private
  - Private

- Other Features**
- County Boundaries
  - Municipal Boundaries
  - Highways
  - Railroads
  - Lakes
  - Rivers
  - ECS Subsections
  - Area Not Modeled



Sources: Main - NRRI; Other Features - MN Geospatial Commons



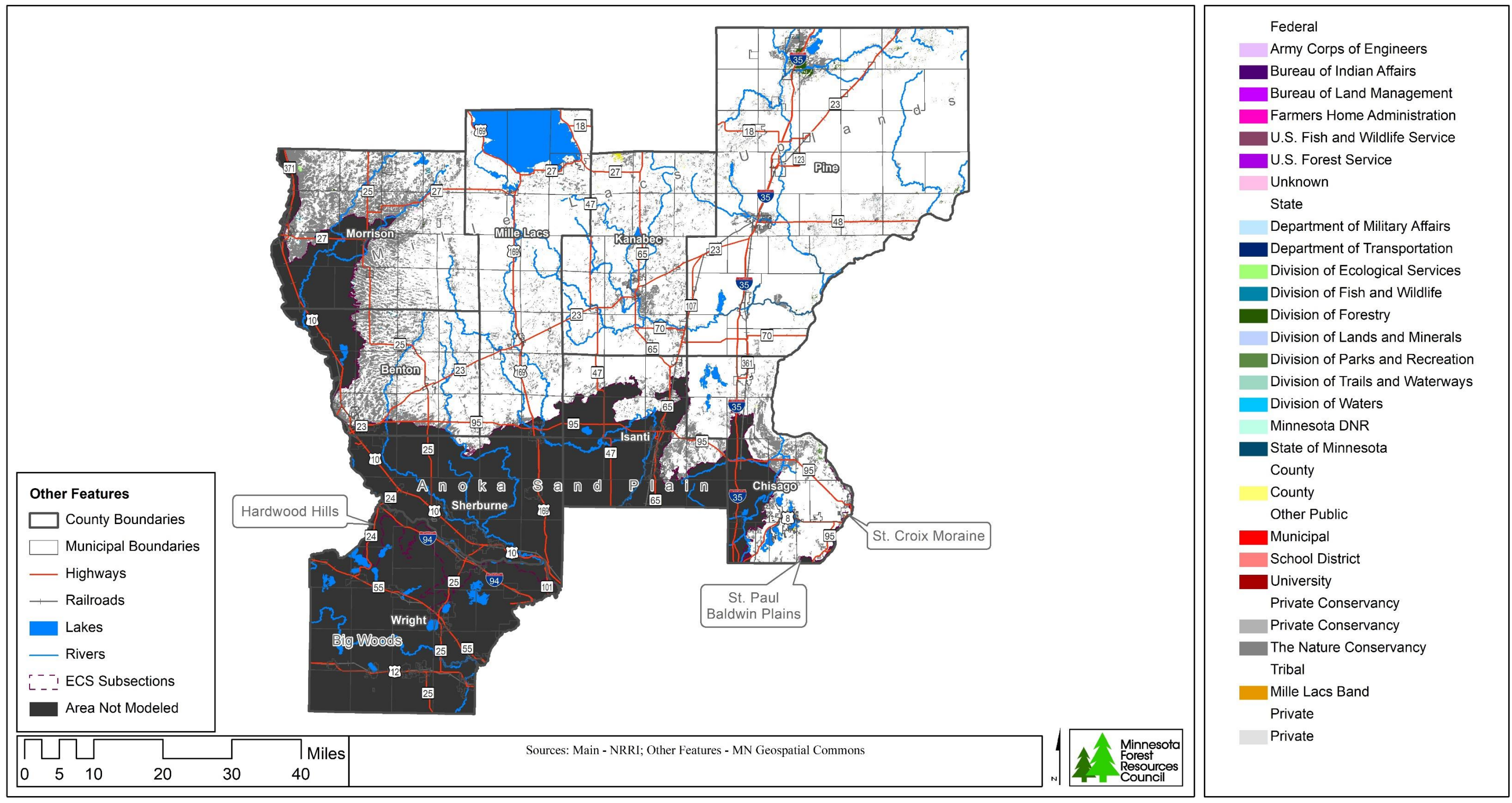
## Management for Acid Peatland Table

Management Type for Acid Peatland	Land Management for Acid Peatland	Acres	% of Total
Federal	Army Corps of Engineers	0	0.0
	Bureau of Indian Affairs	0	0.0
	Bureau of Land Management	0	0.0
	Department of Agriculture	4	0.0
	Farmers Home Administration	0	0.0
	U.S. Fish and Wildlife Service	22	0.0
	Unknown	37	0.1
<b>Total Federal</b>		<b>63</b>	<b>0.1</b>
State	Department of Corrections	2	0.0
	Department of Military Affairs	0	0.0
	Department of Transportation	6	0.0
	Division of Ecological Services	547	1.2
	Division of Fish and Wildlife	709	1.6
	Division of Forestry	10,254	22.8
	Division of Parks and Recreation	738	1.6
	Division of Trails and Waterways	13	0.0
	Division of Waters	0	0.0
	Minnesota DNR	37	0.1
	State of Minnesota	9	0.0
	State - Other	0	0.0
<b>Total State</b>		<b>12,314</b>	<b>27.3</b>
County	Chisago County	2	0.0
	Kanabec County	150	0.3
	Mille Lacs County	13	0.0
	Morrison County	0	0.0
	Pine County	2,439	5.4
<b>Total County</b>		<b>2,605</b>	<b>5.8</b>
Other Public	Municipal	4	0.0
	School District	0	0.0
	Other Public	2	0.0
<b>Total Other Public</b>		<b>6</b>	<b>0.0</b>
Private Conservancy	Private Conservancy	13	0.0
	The Nature Conservancy	0	0.0
<b>Total Private Conservancy</b>		<b>13</b>	<b>0.0</b>
<b>Total Public and Private Conservancy</b>		<b>15,002</b>	<b>33.3</b>
Tribal	Mille Lacs Band	129	0.3
<b>Total Tribal</b>		<b>129</b>	<b>0.3</b>
<b>Total Private</b>		<b>29,911</b>	<b>66.4</b>
<b>Total Acid Peatland Area in East Central Landscape</b>		<b>45,041</b>	<b>100.0</b>



# Management for Fire-Dependent Forest/Woodland

## East Central Landscape Region



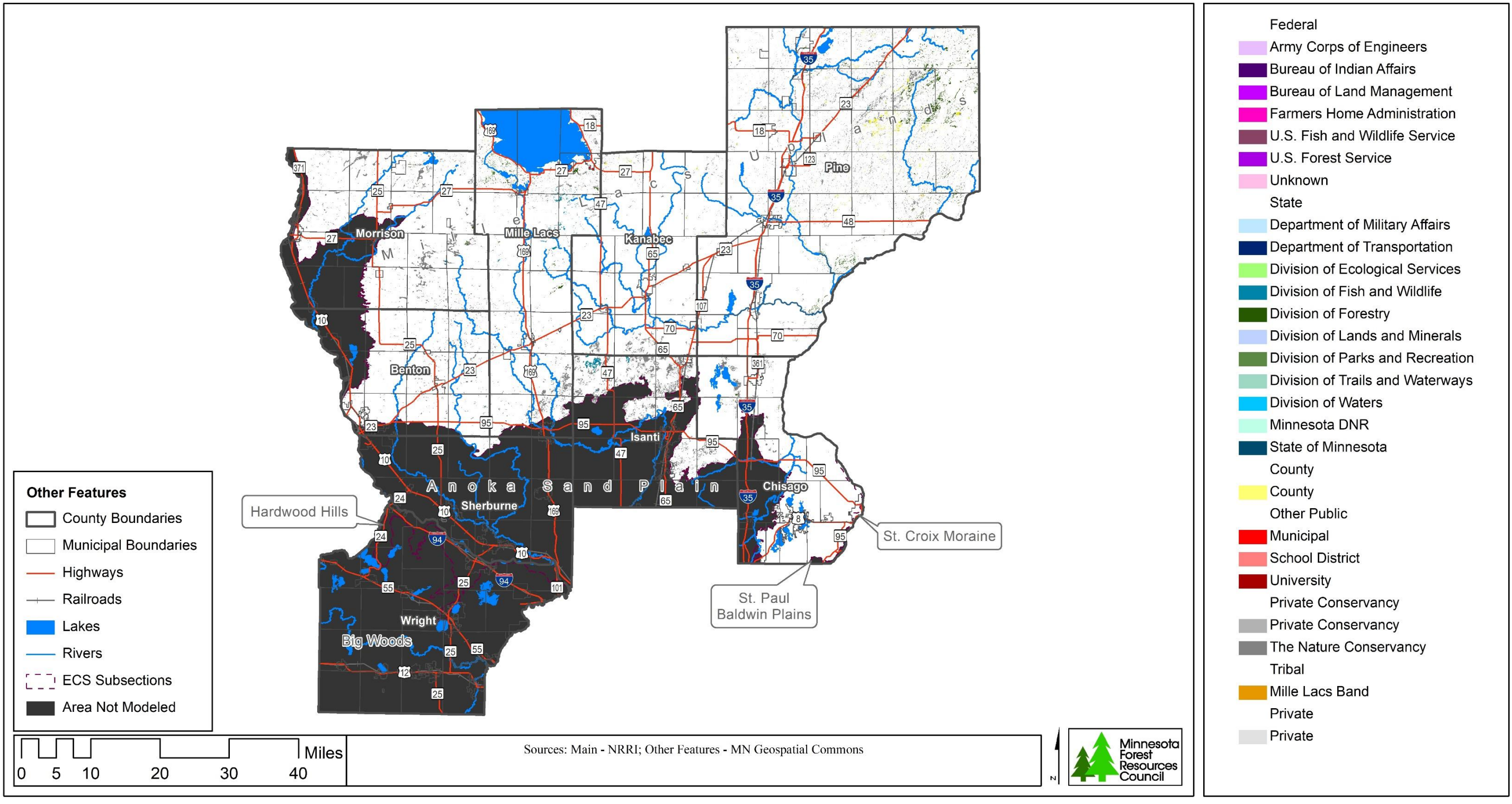
## Management for Fire-Dependent Forest/Woodland Table

Management Type for Fire-Dependent Forest/Woodland	Land Management for Fire-Dependent Forest/Woodland	Acres	% of Total
Federal	Army Corps of Engineers	10	0.0
	Bureau of Indian Affairs	0	0.0
	Bureau of Land Management	18	0.0
	Department of Agriculture	0	0.0
	Farmers Home Administration	0	0.0
	U.S. Fish and Wildlife Service	629	0.2
	Unknown	100	0.0
<b>Total Federal</b>		<b>757</b>	<b>0.2</b>
State	Department of Corrections	0	0.0
	Department of Military Affairs	6	0.0
	Department of Transportation	278	0.1
	Division of Ecological Services	252	0.1
	Division of Fish and Wildlife	1,354	0.4
	Division of Forestry	6,067	1.9
	Division of Parks and Recreation	1,694	0.5
	Division of Trails and Waterways	139	0.0
	Division of Waters	29	0.0
	Minnesota DNR	0	0.0
	State of Minnesota	1	0.0
	State - Other	1	0.0
<b>Total State</b>		<b>9,821</b>	<b>3.1</b>
County	Chisago County	75	0.0
	Kanabec County	742	0.2
	Mille Lacs County	10	0.0
	Morrison County	0	0.0
	Pine County	288	0.1
<b>Total County</b>		<b>1,115</b>	<b>0.3</b>
Other Public	Municipal	2	0.0
	School District	10	0.0
	Other Public	3	0.0
<b>Total Other Public</b>		<b>14</b>	<b>0.0</b>
Private Conservancy	Private Conservancy	80	0.0
	The Nature Conservancy	0	0.0
<b>Total Private Conservancy</b>		<b>80</b>	<b>0.0</b>
<b>Total Public and Private Conservancy</b>		<b>11,788</b>	<b>3.7</b>
Tribal	Mille Lacs Band	80	0.0
<b>Total Tribal</b>		<b>80</b>	<b>0.0</b>
<b>Total Private</b>		<b>308,440</b>	<b>96.3</b>
<b>Total Fire-Dependent Forest/Woodland Area in East Central Landscape</b>		<b>320,308</b>	<b>100.0</b>



# Management for Forested Rich Peatland

## East Central Landscape Region



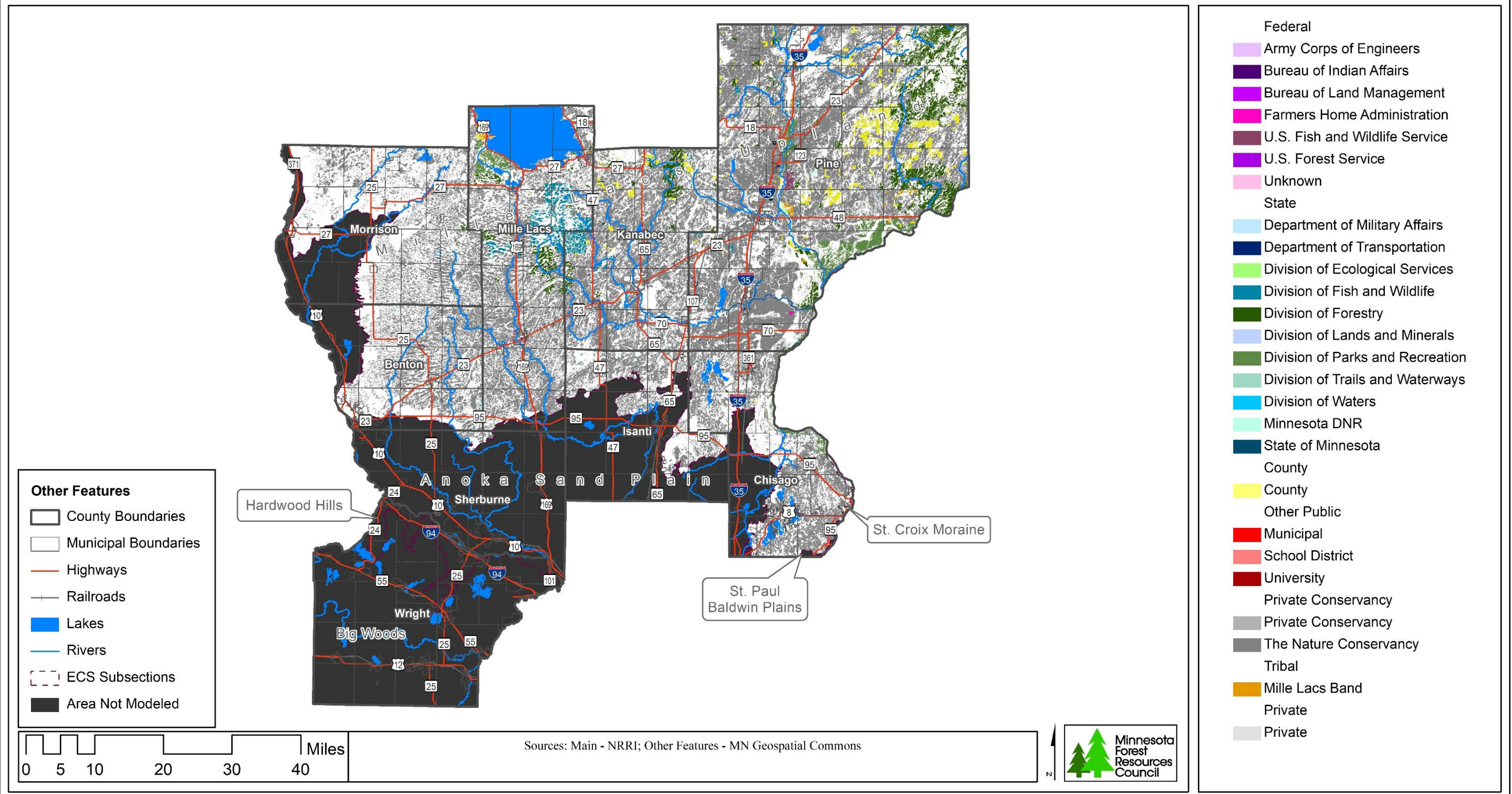


# Management for Forested Rich Peatland Table

Management Type for Forested Rich Peatland	Land Management for Forested Rich Peatland	Acres	% of Total
Federal	Army Corps of Engineers	0	0.0
	Bureau of Indian Affairs	0	0.0
	Bureau of Land Management	17	0.0
	Department of Agriculture	5	0.0
	Farmers Home Administration	0	0.0
	U.S. Fish and Wildlife Service	76	0.1
	Unknown	4	0.0
Total Federal		102	0.1
State	Department of Corrections	0	0.0
	Department of Military Affairs	0	0.0
	Department of Transportation	17	0.0
	Division of Ecological Services	109	0.1
	Division of Fish and Wildlife	2,664	3.3
	Division of Forestry	9,365	11.6
	Division of Parks and Recreation	2,240	2.8
	Division of Trails and Waterways	85	0.1
	Division of Waters	21	0.0
	Minnesota DNR	31	0.0
	State of Minnesota	62	0.1
	State - Other	1	0.0
Total State		14,595	18.0
County	Chisago County	17	0.0
	Kanabec County	195	0.2
	Mille Lacs County	19	0.0
	Morrison County	2	0.0
	Pine County	3,119	3.9
Total County		3,353	4.1
Other Public	Municipal	101	0.1
	School District	7	0.0
	Other Public	0	0.0
Total Other Public		108	0.1
Private Conservancy	Private Conservancy	2	0.0
	The Nature Conservancy	0	0.0
Total Private Conservancy		2	0.0
Total Public and Private Conservancy		18,161	22.5
Tribal	Mille Lacs Band	224	0.3
Total Tribal		224	0.3
Total Private		62,479	77.3
Total Forested Rich Peatland Area in East Central Landscape		80,865	100.0

# Management for Mesic Hardwood Forest

## East Central Landscape Region



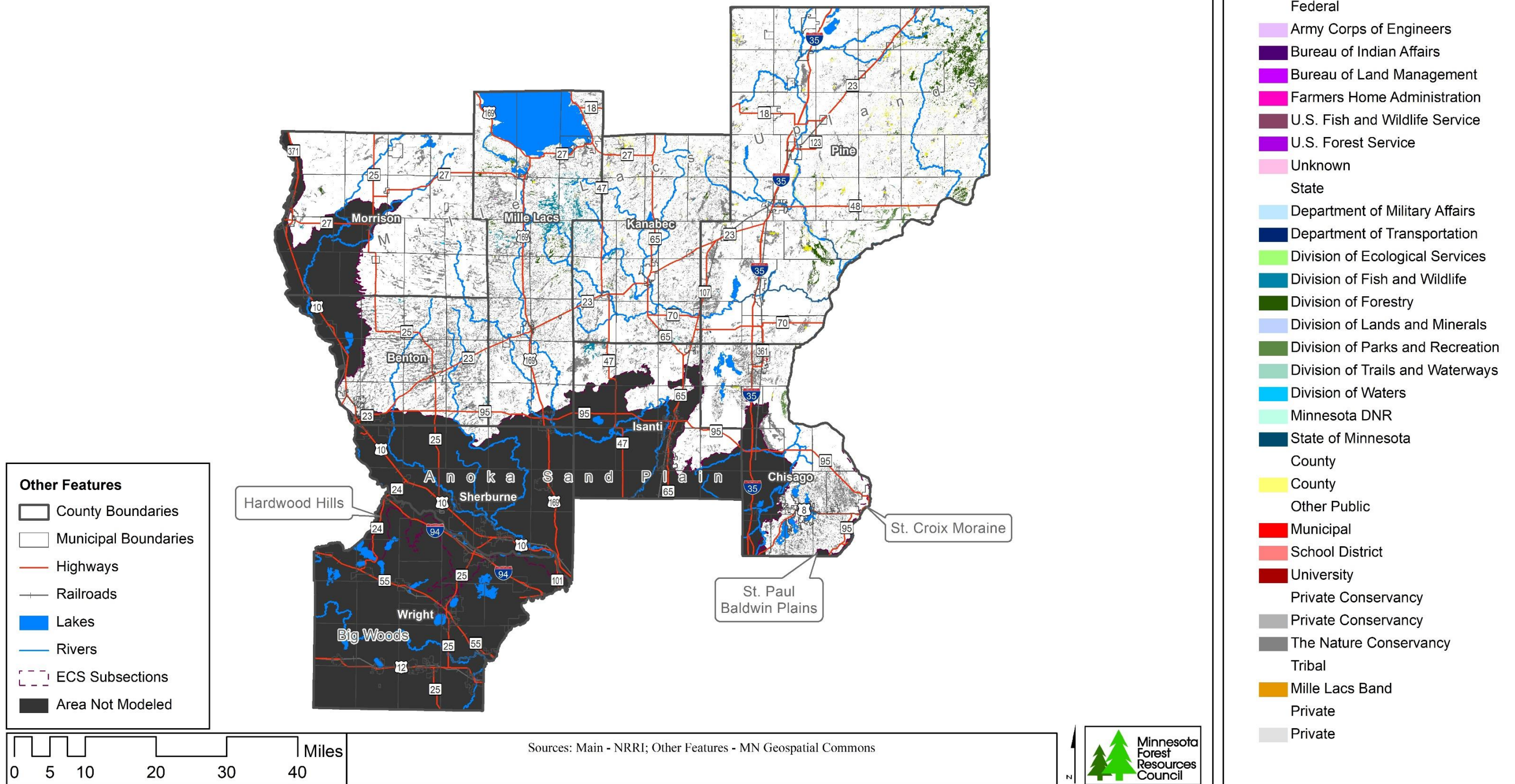
## Management for Mesic Hardwood Forest Table

Management Type for Mesic Hardwood Forest	Land Management for Mesic Hardwood Forest	Acres	% of Total
Federal	Army Corps of Engineers	0	0.0
	Bureau of Indian Affairs	0	0.0
	Bureau of Land Management	68	0.0
	Department of Agriculture	162	0.0
	Farmers Home Administration	124	0.0
	U.S. Fish and Wildlife Service	1,915	0.2
	Unknown	85	0.0
<b>Total Federal</b>		<b>2,354</b>	<b>0.2</b>
State	Department of Corrections	71	0.0
	Department of Military Affairs	71	0.0
	Department of Transportation	799	0.1
	Division of Ecological Services	380	0.0
	Division of Fish and Wildlife	23,857	1.9
	Division of Forestry	84,055	6.8
	Division of Parks and Recreation	29,889	2.4
	Division of Trails and Waterways	801	0.1
	Division of Waters	149	0.0
	Minnesota DNR	324	0.0
	State of Minnesota	271	0.0
	State - Other	29	0.0
<b>Total State</b>		<b>140,697</b>	<b>11.3</b>
County	Chisago County	106	0.0
	Kanabec County	4,179	0.3
	Mille Lacs County	352	0.0
	Morrison County	41	0.0
	Pine County	25,011	2.0
<b>Total County</b>		<b>29,690</b>	<b>2.4</b>
Other Public	Municipal	306	0.0
	School District	121	0.0
	Other Public	90	0.0
<b>Total Other Public</b>		<b>517</b>	<b>0.0</b>
Private Conservancy	Private Conservancy	456	0.0
	The Nature Conservancy	0	0.0
<b>Total Private Conservancy</b>		<b>456</b>	<b>0.0</b>
<b>Total Public and Private Conservancy</b>		<b>173,714</b>	<b>14.0</b>
Tribal	Mille Lacs Band	2,900	0.2
<b>Total Tribal</b>		<b>2,900</b>	<b>0.2</b>
<b>Total Private</b>		<b>1,064,314</b>	<b>85.8</b>
<b>Total Mesic Hardwood Forest Area in East Central Landscape</b>		<b>1,240,927</b>	<b>100.0</b>



# Management for Wet Forest

## East Central Landscape Region



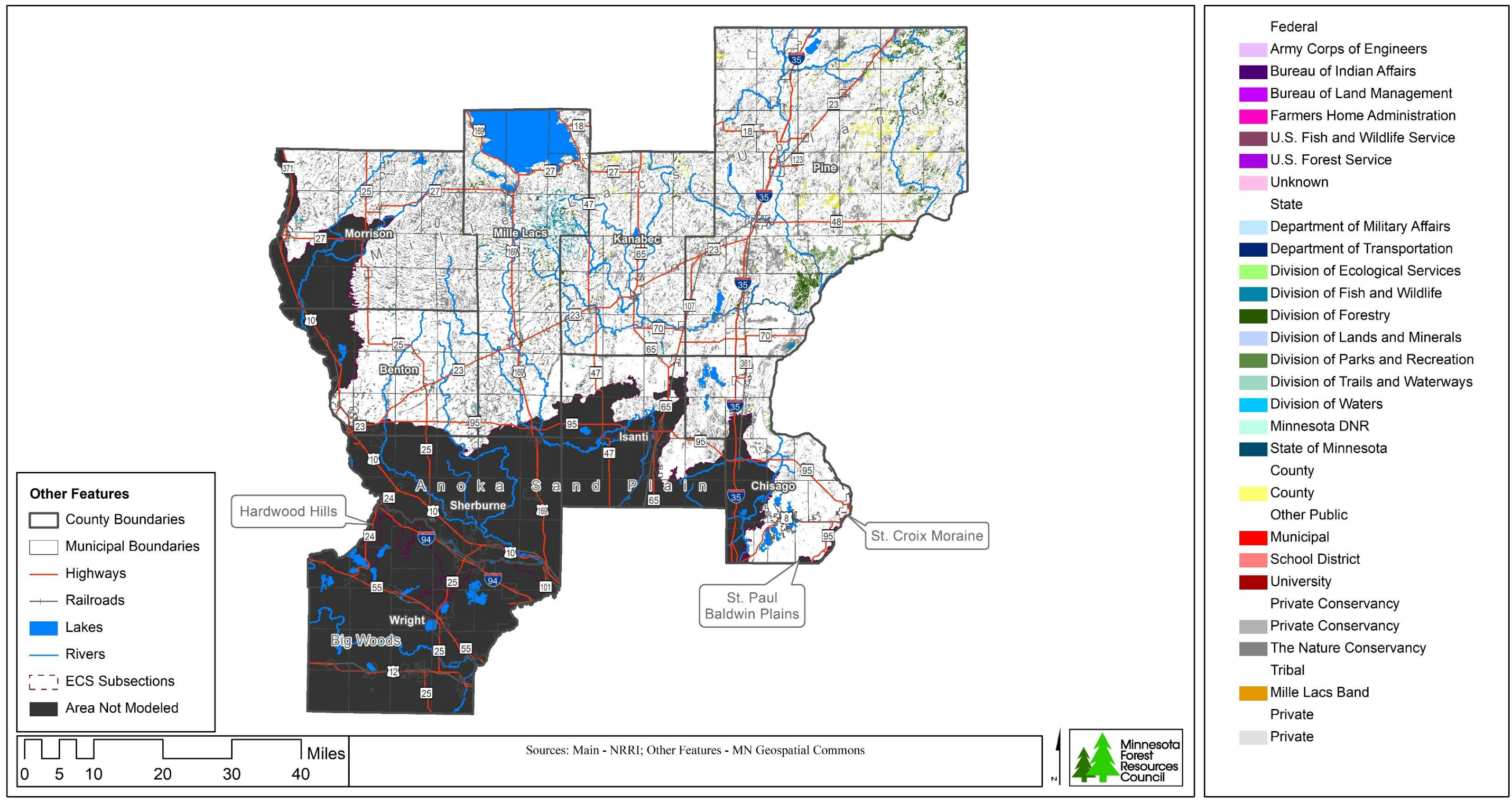
## Management for Wet Forest Table

Management Type for Wet Forest	Land Management for Wet Forest	Acres	% of Total
Federal	Army Corps of Engineers	18	0.0
	Bureau of Indian Affairs	0	0.0
	Bureau of Land Management	49	0.0
	Department of Agriculture	1	0.0
	Farmers Home Administration	0	0.0
	U.S. Fish and Wildlife Service	239	0.1
	Unknown	24	0.0
<b>Total Federal</b>		<b>330</b>	<b>0.1</b>
State	Department of Corrections	0	0.0
	Department of Military Affairs	0	0.0
	Department of Transportation	117	0.0
	Division of Ecological Services	654	0.2
	Division of Fish and Wildlife	13,326	4.4
	Division of Forestry	29,275	9.7
	Division of Parks and Recreation	6,863	2.3
	Division of Trails and Waterways	553	0.2
	Division of Waters	102	0.0
	Minnesota DNR	23	0.0
	State of Minnesota	105	0.0
	State - Other	3	0.0
<b>Total State</b>		<b>51,022</b>	<b>16.9</b>
County	Chisago County	172	0.1
	Kanabec County	1,101	0.4
	Mille Lacs County	128	0.0
	Morrison County	7	0.0
	Pine County	6,569	2.2
<b>Total County</b>		<b>7,977</b>	<b>2.6</b>
Other Public	Municipal	148	0.0
	School District	18	0.0
	Other Public	0	0.0
<b>Total Other Public</b>		<b>166</b>	<b>0.1</b>
Private Conservancy	Private Conservancy	9	0.0
	The Nature Conservancy	0	0.0
<b>Total Private Conservancy</b>		<b>9</b>	<b>0.0</b>
<b>Total Public and Private Conservancy</b>		<b>59,505</b>	<b>19.8</b>
Tribal	Mille Lacs Band	484	0.2
<b>Total Tribal</b>		<b>484</b>	<b>0.2</b>
<b>Total Private</b>		<b>241,261</b>	<b>80.1</b>
<b>Total Wet Forest Area in East Central Landscape</b>		<b>301,250</b>	<b>100.0</b>



# Management for Wet Meadow/Carr

## East Central Landscape Region



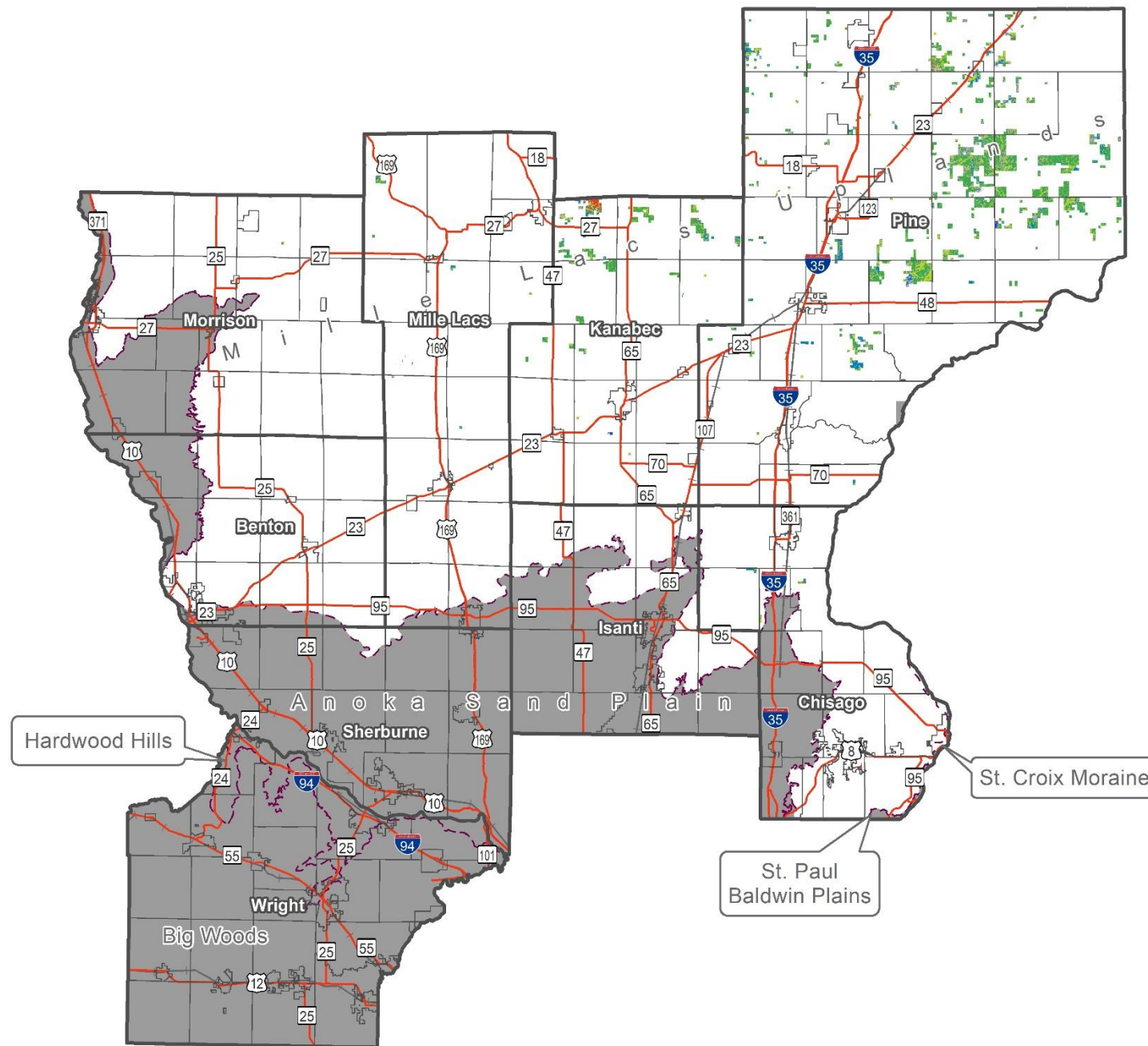


## Management for Wet Meadow/Carr Table

Management Type for Wet Meadow/Carr	Land Management for Wet Meadow/Carr	Acres	% of Total
Federal	Army Corps of Engineers	0	0.0
	Bureau of Indian Affairs	0	0.0
	Bureau of Land Management	40	0.0
	Department of Agriculture	19	0.0
	Farmers Home Administration	0	0.0
	U.S. Fish and Wildlife Service	498	0.1
	Unknown	100	0.0
<b>Total Federal</b>		<b>657</b>	<b>0.2</b>
State	Department of Corrections	5	0.0
	Department of Military Affairs	1	0.0
	Department of Transportation	148	0.0
	Division of Ecological Services	545	0.1
	Division of Fish and Wildlife	14,824	3.5
	Division of Forestry	37,440	8.8
	Division of Parks and Recreation	12,087	2.8
	Division of Trails and Waterways	235	0.1
	Division of Waters	77	0.0
	Minnesota DNR	101	0.0
	State of Minnesota	163	0.0
	State - Other	1	0.0
<b>Total State</b>		<b>65,627</b>	<b>15.4</b>
County	Chisago County	231	0.1
	Kanabec County	2,185	0.5
	Mille Lacs County	159	0.0
	Morrison County	28	0.0
	Pine County	12,165	2.9
<b>Total County</b>		<b>14,769</b>	<b>3.5</b>
Other Public	Municipal	166	0.0
	School District	36	0.0
	Other Public	12	0.0
<b>Total Other Public</b>		<b>214</b>	<b>0.1</b>
Private Conservancy	Private Conservancy	89	0.0
	The Nature Conservancy	0	0.0
<b>Total Private Conservancy</b>		<b>89</b>	<b>0.0</b>
<b>Total Public and Private Conservancy</b>		<b>81,355</b>	<b>19.1</b>
Tribal	Mille Lacs Band	894	0.2
<b>Total Tribal</b>		<b>894</b>	<b>0.2</b>
<b>Total Private</b>		<b>344,269</b>	<b>80.7</b>
<b>Total Wet Meadow/Carr Area in East Central Landscape</b>		<b>426,518</b>	<b>100.0</b>

# NPC Systems for County Land Management Types

## East Central Landscape Region

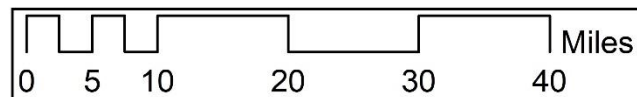


### Potential Native Plant Communities

- Acid Peatland
- Fire Dependent Forest
- Forested Rich Peatland
- Mesic Hardwood
- Open Rich Peatland
- Water
- Wet Forest
- Wet Meadow/Carr
- Not classified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - NRRI; Other Features - MN Geospatial Commons



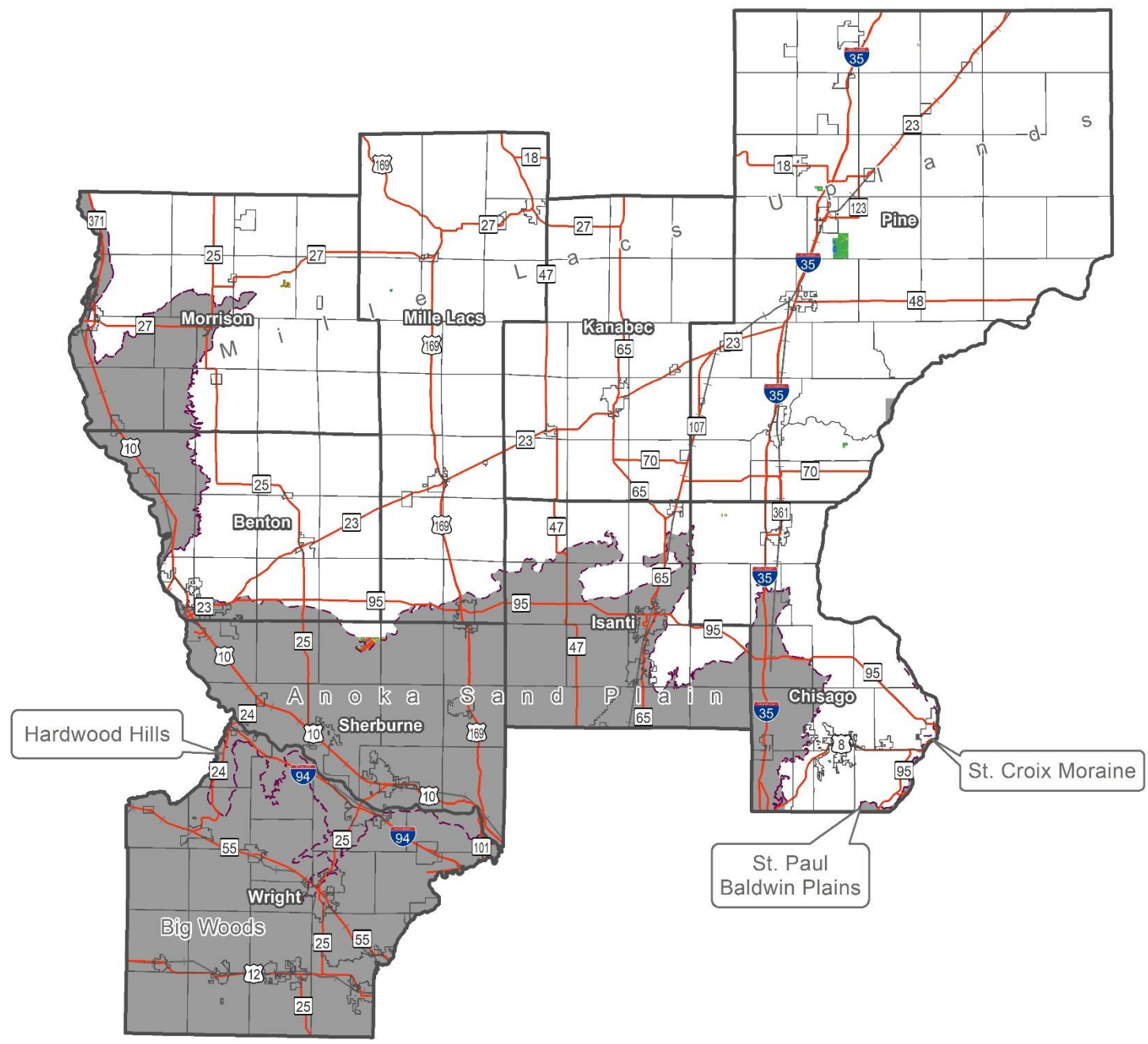
### NPC Systems for County Land Management Types Table

Potential NPC Systems	Acres	% of Total
Acid Peatland	2,605	4.3
Fire-Dependent Forest/Woodland	1,115	1.9
Forested Rich Peatland	3,353	5.6
Mesic Hardwood Forest	29,690	49.5
Open Rich Peatland	0	0.0
Water	530	0.9
Wet Forest	7,977	13.3
Wet Meadow/Carr	14,769	24.6
<b>Total County</b>	<b>60,039</b>	<b>100.0</b>

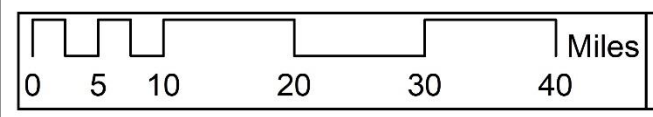


# NPC Systems for Federal Land Management Types

## East Central Landscape Region



- Potential Native Plant Communities**
- Acid Peatland
  - Fire Dependent Forest
  - Forested Rich Peatland
  - Mesic Hardwood
  - Open Rich Peatland
  - Water
  - Wet Forest
  - Wet Meadow/Carr
  - Not classified
- Other Features**
- County Boundaries
  - Municipal Boundaries
  - Highways
  - Railroads
  - ECS Subsections



Sources: Main - NRRI; Other Features - MN Geospatial Commons

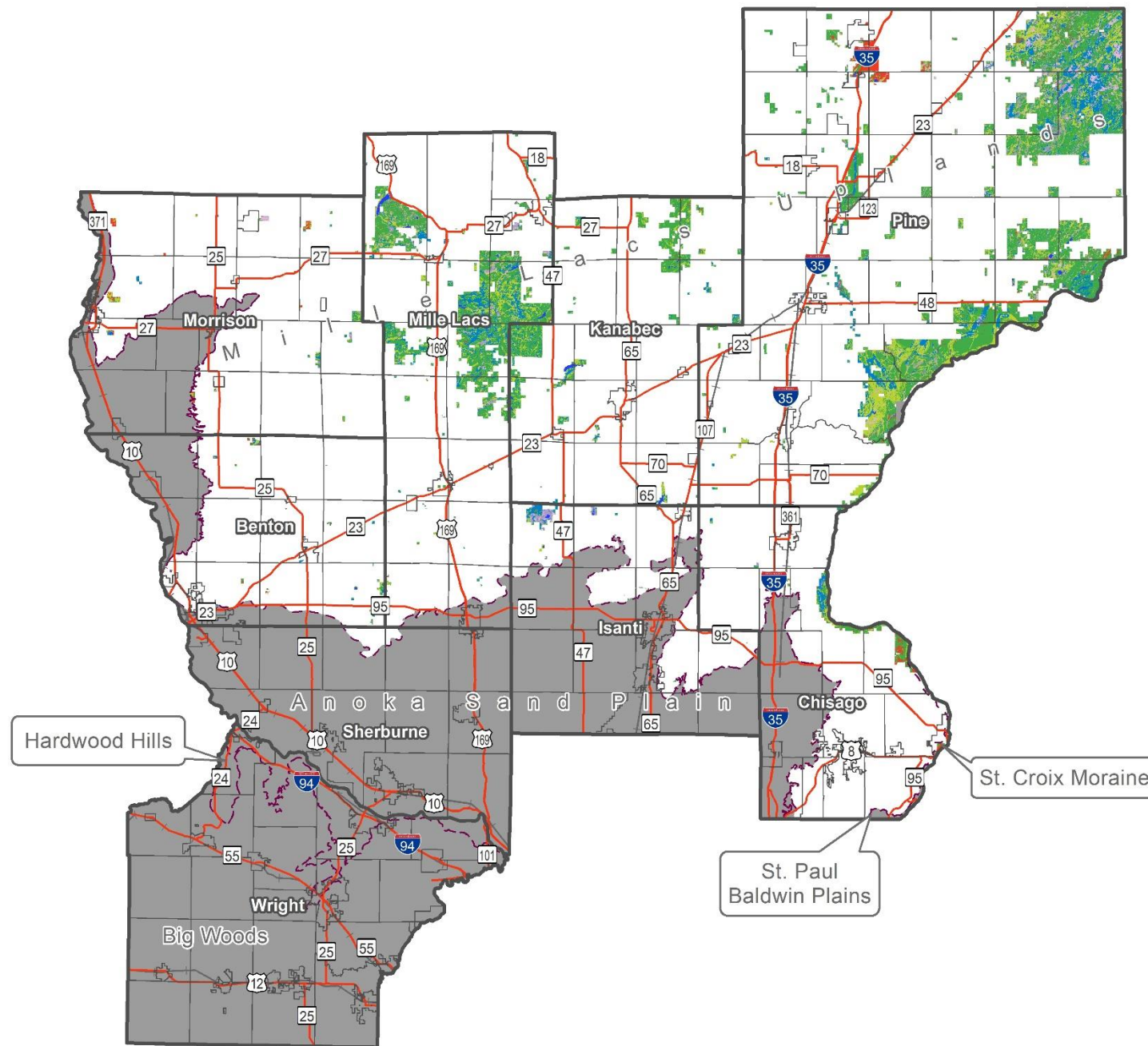


## NPC Systems for Federal Land Management Types Table

Potential NPC Systems	Acres	% of Total
Acid Peatland	63	1.5
Fire-Dependent Forest/Woodland	757	17.3
Forested Rich Peatland	102	2.3
Mesic Hardwood Forest	2,354	53.9
Open Rich Peatland	0	0.0
Water	102	2.3
Wet Forest	330	7.6
Wet Meadow/Carr	657	15.0
<b>Total Federal</b>	<b>4,366</b>	<b>100.0</b>

# NPC Systems for State Land Management Types

## East Central Landscape Region

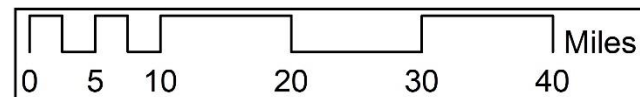


### Potential Native Plant Communities

- Acid Peatland
- Fire Dependent Forest
- Forested Rich Peatland
- Mesic Hardwood
- Open Rich Peatland
- Water
- Wet Forest
- Wet Meadow/Carr
- Not classified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - NRRI; Other Features - MN Geospatial Commons



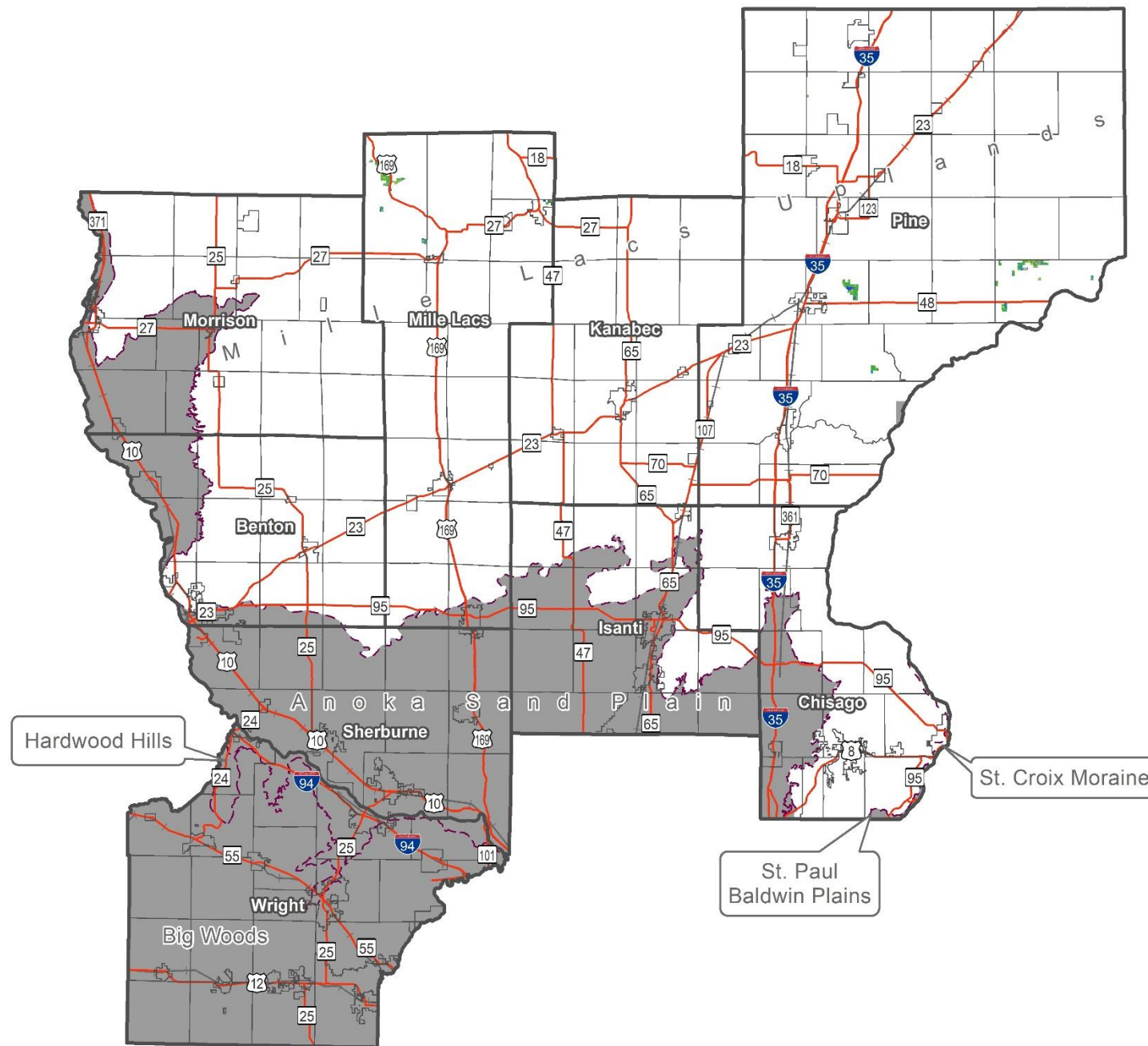


**NPC Systems for State Land Management Types Table**

Potential NPC Systems	Acres	% of Total
Acid Peatland	12,314	4.1
Fire-Dependent Forest/Woodland	9,833	3.3
Forested Rich Peatland	14,595	4.9
Mesic Hardwood Forest	140,708	47.4
Open Rich Peatland	15	0.0
Water	2,790	0.9
Wet Forest	51,019	17.2
Wet Meadow/Carr	65,627	22.1
Total State	296,901	100.0

# NPC Systems for Tribal Land Management Types

## East Central Landscape Region

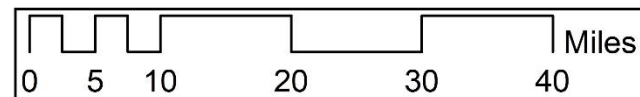


### Potential Native Plant Communities

- Acid Peatland
- Fire Dependent Forest
- Forested Rich Peatland
- Mesic Hardwood
- Open Rich Peatland
- Water
- Wet Forest
- Wet Meadow/Carr
- Not classified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - NRRI; Other Features - MN Geospatial Commons



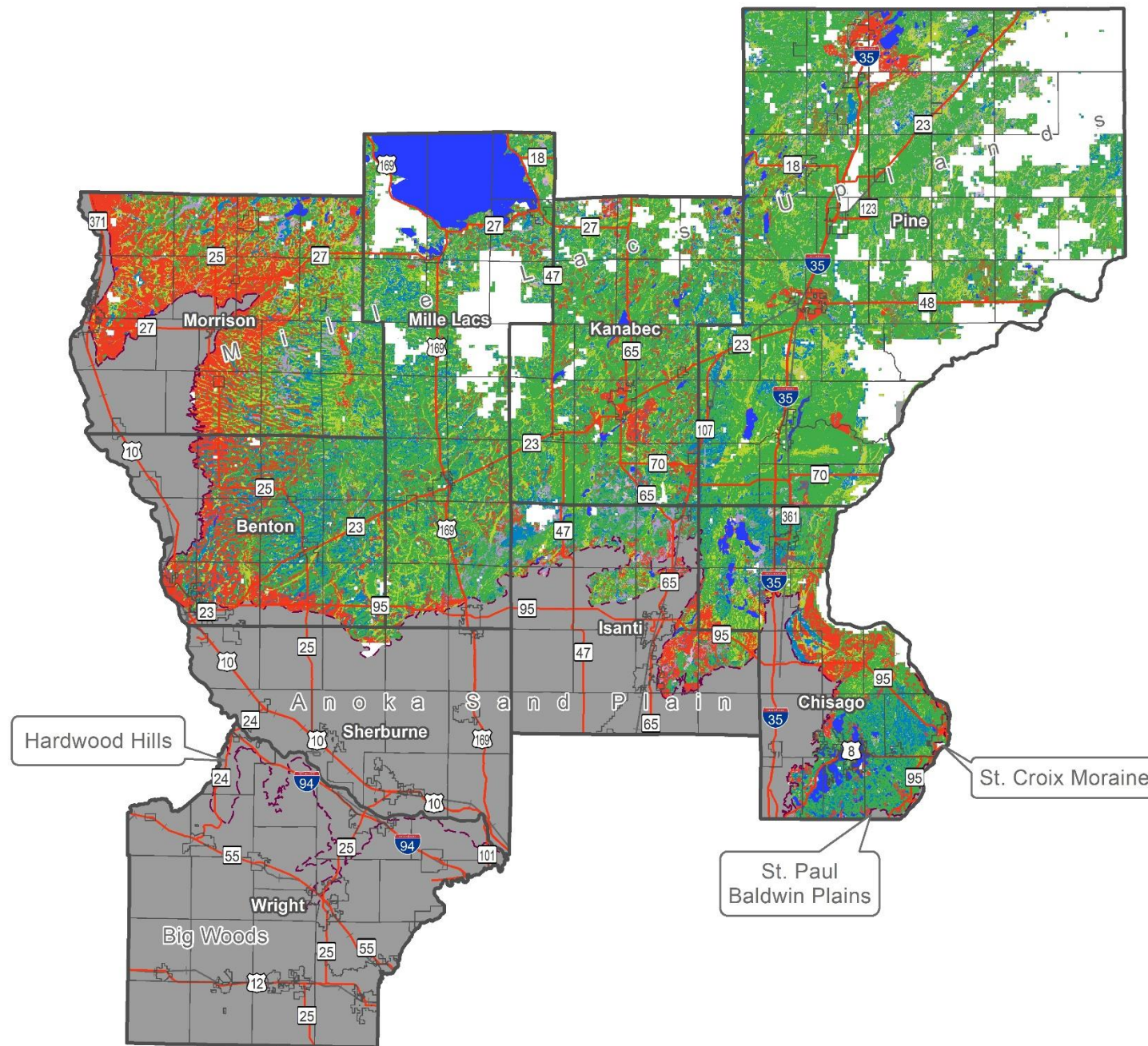
**NPC Systems for Tribal Land Management Types Table**

Potential NPC Systems	Acres	% of Total
Acid Peatland	129	2.6
Fire-Dependent Forest/Woodland	80	1.6
Forested Rich Peatland	224	4.5
Mesic Hardwood Forest	2,900	58.3
Open Rich Peatland	0	0.0
Water	264	5.3
Wet Forest	484	9.7
Wet Meadow/Carr	894	18.0
Total Tribal	4,974	100.0



# NPC Systems for Private Land Management Types

## East Central Landscape Region

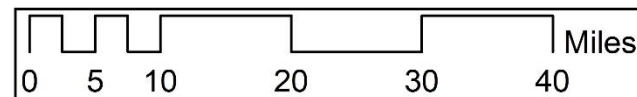


### Potential Native Plant Communities

- Acid Peatland
- Fire Dependent Forest
- Forested Rich Peatland
- Mesic Hardwood
- Open Rich Peatland
- Water
- Wet Forest
- Wet Meadow/Carr
- Not classified

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- ECS Subsections



Sources: Main - NRRI; Other Features - MN Geospatial Commons

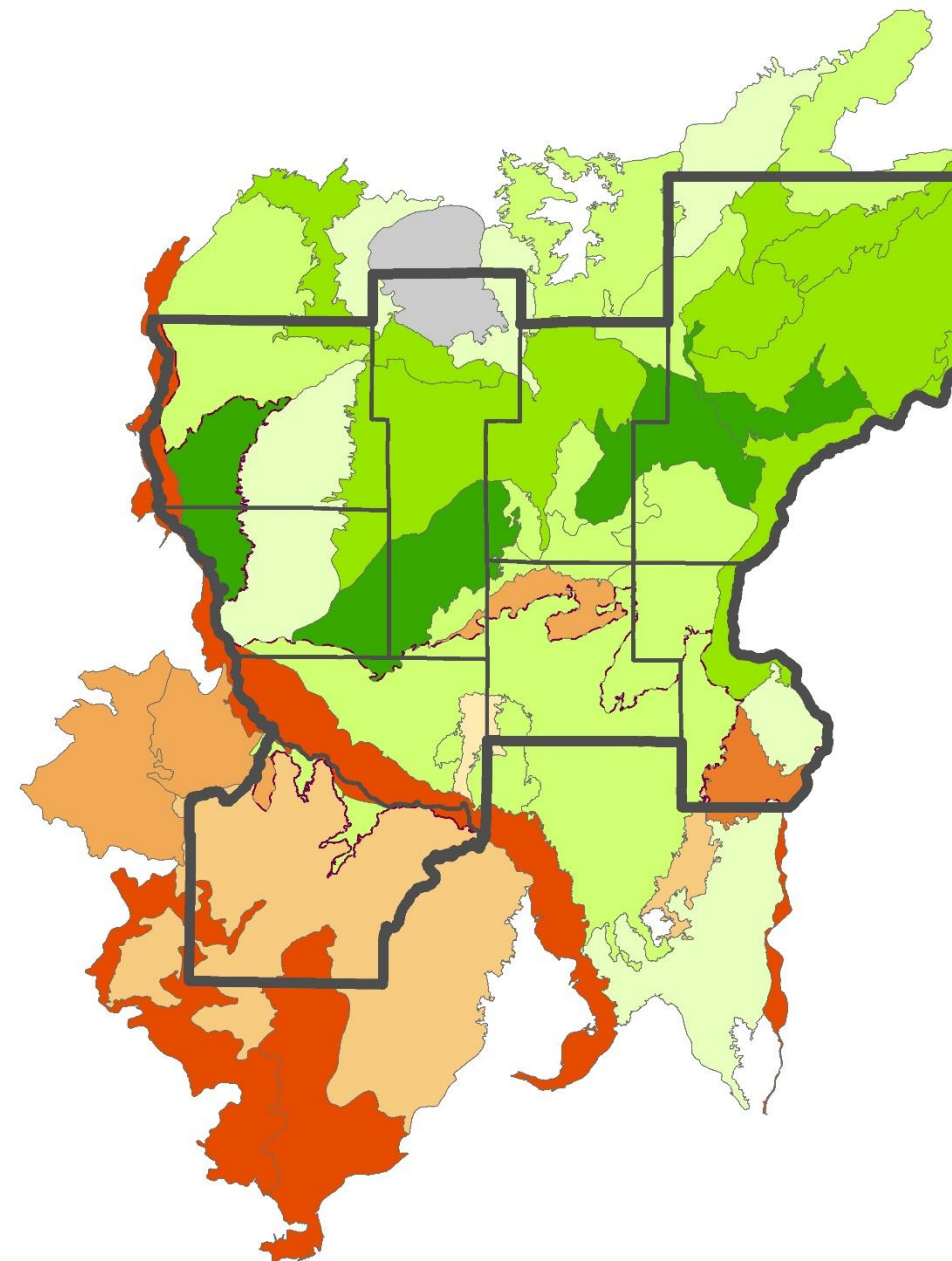


### NPC Systems for Private Land Management Types Table

Potential NPC Systems	Acres	% of Total
Acid Peatland	29,930	1.4
Fire-Dependent Forest/Woodland	308,522	14.3
Forested Rich Peatland	62,591	2.9
Mesic Hardwood Forest	1,065,275	49.5
Open Rich Peatland	298	0.0
Water	100,105	4.7
Wet Forest	241,440	11.2
Wet Meadow/Carr	344,572	16.0
<b>Total Private</b>	<b>2,152,732</b>	<b>100.0</b>

# Change in Relative Abundance of Aspen by ECS Land Type

## East Central Landscape Region

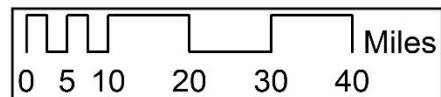


### Aspen Abundance (1908-1990)

- Increase, > 10-fold
- Increase, 5 to 10-fold
- Increase, 3 to 5-fold
- Increase, 2 to 3-fold
- Some increase
- Some decline
- Decline, 2 to 3-fold
- Decline, 3 to 5-fold
- Decline, 5 to 10-fold
- Decline, > 10-fold
- Rare as bearing tree

### Other Features

- East Central Landscape Region
- Counties within East Central
- ECS Subsections



Sources: Main - MNDNR FOR; Other Features - MN Geospatial Commons





### Change in Relative Abundance of Aspen by ECS Land Type Table

Aspen Abundance (1908-1990)	Acres	% of Total
Increase, 5 to 10-fold	484,369	7.8
Increase, 3 to 5-fold	1,096,694	17.6
Increase, 2 to 3-fold	1,727,900	27.8
Some increase	780,306	12.5
Some decline	27,074	0.4
Decline, 2 to 3-fold	801,170	12.9
Decline, 3 to 5-fold	339,748	5.5
Decline, 5 to 10-fold	58,701	0.9
Decline, > 10-fold	777,321	12.5
Rare as bearing tree	129,572	2.1
<b>Totals (Land Type Areas)</b>	<b>6,222,854</b>	<b>100.0</b>

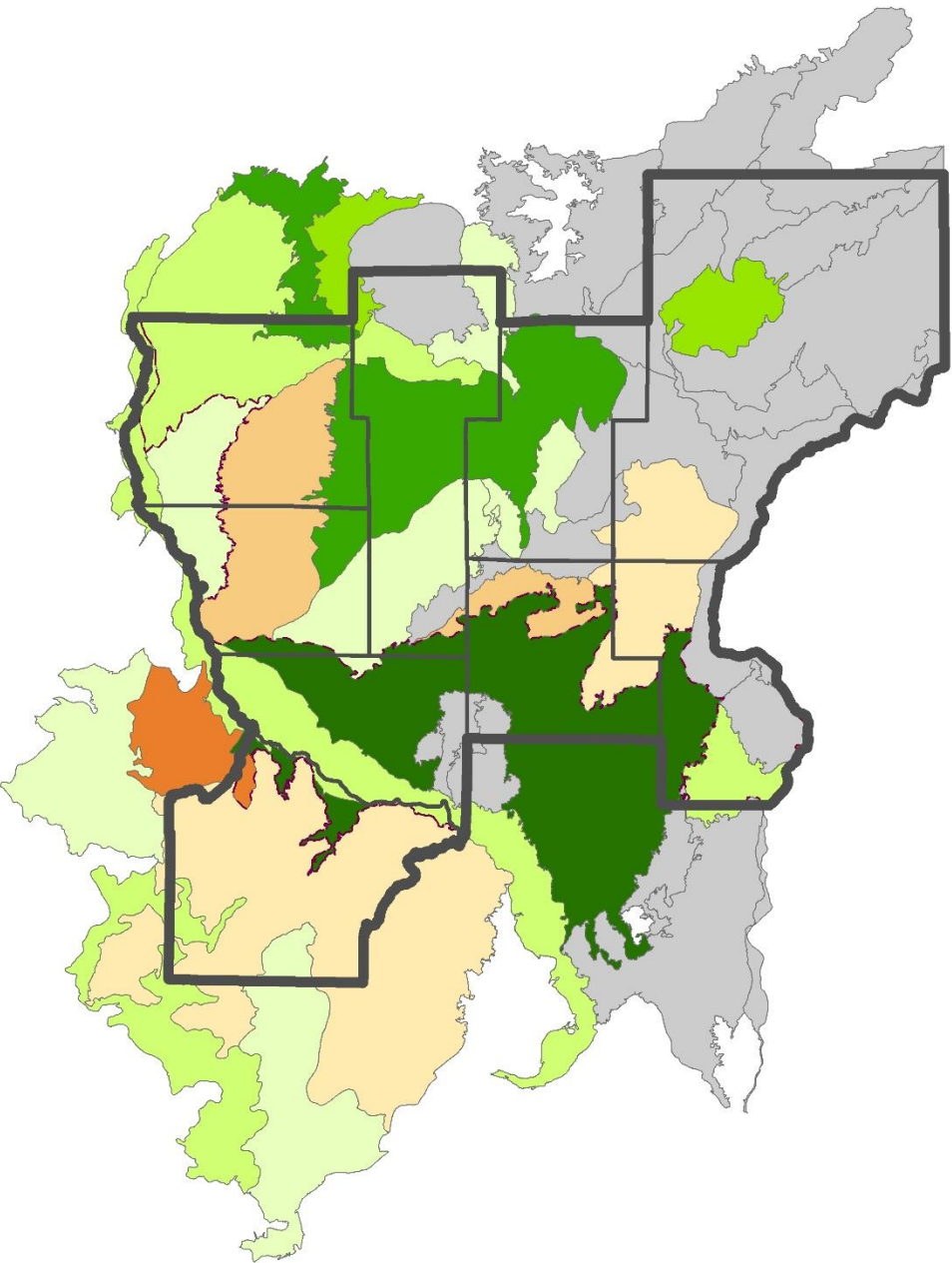
This analysis compares the relative abundance of trees using two sets of data, the Public Land Survey (PLS) and the 1990 Forest Inventory Analysis (FIA). PLS records were collected between 1846 and 1908 in Minnesota, thus PLS surveys predate significant settlement and logging in most areas and provide a comprehensive sampling of trees at that time. Tree species and their diameters, azimuths, and distances from survey corners were recorded at every section and quarter-section corner where trees were available.

FIA data were collected between 1986 and 1991 on randomly located plots in forests. Each plot consists of ten points. At each point tree species, and their diameters, azimuths, and distances from point center were recorded where trees were available. Thus FIA points differ from PLS survey corners with regard to the number of trees sampled (usually more) and no requirements to locate a tree in all four cardinal quadrants (NE, SE, SW, NW). A subset of the FIA point data was created to replicate the PLS data by selecting the nearest tree (greater than 4 inches d.b.h.) in each cardinal quadrant. PLS survey corners and FIA points were summarized by their occurrence in 291 Land Type Association (LTA) map units for the state. For each LTA, relative abundance of tree species were calculated and compared.

Study by John Almendinger, Minn. Dept. of Natural Resources, 2002

# Change in Relative Abundance of Red Oak by ECS Land Type

## East Central Landscape Region

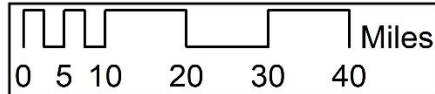


### Red Oak Abundance (1908-1990)

- Increase, > 10-fold
- Increase, 5 to 10-fold
- Increase, 3 to 5-fold
- Increase, 2 to 3-fold
- Some increase
- Some decline
- Decline, 2 to 3-fold
- Decline, 3 to 5-fold
- Decline, 5 to 10-fold
- Decline, > 10-fold
- Rare as bearing tree

### Other Features

- East Central Landscape Region
- Counties within East Central
- ECS Subsections



Sources: Main - MNDNR FOR; Other Features - MN Geospatial Commons



**Change in Relative Abundance of Red Oak by ECS Land Type Table**

Red Oak Abundance (1908-1990)	Acres	% of Total
Increase, > 10-fold	657,092	10.6
Increase, 5 to 10-fold	462,078	7.4
Increase, 3 to 5-fold	137,386	2.2
Increase, 2 to 3-fold	899,276	14.5
Some increase	811,370	13.0
Some decline	959,556	15.4
Decline, 2 to 3-fold	287,062	4.6
Decline, 5 to 10-fold	104,078	1.7
Decline, > 10-fold	925	0.0
Rare as bearing tree	1,904,030	30.6
<b>Totals (Land Type Areas)</b>	<b>6,222,854</b>	<b>100.0</b>

This analysis compares the relative abundance of trees using two sets of data, the Public Land Survey (PLS) and the 1990 Forest Inventory Analysis (FIA). PLS records were collected between 1846 and 1908 in Minnesota, thus PLS surveys predate significant settlement and logging in most areas and provide a comprehensive sampling of trees at that time. Tree species and their diameters, azimuths, and distances from survey corners were recorded at every section and quarter-section corner where trees were available.

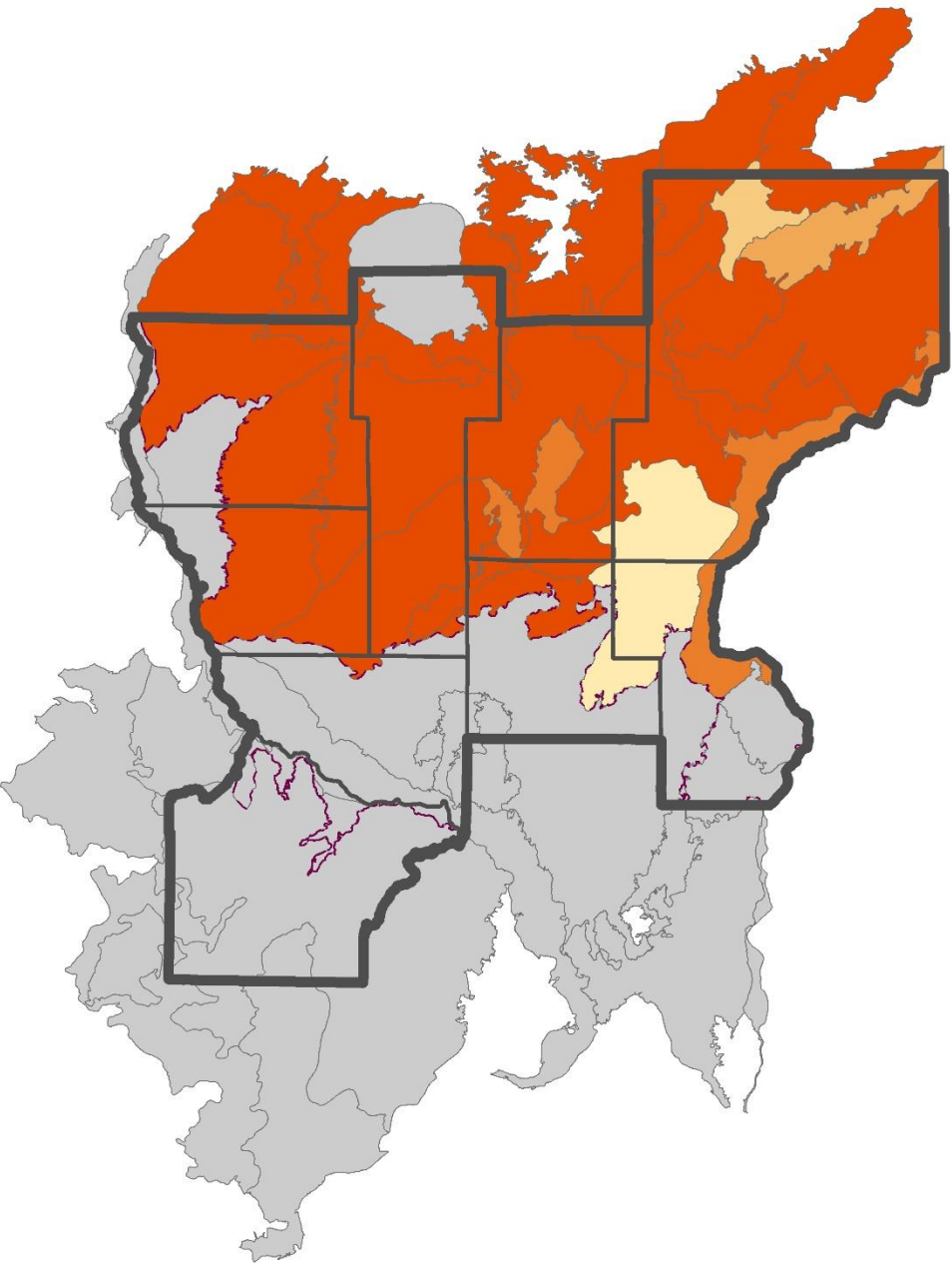
FIA data were collected between 1986 and 1991 on randomly located plots in forests. Each plot consists of ten points. At each point tree species, and their diameters, azimuths, and distances from point center were recorded where trees were available. Thus FIA points differ from PLS survey corners with regard to the number of trees sampled (usually more) and no requirements to locate a tree in all four cardinal quadrants (NE, SE, SW, NW). A subset of the FIA point data was created to replicate the PLS data by selecting the nearest tree (greater than 4 inches d.b.h.) in each cardinal quadrant. PLS survey corners and FIA points were summarized by their occurrence in 291 Land Type Association (LTA) map units for the state. For each LTA, relative abundance of tree species were calculated and compared.

Study by John Almendinger, Minn. Dept. of Natural Resources, 2002



# Change in Relative Abundance of White Pine by ECS Land Type

## East Central Landscape Region

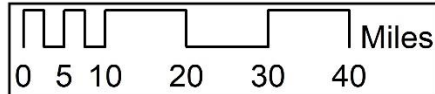


### White Pine Abundance (1908-1990)

- Increase, > 10-fold
- Increase, 5 to 10-fold
- Increase, 3 to 5-fold
- Increase, 2 to 3-fold
- Some increase
- Some decline
- Decline, 2 to 3-fold
- Decline, 3 to 5-fold
- Decline, 5 to 10-fold
- Decline, > 10-fold
- Rare as bearing tree

### Other Features

- East Central Landscape Region
- Counties within East Central
- ECS Subsections



Sources: Main - MNDNR FOR; Other Features - MN Geospatial Commons



### Change in Relative Abundance of White Pine by ECS Land Type Table

White Pine Abundance (1908-1990)	Acres	% of Total
Some decline	196,435	3.2
Decline, 2 to 3-fold	41,450	0.7
Decline, 3 to 5-fold	76,794	1.2
Decline, 5 to 10-fold	172,526	2.8
Decline, > 10-fold	2,542,468	40.9
Rare as bearing tree	3,193,181	51.3
<b>Totals (Land Type Areas)</b>	<b>6,222,854</b>	<b>100.0</b>

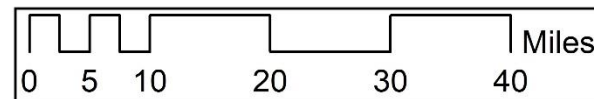
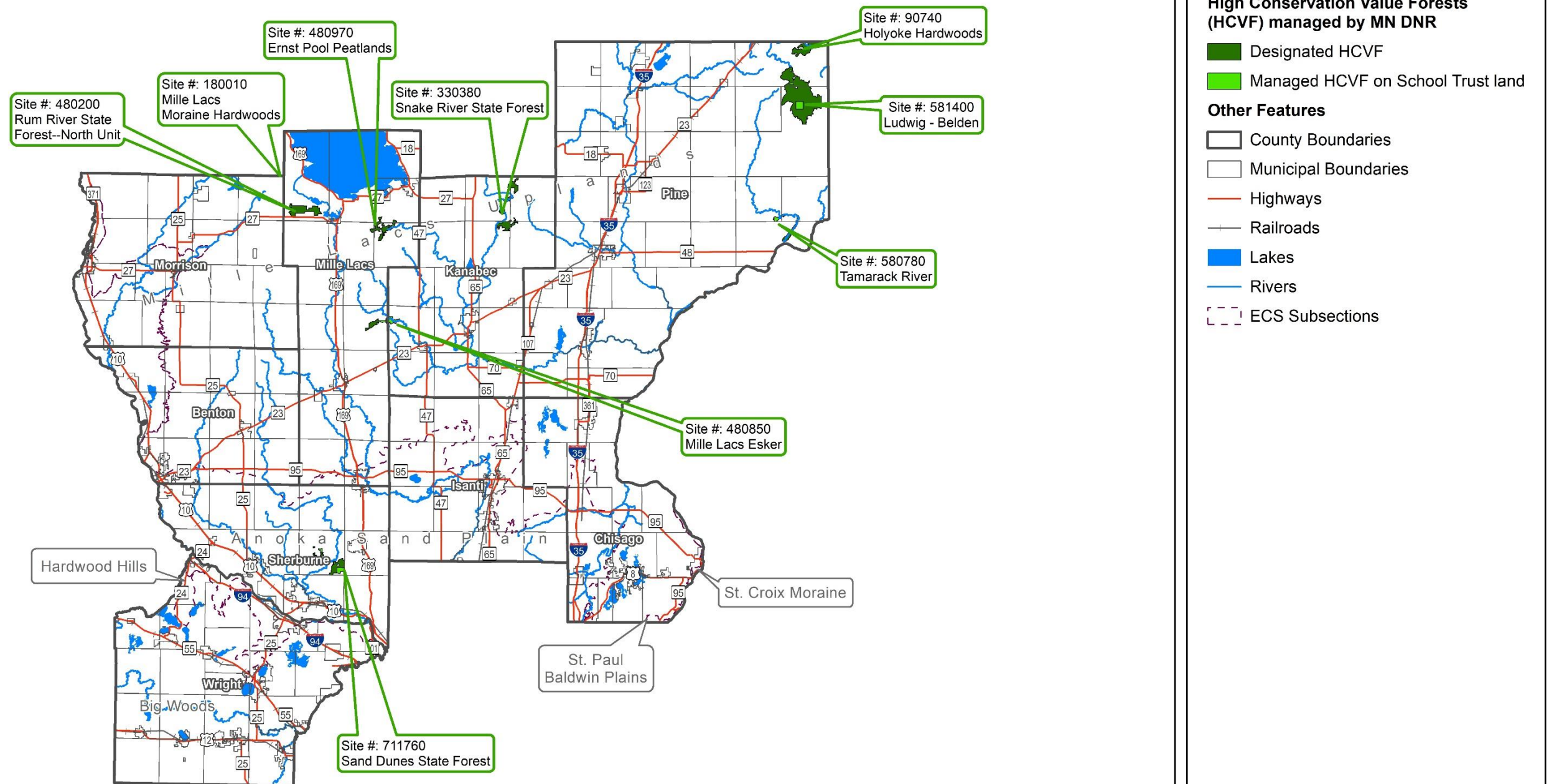
This analysis compares the relative abundance of trees using two sets of data, the Public Land Survey (PLS) and the 1990 Forest Inventory Analysis (FIA). PLS records were collected between 1846 and 1908 in Minnesota, thus PLS surveys predate significant settlement and logging in most areas and provide a comprehensive sampling of trees at that time. Tree species and their diameters, azimuths, and distances from survey corners were recorded at every section and quarter-section corner where trees were available.

FIA data were collected between 1986 and 1991 on randomly located plots in forests. Each plot consists of ten points. At each point tree species, and their diameters, azimuths, and distances from point center were recorded where trees were available. Thus FIA points differ from PLS survey corners with regard to the number of trees sampled (usually more) and no requirements to locate a tree in all four cardinal quadrants (NE, SE, SW, NW). A subset of the FIA point data was created to replicate the PLS data by selecting the nearest tree (greater than 4 inches d.b.h.) in each cardinal quadrant. PLS survey corners and FIA points were summarized by their occurrence in 291 Land Type Association (LTA) map units for the state. For each LTA, relative abundance of tree species were calculated and compared.

Study by John Almendinger, Minn. Dept. of Natural Resources, 2002

# High Conservation Value Forests managed by MN DNR

## East Central Landscape Region



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





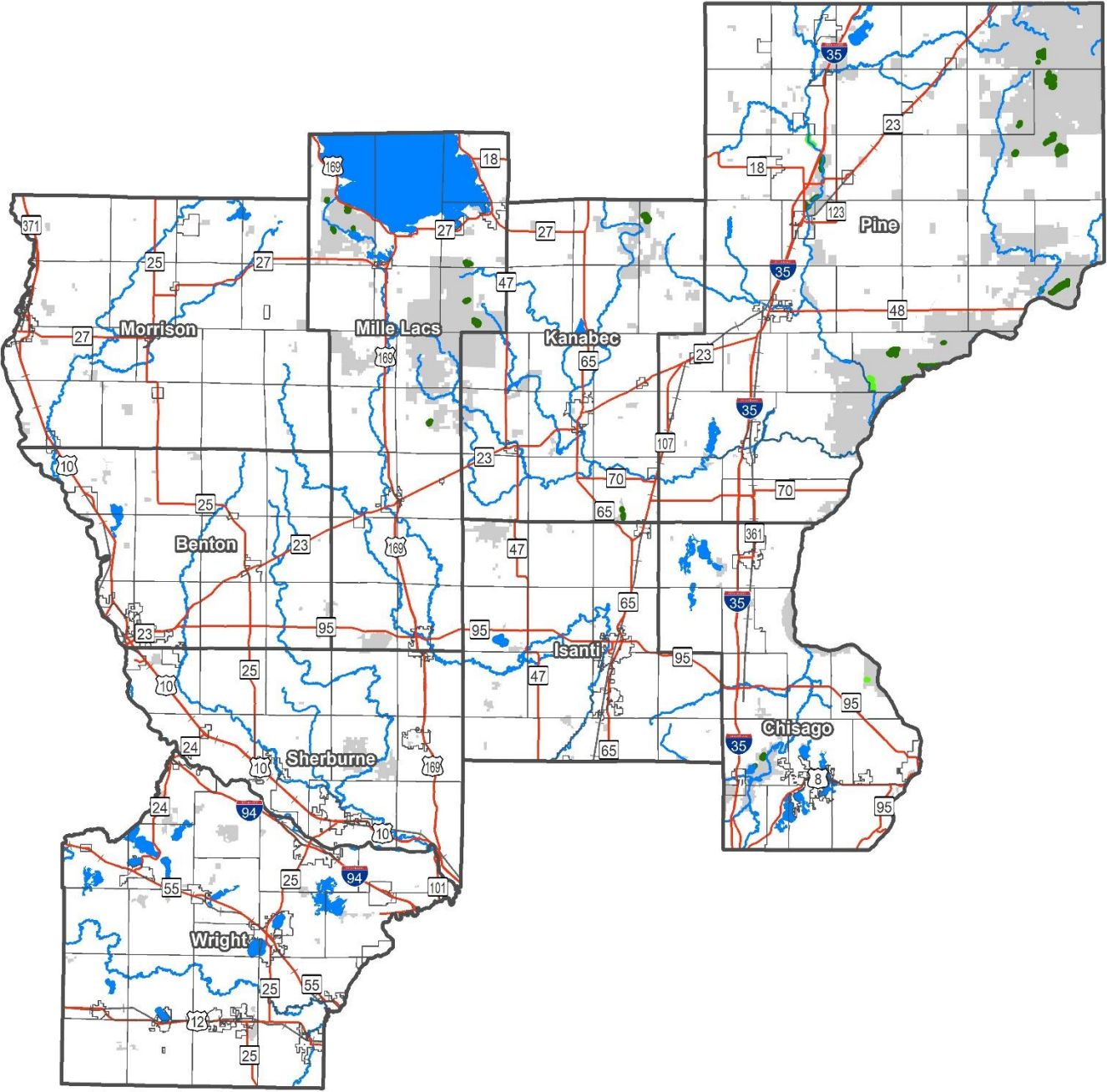
High Conservation Value Forests managed by MN DNR Table

Site #	Site Name	Status	Acres	% of Region
90740	Holyoke Hardwoods	Designated HCVF	2,147	0.1
180010	Mille Lacs Moraine Hardwoods	Managed HCVF on School Trust land	0	0.0
330380	Snake River State Forest	Designated HCVF	2,697	0.1
330380	Snake River State Forest	Managed HCVF on School Trust land	166	0.0
480200	Rum River State Forest--North Unit	Designated HCVF	2,428	0.1
480850	Mille Lacs Esker	Designated HCVF	647	0.0
480850	Mille Lacs Esker	Managed HCVF on School Trust land	761	0.0
480970	Ernst Pool Peatlands	Designated HCVF	1,693	0.0
480970	Ernst Pool Peatlands	Managed HCVF on School Trust land	100	0.0
580780	Tamarack River	Designated HCVF	1,071	0.0
580780	Tamarack River	Managed HCVF on School Trust land	259	0.0
581400	Ludwig - Belden	Designated HCVF	12,474	0.3
581400	Ludwig - Belden	Managed HCVF on School Trust land	758	0.0
711760	Sand Dunes State Forest	Designated HCVF	1,505	0.0
711760	Sand Dunes State Forest	Managed HCVF on School Trust land	550	0.0
Total HCVF managed by MN DNR in East Central Region			27,255	0.7
Total East Central Region			3,680,836	

All Sites	Status	Acres	% of HCVF
HCVF managed by MN DNR in East Central Region	Designated HCVF	24,661	90.5
	Managed HCVF on School Trust land	2,594	9.5
Total HCVF managed by MN DNR in East Central Region		27,255	100.0

# DNR Designated Old Growth Forest

## East Central Landscape Region



### DNR Designated Old Growth Forest\*

- Designated Old Growth
- Designated Future Old Growth

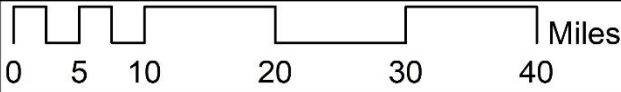
### DNR Administered Lands

- DNR Administered Lands

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers

\*Size of old growth forest areas enlarged to aid in visualization.



Sources: Main - MNDNR FOR, MN Geospatial Commons; Other Features - MN Geospatial Commons



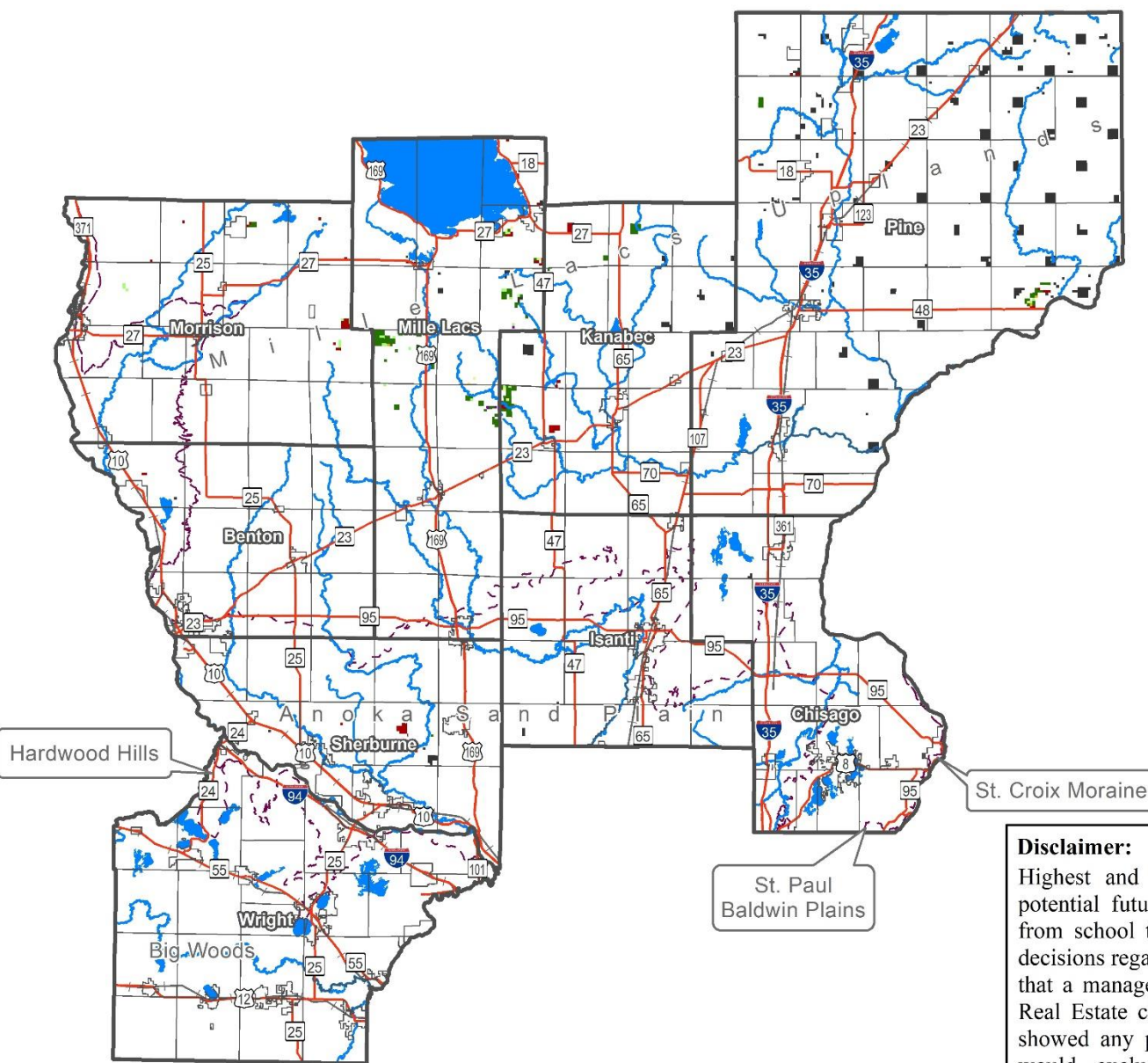
DNR Designated Old Growth Forest Table

Old Growth Designation	Cover Type	Acres	% of Old Growth Forest	% of Region
Designated Future Old Growth	Lowland Hardwoods	76	3.1	0.0
	Norway Pine	34	1.4	0.0
	White Pine	6	0.3	0.0
Subtotal		116	4.7	0.0
Designated Old Growth	Ash	774	31.4	0.0
	Aspen	5	0.2	0.0
	Balsam Fir	29	1.2	0.0
	Birch	7	0.3	0.0
	Black Spruce-Lowland	11	0.4	0.0
	Lowland Brush	22	0.9	0.0
	Lowland Hardwoods	106	4.3	0.0
	Northern Hardwoods	730	29.6	0.0
	Norway Pine	59	2.4	0.0
	Oak	348	14.1	0.0
	Tamarack	17	0.7	0.0
	Unknown	215	8.7	0.0
	White Pine	23	1.0	0.0
Subtotal		2,347	95.3	0.1
Total DNR Designated Old Growth Forest		2,463	100.0	0.1
Total East Central Region		3,680,836		



# School Trust Fund Lands

## East Central Landscape Region



### School Trust Fund Lands

#### Highest and Best Use

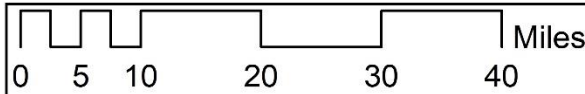
- Forestry
- Mineral
- Non-Productive
- Real Estate
- Recreation
- Sand and Gravel
- Stewardship

#### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections

#### Disclaimer:

Highest and Best Use (HBU) classifications are an initial assessment of potential future management options to secure long-term maximum revenue from school trust lands. The HBUs represented here will be used to inform decisions regarding management of school trust fund lands, but do NOT indicate that a management decision has been made by the DNR. Mineral Estate and Real Estate classifications are extremely preliminary and represent lands that showed any possible potential for these uses with no filters for factors that would exclude them. Additional analysis will be conducted on both classifications to reclassify lands that could not be used for mineral exploration/extraction or real estate (e.g. due to proximity to public waters).



Sources: Main - MNDNR LAM; Other Features - MN Geospatial Commons



### School Trust Fund Lands Table

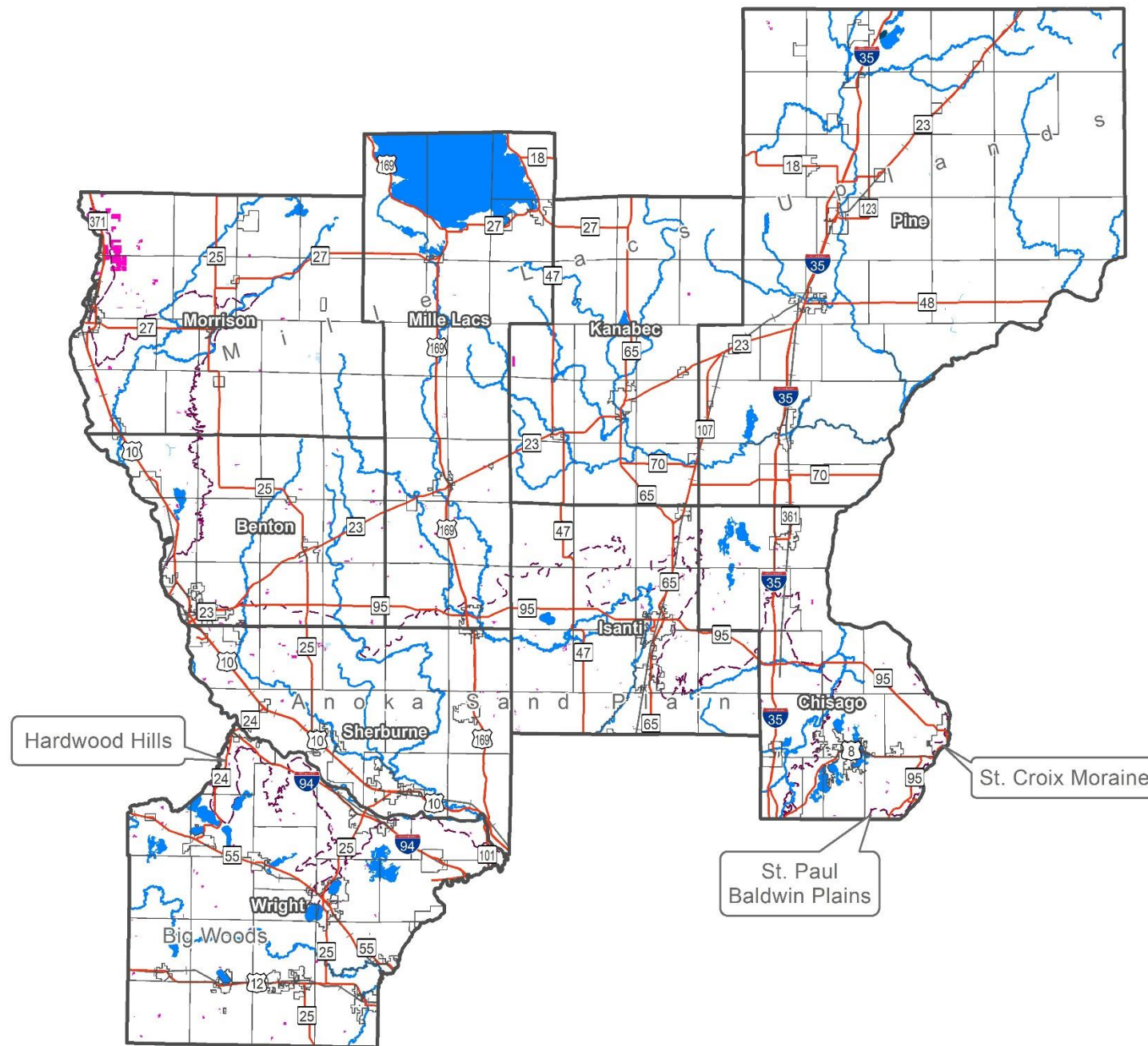
School Trust Fund Lands Highest and Best Use	Acres	% of Region
Forestry	8,127	0.2
Mineral	26,680	0.7
Non-Productive	1,525	0.0
Real Estate	4,148	0.1
Recreation	358	0.0
Sand and Gravel	160	0.0
Stewardship	159	0.0
<b>Total School Trust Fund Lands</b>	<b>41,157</b>	<b>1.1</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

#### Disclaimer:

Highest and Best Use (HBU) classifications are an initial assessment of potential future management options to secure long-term maximum revenue from school trust lands. The HBUs represented here will be used to inform decisions regarding management of school trust fund lands, but do NOT indicate that a management decision has been made by the DNR. Mineral Estate and Real Estate classifications are extremely preliminary and represent lands that showed any possible potential for these uses with no filters for factors that would exclude them. Additional analysis will be conducted on both classifications to reclassify lands that could not be used for mineral exploration/extraction or real estate (e.g. due to proximity to public waters).

# Conservation Easements

## East Central Landscape Region



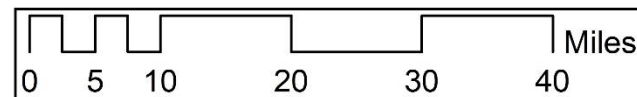
### Conservation Easements

- Army Compatible Use Buffer
- Aquatic Management Area
- Other Conservation
- Trout Stream
- Wetland Bank
- Wild and Scenic River
- RIM Easements

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections

Finest resolution for easements is PLS 40 except RIM Easements which have varying accuracy.



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





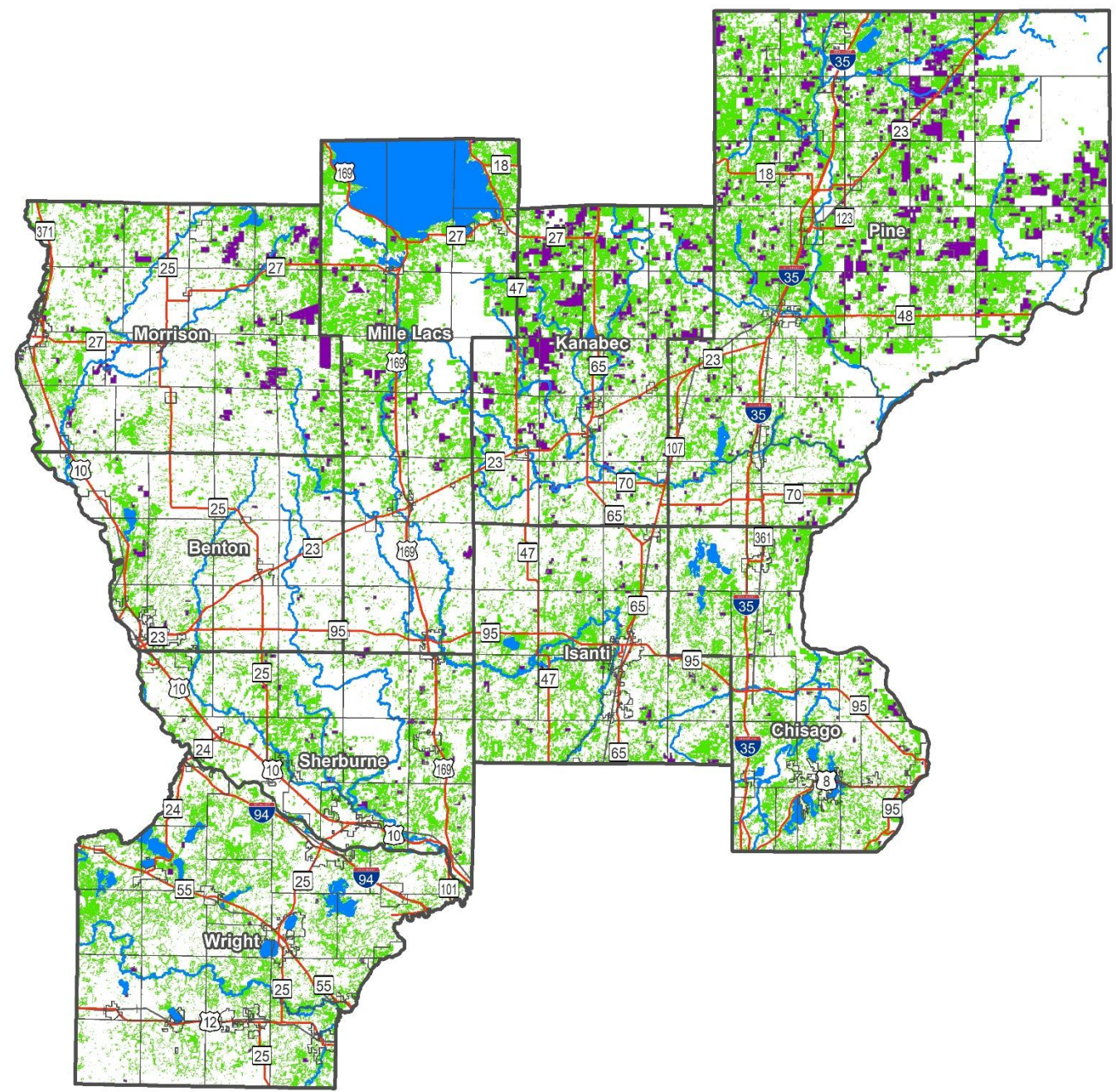
## Conservation Easements Table

Easement Type	Acres*	% of Total
Army Compatible Use Buffer	62	0.5
Aquatic Management Area	369	3.1
Other Conservation	17	0.1
RIM Easements	8,690	72.9
Trout Stream	128	1.1
Wetland Bank	521	4.4
Wild and Scenic River	2,127	17.9
<b>Total Conservation Easements</b>	<b>11,914</b>	<b>100.0</b>

\* Finest resolution for easements is PLS 40, except RIM Easements which have varying accuracy.

# Forest Stewardship Plans

## East Central Landscape Region



### Current Forest Stewardship Plans

(as of 9/30/2017)

### Important Forest Resource Areas



### Other Features

County Boundaries

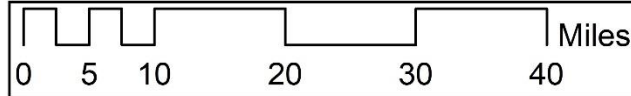
Municipal Boundaries

Highways

Railroads

Lakes

Rivers



Sources: Main - MNDNR FOR, USFS SAP; Other Features - MN Geospatial Commons



## Forest Stewardship Plans Table

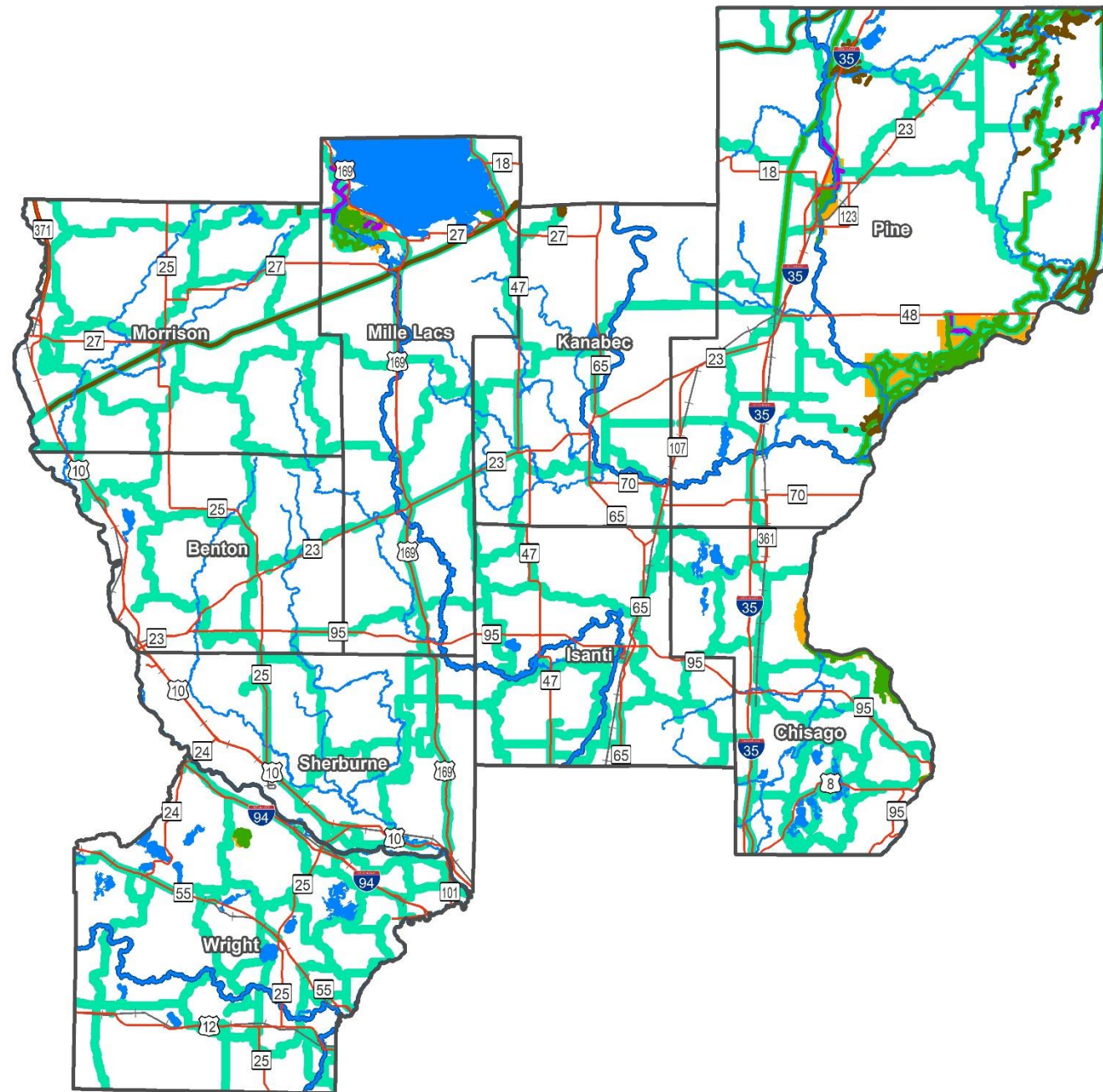
**Current Registered Forest Stewardship Plans (as of 9/30/2017) and Important Forest Resource Areas (IFRAs)**

Study Area	Acres	Acres covered by current forest stewardship plans	Acres of IFRAs	Acres of IFRAs covered by current Forest Stewardship Plans	Percent of IFRAs covered by current FSPs	Percent of FSP area that is an IFRA
Benton	264,221	1,586	43,966	1,174	2.7	74.0
Chisago	283,030	2,549	88,970	1,875	2.1	73.5
Isanti	288,733	3,721	88,843	2,478	2.8	66.6
Kanabec	341,285	31,312	143,806	22,349	15.5	71.4
Mille Lacs	435,732	7,462	113,720	4,955	4.4	66.4
Morrison	405,214	16,537	97,287	7,793	8.0	47.1
Pine	917,167	65,803	372,332	48,172	12.9	73.2
Sherburne	288,266	3,594	80,194	2,079	2.6	57.9
Wright	457,189	790	121,318	506	0.4	64.1
<b>East Central</b>	<b>3,680,836</b>	<b>133,355</b>	<b>1,150,435</b>	<b>91,381</b>	<b>7.9</b>	<b>68.5</b>
<b>Minnesota</b>	<b>53,997,289</b>	<b>684,946</b>	<b>9,898,192</b>	<b>482,501</b>	<b>4.9</b>	<b>70.4</b>



# Parks and Trails

## East Central Landscape Region



### Trails maintained by Parks & Trails

- Abandoned Use
- Dual Use Water
- Motorized Land
- No use specified
- Non-motorized Land

### Snowmobile Trails

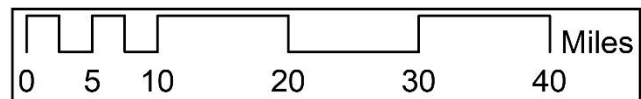
- Snowmobile Trails

### Statutory Boundaries

- State Parks

### Other Features

- County Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



## Parks and Trails Table

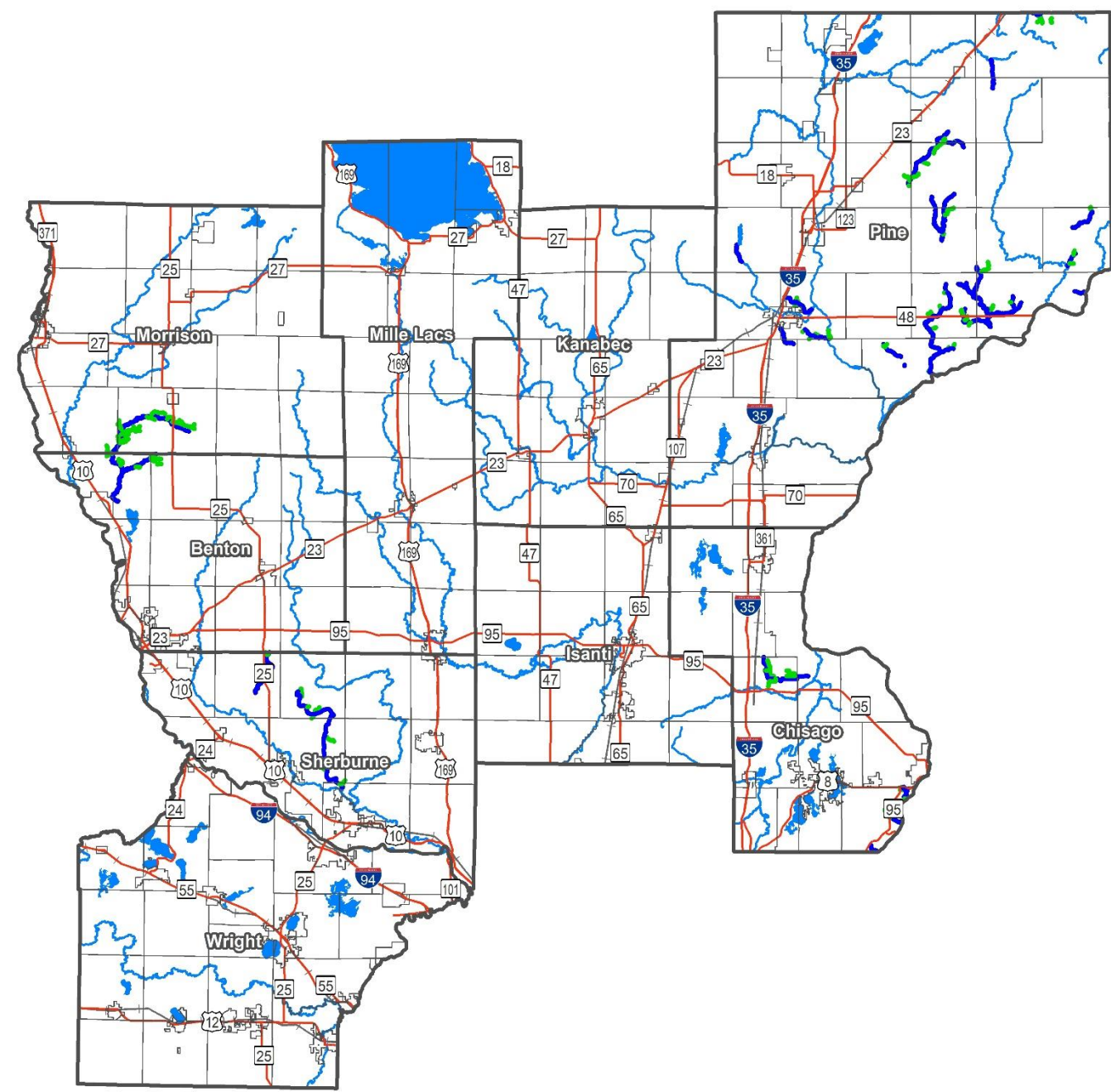
Trails maintained by Parks & Trails	Miles
Abandoned Use	0.2
Dual Use Land	12.0
Dual Use Water	459.2
Motorized Land	231.1
No use specified	33.6
Non-motorized Land	371.7
<b>Total trails maintained by Parks &amp; Trails</b>	<b>1,107.9</b>

Other trails*	Miles
Snowmobile Trails	2,113.2

\*may overlap trails maintained by Parks & Trails

# Trout Stream Designations

## East Central Landscape Region

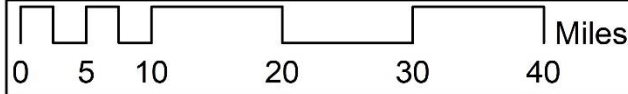


### Trout Stream Designation

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



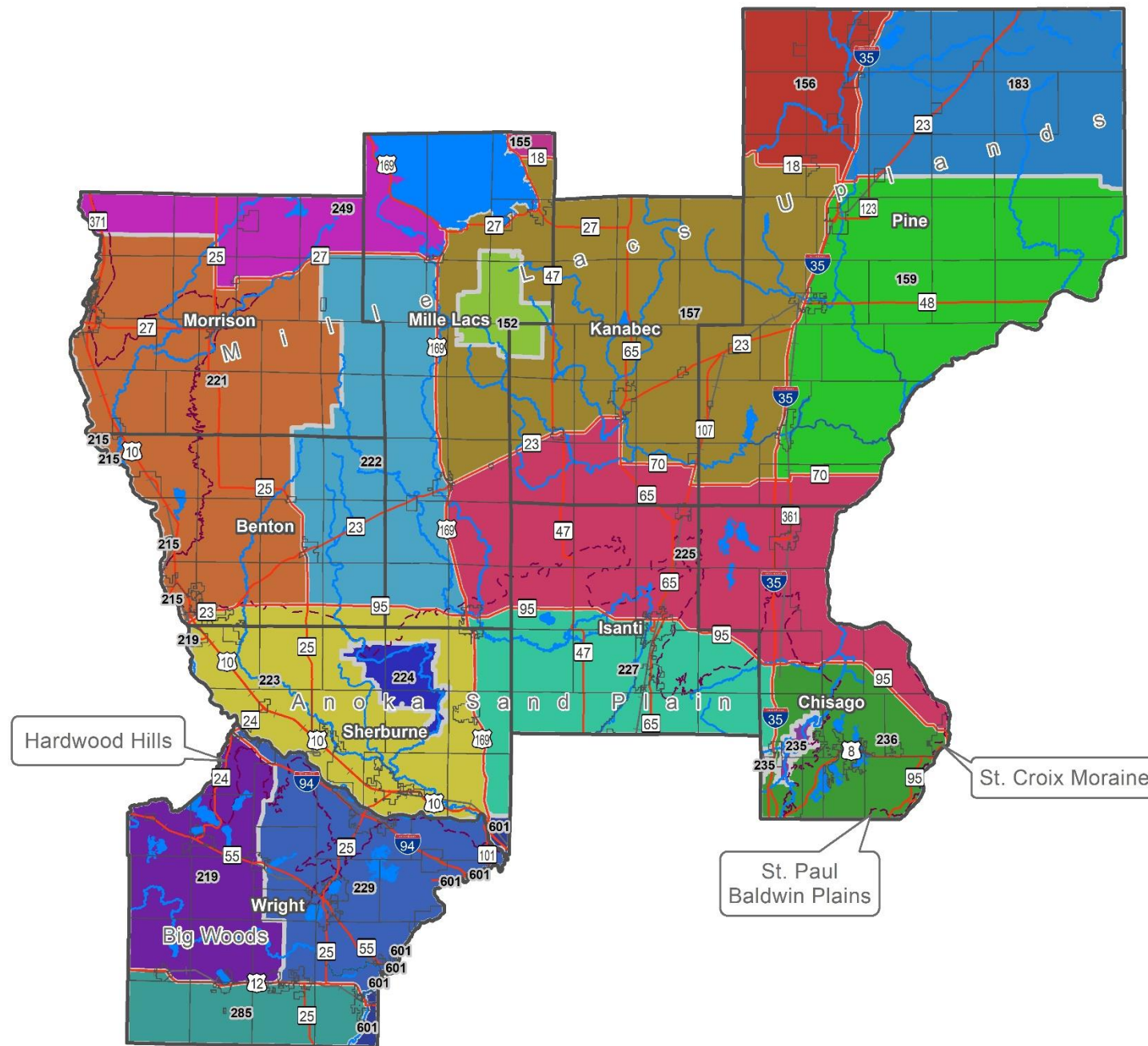


**Trout Stream Designations Table**

Trout Stream Designation	Miles
Designated Trout Stream	143
Protected Tributary to Designated Trout Stream	54
Total Length	197

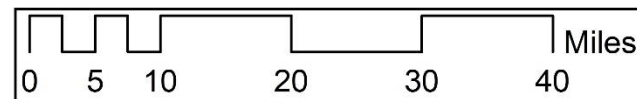
# Deer Permit Areas

## East Central Landscape Region



### Deer Permit Areas

- Deer Permit Area 152
- Deer Permit Area 155
- Deer Permit Area 156
- Deer Permit Area 157
- Deer Permit Area 159
- Deer Permit Area 183
- Deer Permit Area 215
- Deer Permit Area 219
- Deer Permit Area 221
- Deer Permit Area 222
- Deer Permit Area 223
- Deer Permit Area 224
- Deer Permit Area 225
- Deer Permit Area 227
- Deer Permit Area 229
- Deer Permit Area 235
- Deer Permit Area 236
- Deer Permit Area 249
- Deer Permit Area 285
- Deer Permit Area 601



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



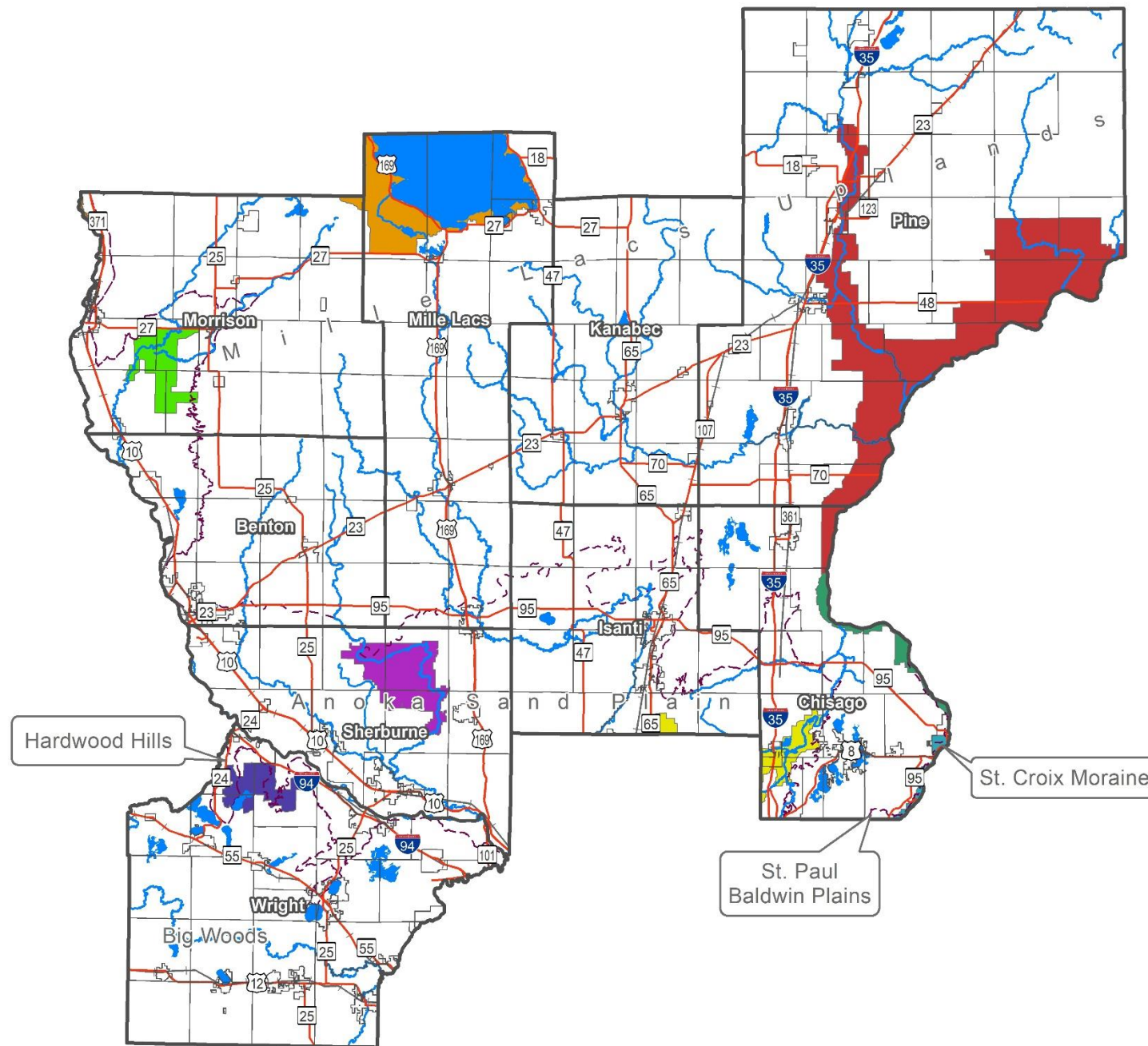
### Deer Permit Areas Table

Deer Permit Area	Acres	% of Region
Deer Permit Area 152	38,993	1.1
Deer Permit Area 155	6,865	0.2
Deer Permit Area 156	110,699	3.0
Deer Permit Area 157	530,998	14.4
Deer Permit Area 159	370,473	10.1
Deer Permit Area 183	257,636	7.0
Deer Permit Area 215	1,989	0.1
Deer Permit Area 219	166,201	4.5
Deer Permit Area 221	415,395	11.3
Deer Permit Area 222	264,338	7.2
Deer Permit Area 223	247,467	6.7
Deer Permit Area 224	30,643	0.8
Deer Permit Area 225	406,141	11.0
Deer Permit Area 227	210,278	5.7
Deer Permit Area 229	200,159	5.4
Deer Permit Area 235	8,698	0.2
Deer Permit Area 236	125,075	3.4
Deer Permit Area 249	191,696	5.2
Deer Permit Area 285	87,827	2.4
Deer Permit Area 601	9,265	0.3
<b>Total East Central Region</b>	<b>3,680,836</b>	<b>100.0</b>



# Important Bird Areas

## East Central Landscape Region

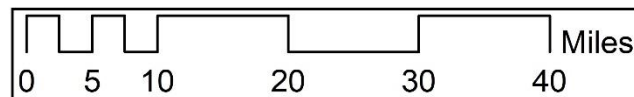


### Important Bird Areas

- Camp Ripley-Pillsbury-Lake Alexander IBA
- Carlos Avery
- Crane Meadows NWR - Rice Skunk Wetland Complex
- Kettle River Banning State Park
- Lake Maria State Park - Henry Larson County Forest
- Mille Lacs IBA
- North Metro Mississippi River IBA
- Sherburne NWR IBA
- St. Croix - Wild River S.P. IBA
- St. Croix Bluffs IBA

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - MN Audubon; Other Features - MN Geospatial Commons

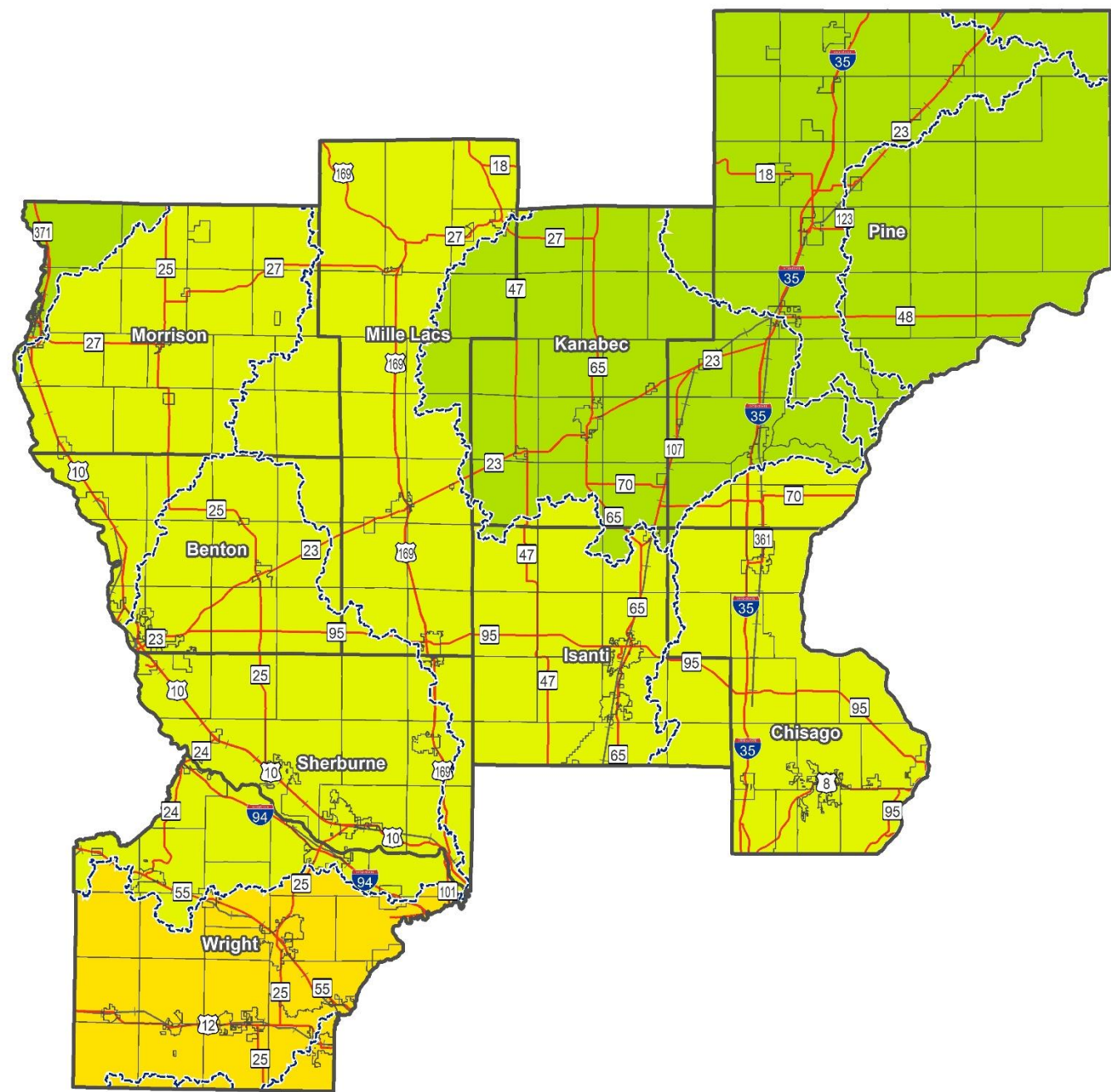


### Important Bird Areas Table

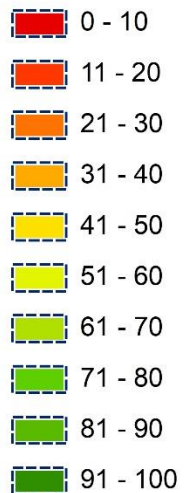
Name	Acres	% of Region
Camp Ripley-Pillsbury-Lake Alexander IBA	813	0.0
Carlos Avery	13,893	0.4
Crane Meadows NWR - Rice Skunk Wetland Complex	18,276	0.5
Kettle River Banning State Park	161,013	4.4
Lake Maria State Park - Henry Larson County Forest	15,332	0.4
Mille Lacs IBA	96,189	2.6
North Metro Mississippi River IBA	11	0.0
Sherburne NWR IBA	30,637	0.8
St. Croix - Wild River S.P. IBA	8,553	0.2
St. Croix Bluffs IBA	3,430	0.1
<b>Total Important Bird Areas</b>	<b>348,147</b>	<b>9.5</b>
<b>Total East Central Region</b>	<b>3,680,836</b>	

# Watershed Health Scores

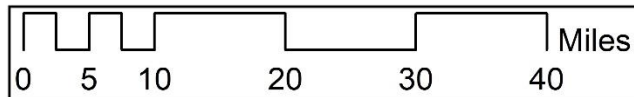
## East Central Landscape Region



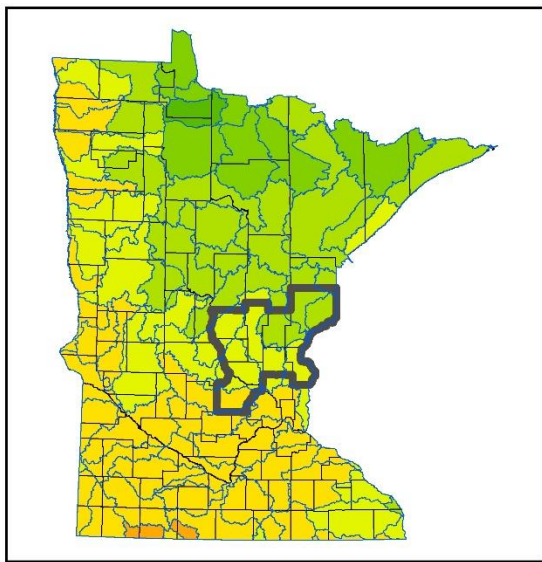
### Watershed Health Score (average)



### Other Features



Sources: Main - MNDNR WHAF; Other Features - MN Geospatial Commons

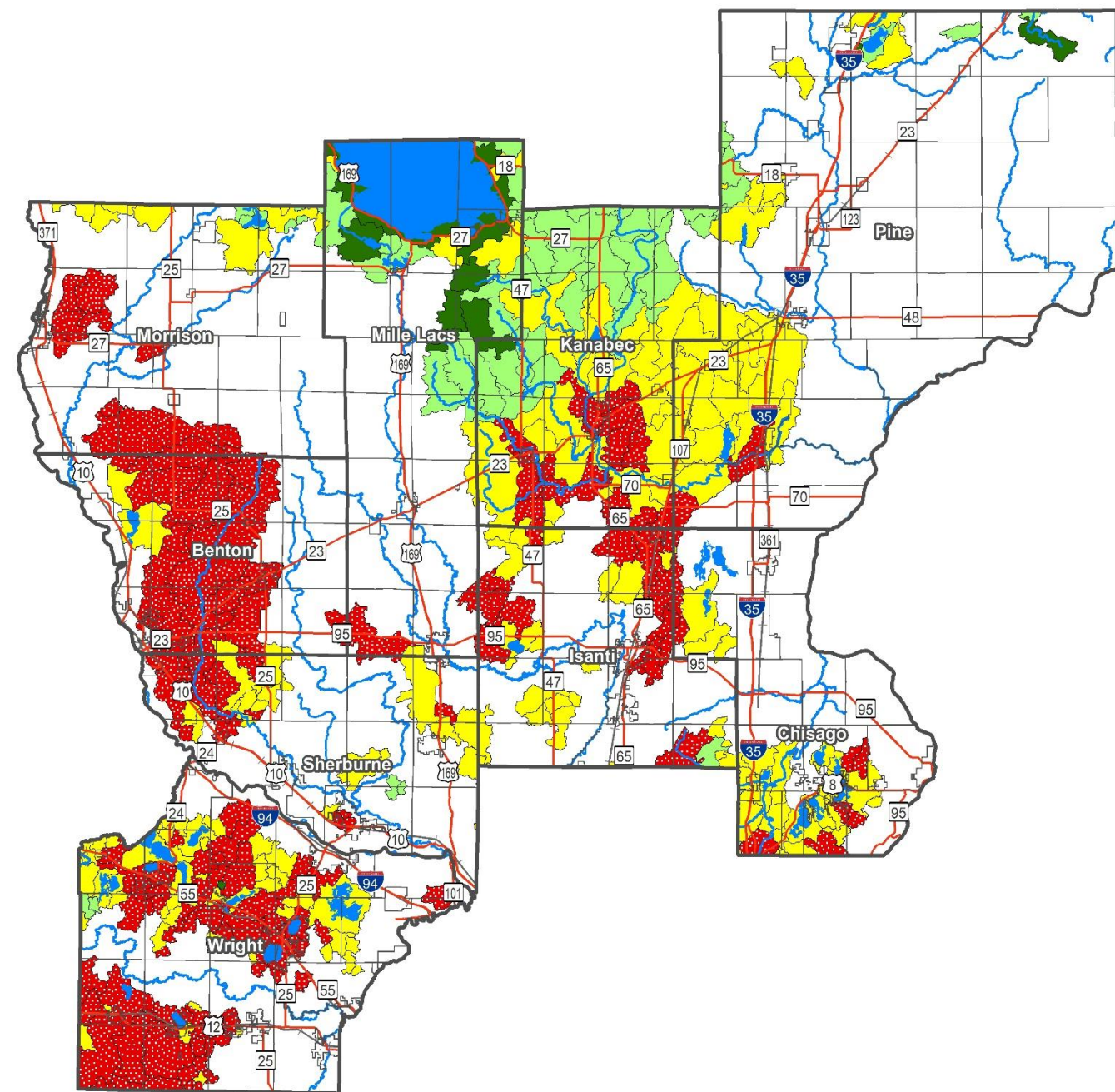




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# DNR Fisheries Fish Habitat Plan - Lake Protection and Restoration Strategies

## East Central Landscape Region

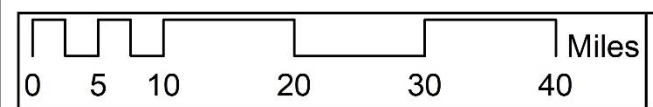


Catchments with Lake Protection and Restoration Strategies (does not include upstream catchments)

- VIGILANCE
- NEEDS PROTECTION
- FULL RESTORATION
- PARTIAL RESTORATION

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MNDNR FAW; Other Features - MN Geospatial Commons

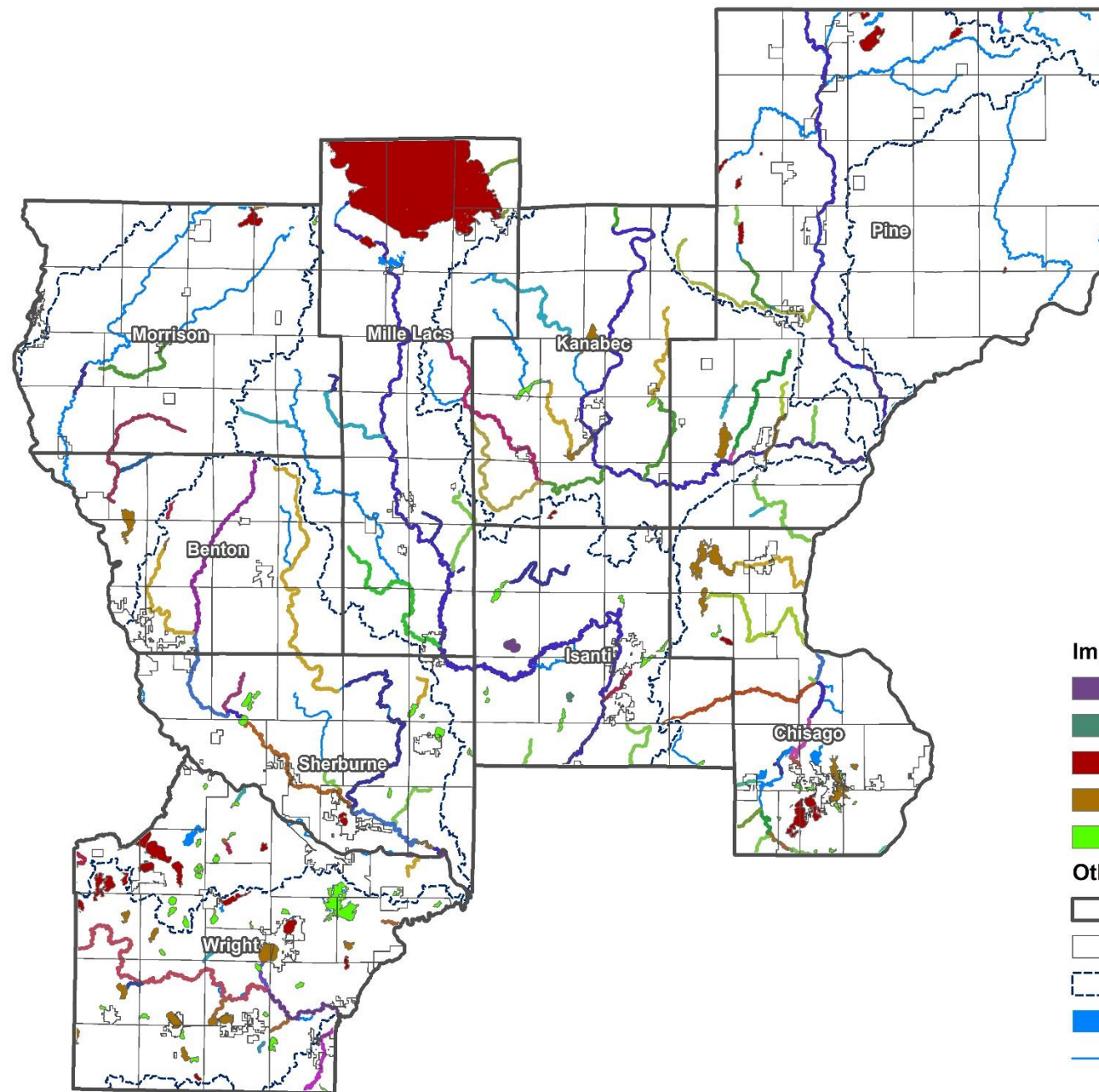


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# Impaired Waters

## East Central Landscape Region



### Impaired Lakes (2016)

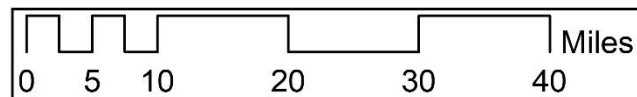
- FishesBio; Hg-F; Nutrients; PCB-F
- FishesBio; Nutrients
- Hg-F
- Hg-F; Nutrients
- Nutrients

### Other Features

- County Boundaries
- Municipal Boundaries
- Major Watersheds
- Lakes
- Rivers

### Impaired Streams (2016)

- Amm-U; DO; FishesBio
- Cl-; FC; FishesBio; Hg-F; InvertBio; Nutrients; T
- ColdWater; DO; Nitrates
- DO
- DO; E.coli
- DO; E.coli; FishesBio; Hg-F; InvertBio; T
- DO; E.coli; FishesBio; InvertBio
- DO; E.coli; Nutrients; T
- DO; E.coli; T
- DO; FC; FishesBio; InvertBio
- DO; FishesBio
- DO; FishesBio; InvertBio
- E.coli
- E.coli; FishesBio
- E.coli; FishesBio; Hg-F; InvertBio
- E.coli; FishesBio; Hg-F; InvertBio; Nutrients; T
- E.coli; FishesBio; InvertBio
- E.coli; Hg-F
- E.coli; InvertBio
- E.coli; T
- FC
- FC; FishesBio
- FC; FishesBio; Hg-F
- FC; FishesBio; Hg-F; T
- FC; FishesBio; InvertBio
- FC; FishesBio; InvertBio; Nutrients; T
- FC; Hg-F; Nutrients; PCB-F
- FC; Hg-F; PCB-F
- FishesBio
- FishesBio; Hg-F
- FishesBio; InvertBio
- FishesBio; InvertBio; T
- Hg-F
- Hg-F; Nutrients; PCB-F
- Hg-F; PCB-F
- Hg-F; T
- InvertBio
- InvertBio; T
- Nitrates



Sources: Main - MPCA; Other Features - MN Geospatial Commons



Impaired Waters Tables

Stream Impairments	Affected Use	Miles
Amm-U; DO; FishesBio	AQL,	1.2
Cl-; FC; FishesBio; Hg-F; InvertBio; Nutrients; T	AQC,AQL,AQR	30.8
ColdWater; DO; Nitrates	AQL,DW	21.4
DO	AQL	47.6
DO; E.coli	AQL,AQR	9.7
DO; E.coli; FishesBio; Hg-F; InvertBio; T	AQC,AQL,AQR	47.7
DO; E.coli; FishesBio; InvertBio	AQL,AQR	2.0
DO; E.coli; Nutrients; T	AQL,AQR	3.7
DO; E.coli; T	AQL,AQR	7.2
DO; FC; FishesBio; InvertBio	AQL,AQR	19.4
DO; FishesBio	AQL	22.8
DO; FishesBio; InvertBio	AQL	22.9
E.coli	AQR	115.1
E.coli; FishesBio	AQL,AQR	26.1
E.coli; FishesBio; Hg-F; InvertBio	AQC,AQL,AQR	27.1
E.coli; FishesBio; Hg-F; InvertBio; Nutrients; T	AQC,AQL,AQR	13.7
E.coli; FishesBio; InvertBio	AQL,AQR	107.1
E.coli; Hg-F	AQC,AQR	31.1
E.coli; InvertBio	AQL,AQR	29.4
E.coli; T	AQL,AQR	1.2
FC	AQR	70.0
FC; FishesBio	AQL,AQR	24.1
FC; FishesBio; Hg-F	AQC,AQL,AQR	24.1
FC; FishesBio; Hg-F; T	AQC,AQL,AQR	24.2

Stream Impairments	Affected Use	Miles
FC; FishesBio; InvertBio	AQL,AQR	29.6
FC; FishesBio; InvertBio; Nutrients; T	AQL,AQR	25.2
FC; Hg-F; Nutrients; PCB-F	AQC,AQL,AQR	25.8
FC; Hg-F; PCB-F	AQC,AQR	34.5
FishesBio	AQL	72.2
FishesBio; Hg-F	AQC,AQL	32.0
FishesBio; InvertBio	AQL	12.3
FishesBio; InvertBio; T	AQL	7.7
Hg-F	AQC	341.2
Hg-F; Nutrients; PCB-F	AQC,AQL	16.3
Hg-F; PCB-F	AQC	113.1
Hg-F; T	AQC,AQL	18.3
InvertBio	AQL	45.0
InvertBio; T	AQL	2.3
Nitrates	DW	4.7
Total Length		1509.5

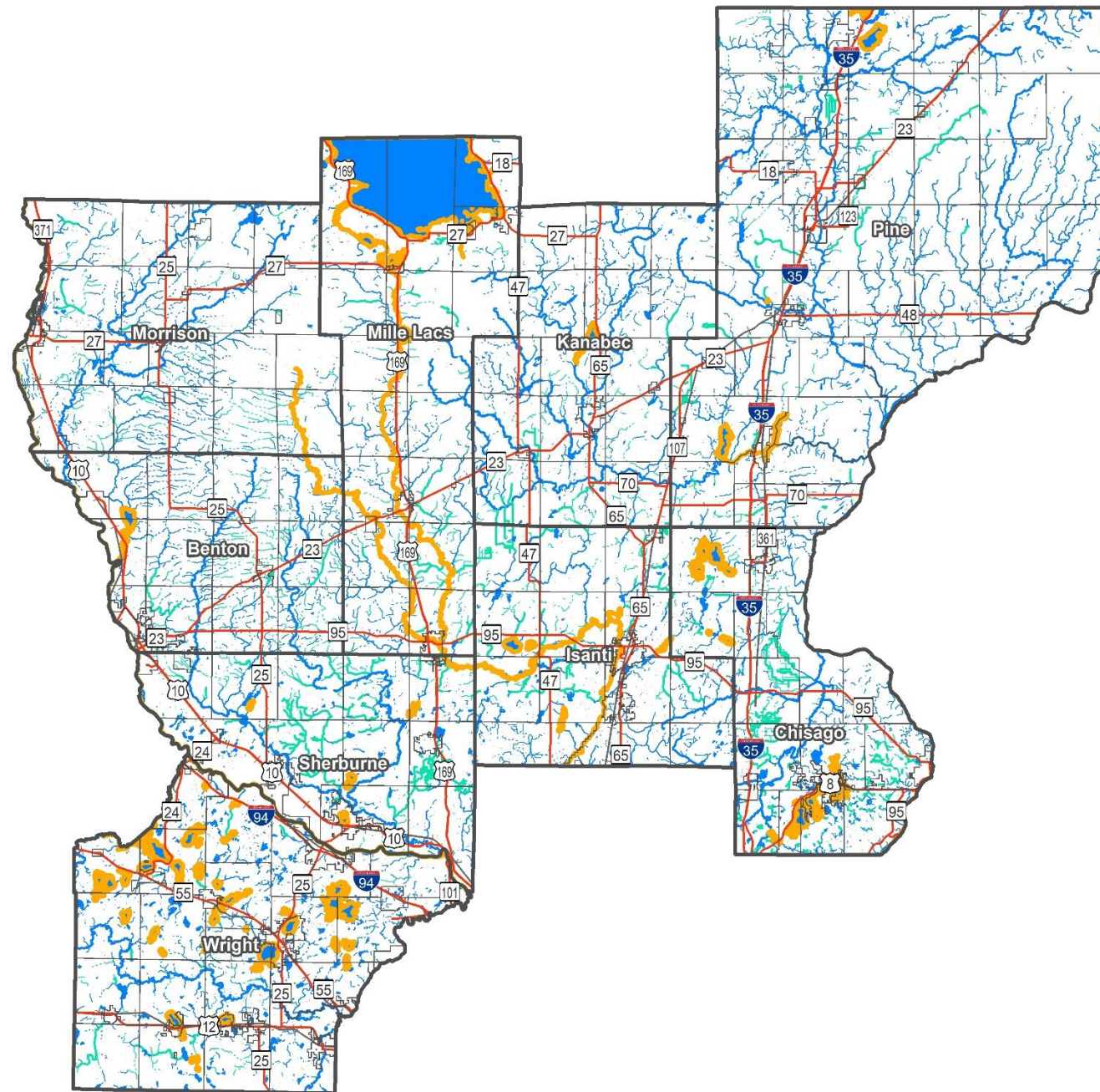
Lake Impairments	Affected Use	Area (Acres)
FishesBio; Hg-F; Nutrients; PCB-F	AQC,AQL,AQR	822
FishesBio; Nutrients	AQL,AQR	256
Hg-F	AQC	147,058
Hg-F; Nutrients	AQC,AQR	19,904
Nutrients	AQR	14,517
Total Area		182,557

Impairment Abbreviations	
Amm-U	Ammonia, unionized
Cl-	Chloride
ColdWater	Lack of a coldwater assemblage
DO	Dissolved oxygen
E.coli	Escherichia coli
FC	Fecal coliform
FishesBio	Fish Bioassessments
Hg-F	Mercury in fish tissue
Hg-W	Mercury in water column
InvertBio	Aquatic macroinvertebrate bioassessments
Nitrates	Nitrates
PCB-F	PCB in fish tissue
PCBW	PCB in water column
T	Turbidity
Affected Use Abbreviations	
AQC	Aquatic consumption
AQL	Aquatic life
AQR	Aquatic recreation
DW	Drinking water



# Designated Infested Waters (March, 2018)

## East Central Landscape Region









### Designated Infested Waters

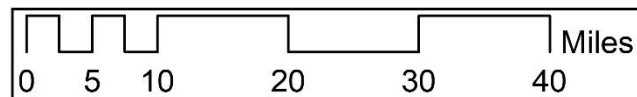


### Designated Infested Streams



### All Water Features

-  Lake, Pond or Reservoir; River or Stream
-  River
-  Stream (Perennial)
-  Stream (Intermittent)
-  Drainage Ditch (Perennial)
-  Drainage Ditch (Intermittent)



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





## Designated Infested Waters (March, 2018) Table

Lake Name	Acres
Shakopee	585
Augusta	110
Beebe	323
Big	254
Buffalo	1,552
Camp	123
Caroline	61
Cedar	790
Charlotte	251
Chisago	944
Clearwater	2,540
Comfort	218
Constance	175
Cross	925
Deer	171
Dutch	162
Eagle	463
East Lake Sylvia	669
Elk	362
Ellen	30
Emma	189
Fish (Wright)	97
Fish (Chisago)	319
French	346
Goose	52
Granite	362
Grass	61
Green (Isanti)	833
Green (Chisago)	1,809
Howard	745
Indian	139
John	397
Knife	1,259
Little Comfort	37
Little Horseshoe	49

Lake Name	Acres
Little Mary	128
Little Rock	1,311
Little Waverly	338
Locke	140
Long	382
Upper Maple	739
Mud	123
Mary	196
Mille Lacs	64,834
Mink (Wright: 86-0088)	94
Mink (Wright: 86-0229)	280
Mitchell	170
North Center Lake	749
North Lindstrom	142
North Twin	49
Ogechie	410
Onamia	1,040
Pelican	3,513
Pleasant	597
Pokegama	1,486
Pulaski	813
Ramsey	317
Rock	183
Round	45
West Rush	1,579
East Rush	1,481
Rush	161
Sand	427
Schmidt	210
Silver	83
Skogman	223
Somers	151
South Center	835
South Lindstrom	455
Spectacle	243

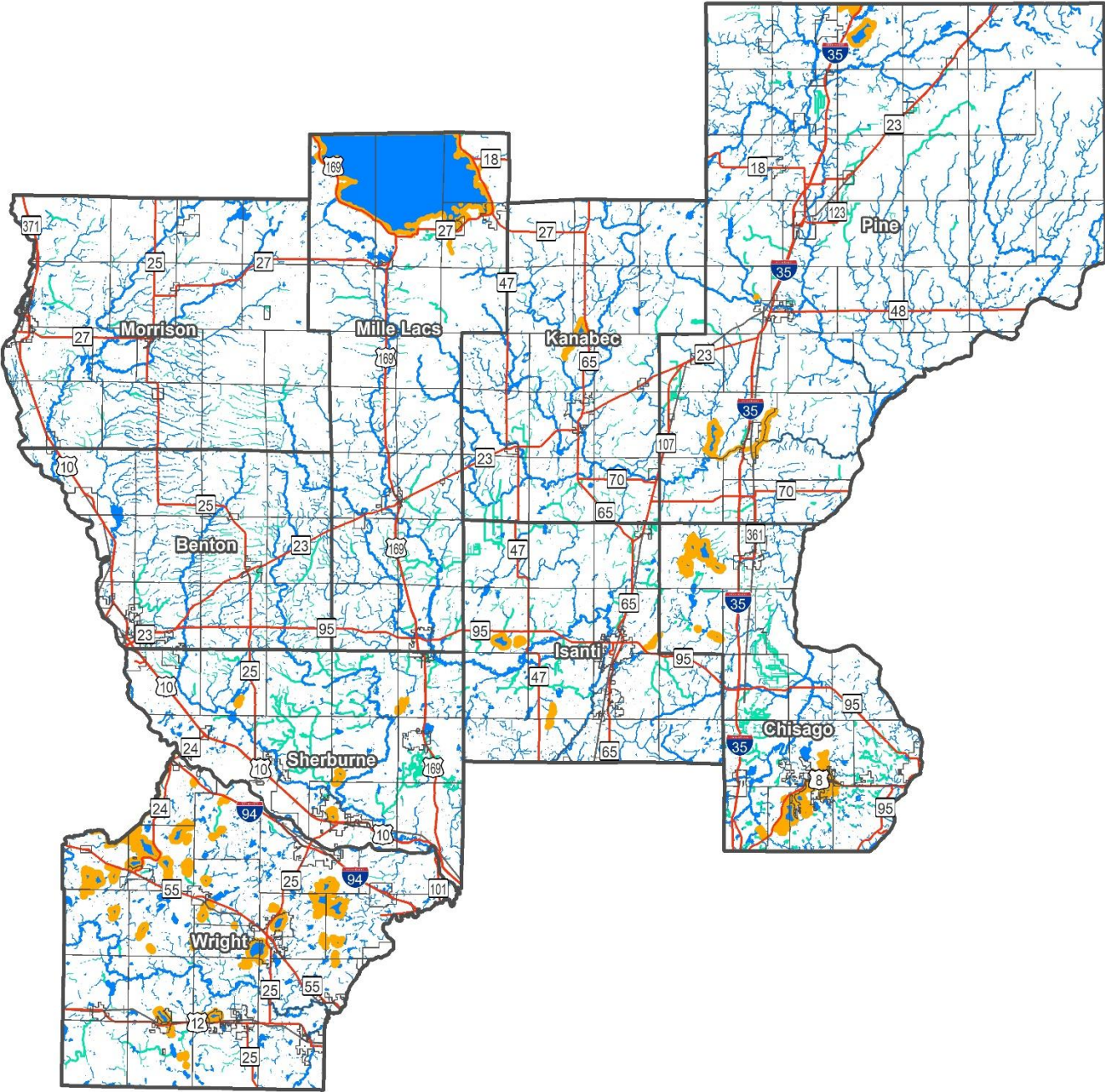
Lake Name	Acres
Sturgeon	1,706
Sugar	1,020
Unnamed (Stearns)	6
Unnamed (Little Rock Ch.)	153
Unnamed Gravel Pit (Pine)	12
Waverly	492
West Lake Sylvia	904
Wiegand	29
<b>Total Lakes</b>	<b>105,649</b>

Stream Name	Miles
Big Point (M-063-094.5)	0.47
Cedar Creek (M-063-095)	1.44
Clearwater River (M-071)	11.80
Cove Bay Creek (M-063-100)	0.12
Mississippi River (Pine R. to St. Anthony Falls) (M)	100.74
Port Mille Lacs Harbors Creek (M-063-080.5)	0.10
Rum River (M-063)	127.03
Rum River, West Branch (M-063-026)	55.93
Snake River (M-050-044)	4.48
St. Croix River (M-050)	10.04
Sucker Creek, South (M-063-097)	2.50
Sucker Creek, West (M-063-098)	0.60
Twin Bay Outlet (M-063-095.4)	0.11
Unnamed Streams (Tributary to Mille Lacs Lake)	3.33
<b>Total Streams</b>	<b>318.70</b>

The layer from the DNR Division of Ecological and Water Resources used to create this map/table is intended to provide a base inventory of selected invasive aquatic species in waters of the state of Minnesota. This layer is not a complete statewide survey for aquatic invasive species. Seven of the selected species are found in waters within the East Central Region: Eurasian Watermilfoil, Faucet Snail, Flowering Rush, Spiny Water Flea, Zebra Mussel, Starry Stonewort, and Invasive Carp (including: Bighead, Grass, and Silver). For the official complete list, see the Designated Infested Waters list available at:  
[http://files.dnr.state.mn.us/eco/invasives/infested\\_waters.xlsx](http://files.dnr.state.mn.us/eco/invasives/infested_waters.xlsx)

# Eurasian Watermilfoil Infested Waters (March, 2018)

## East Central Landscape Region



Eurasian Watermilfoil Infested Lakes

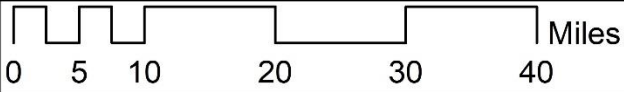


Eurasian Watermilfoil Infested Streams



All Water Features

- Lake, Pond or Reservoir; River or Stream
- River
- Stream (Perennial)
- Stream (Intermittent)
- Drainage Ditch (Perennial)
- Drainage Ditch (Intermittent)



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



## Eurasian Watermilfoil Infested Waters (March, 2018) Table

Lake Name	Acres
Augusta	110
Beebe	323
Big	254
Buffalo	1,552
Camp	123
Caroline	61
Cedar	790
Charlotte	251
Chisago	944
Clearwater	2,540
Comfort	218
Constance	175
Cross	925
Deer	171
Dutch	162
Eagle	463
East Lake Sylvia	669
East Rush	1,481
Elk	362
Ellen	30
Emma	189
Fish	97
Fish	319
French	346
Goose	52
Granite	362
Green	833
Green	1,809
Howard	745
Indian	139
John	397
Knife	1,259
Little Horseshoe	49
Little Mary	128
Little Waverly	338

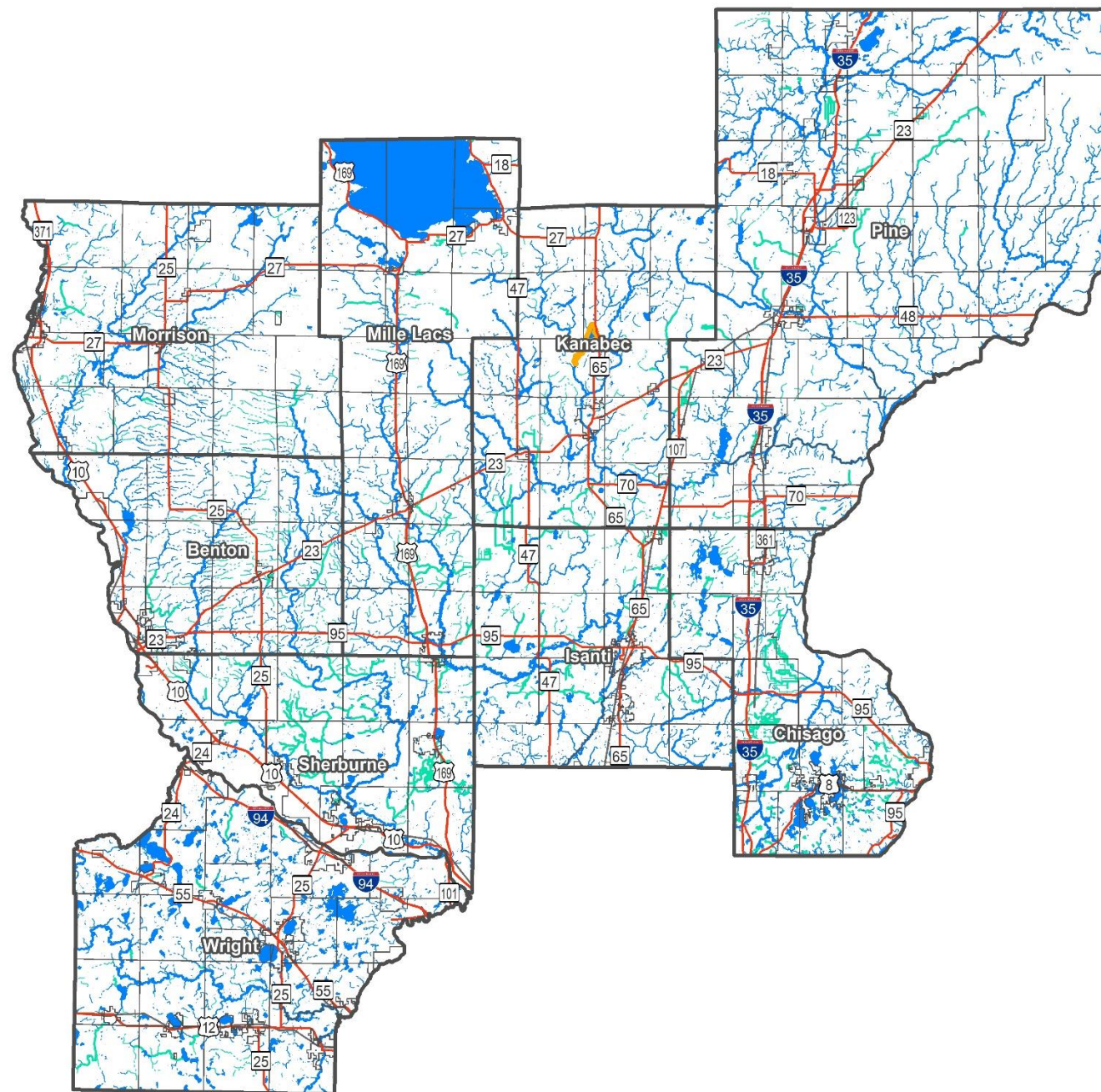
Lake Name	Acres
Locke	140
Long	382
Mary	196
Mille Lacs	64,834
Mink	94
Mink	280
Mitchell	170
Mud	123
North Center Lake	749
North Lindstrom	142
North Twin	49
Pelican	3,513
Pleasant	597
Pokegama	1,486
Pulaski	813
Ramsey	317
Rock	183
Round	45
Rush	161
Sand	427
Schmidt	210
Silver	83
Skogman	223
Somers	151
South Center	835
South Lindstrom	455
Spectacle	243
Sturgeon	1,706
Sugar	1,020
Unnamed	6
Unnamed Gravel Pit	12
Waverly	492
West Lake Sylvia	904
West Rush	1,579
Wiegand	29
<b>Total Lakes</b>	<b>101,314</b>

Stream Name	Miles
Big Point	0.5
Cedar Creek	1.4
Clearwater River	11.8
Cove Bay Creek	0.1
Port Mille Lacs Harbors Creek	0.1
Snake River	4.5
Sucker Creek, South	2.5
Sucker Creek, West	0.6
Twin Bay Outlet	0.1
Unnamed Streams	3.3
<b>Total Streams</b>	<b>25.0</b>



# Faucet Snail Infested Waters (March, 2018)







## East Central Landscape Region

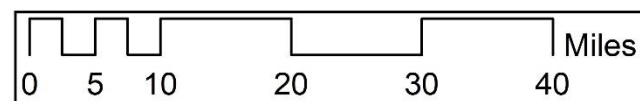


### Faucet Snail Infested Lakes



### All Water Features

-  Lake, Pond or Reservoir; River or Stream
-  River
-  Stream (Perennial)
-  Stream (Intermittent)
-  Drainage Ditch (Perennial)
-  Drainage Ditch (Intermittent)



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



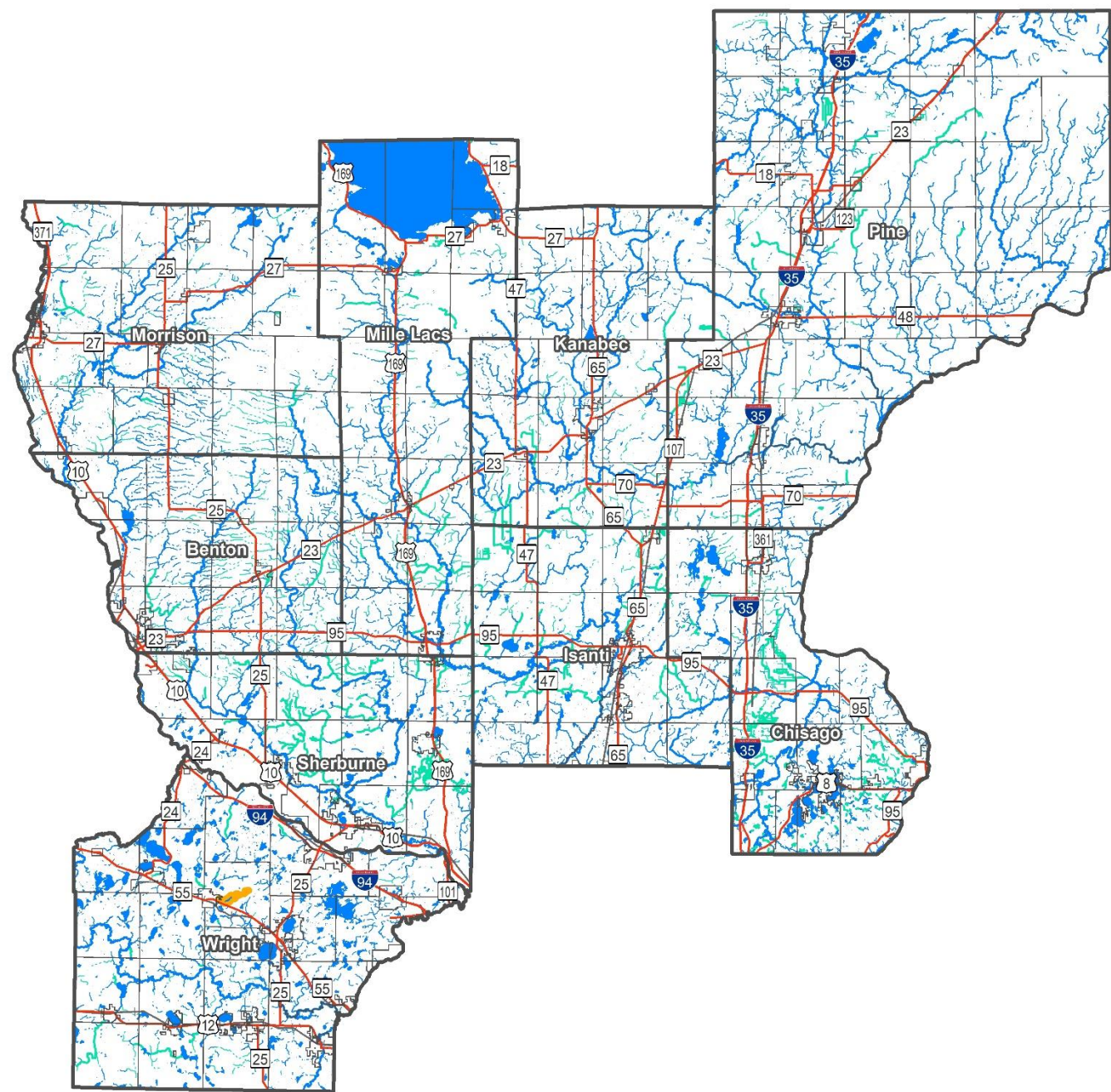
**Faucet Snail Infested Waters (March, 2018) Table**

Lake Name	Acres	Stream Name	Miles
Knife	1,259	None	N/A
Total Lakes	1,259	Total Streams	0.00



# Flowering Rush Infested Waters (March, 2018)







## East Central Landscape Region

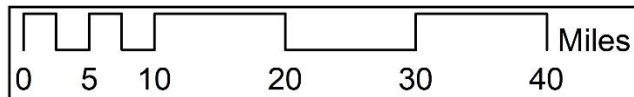


### Flowering Rush Infested Lakes



### All Water Features

-  Lake, Pond or Reservoir; River or Stream
-  River
-  Stream (Perennial)
-  Stream (Intermittent)
-  Drainage Ditch (Perennial)
-  Drainage Ditch (Intermittent)



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



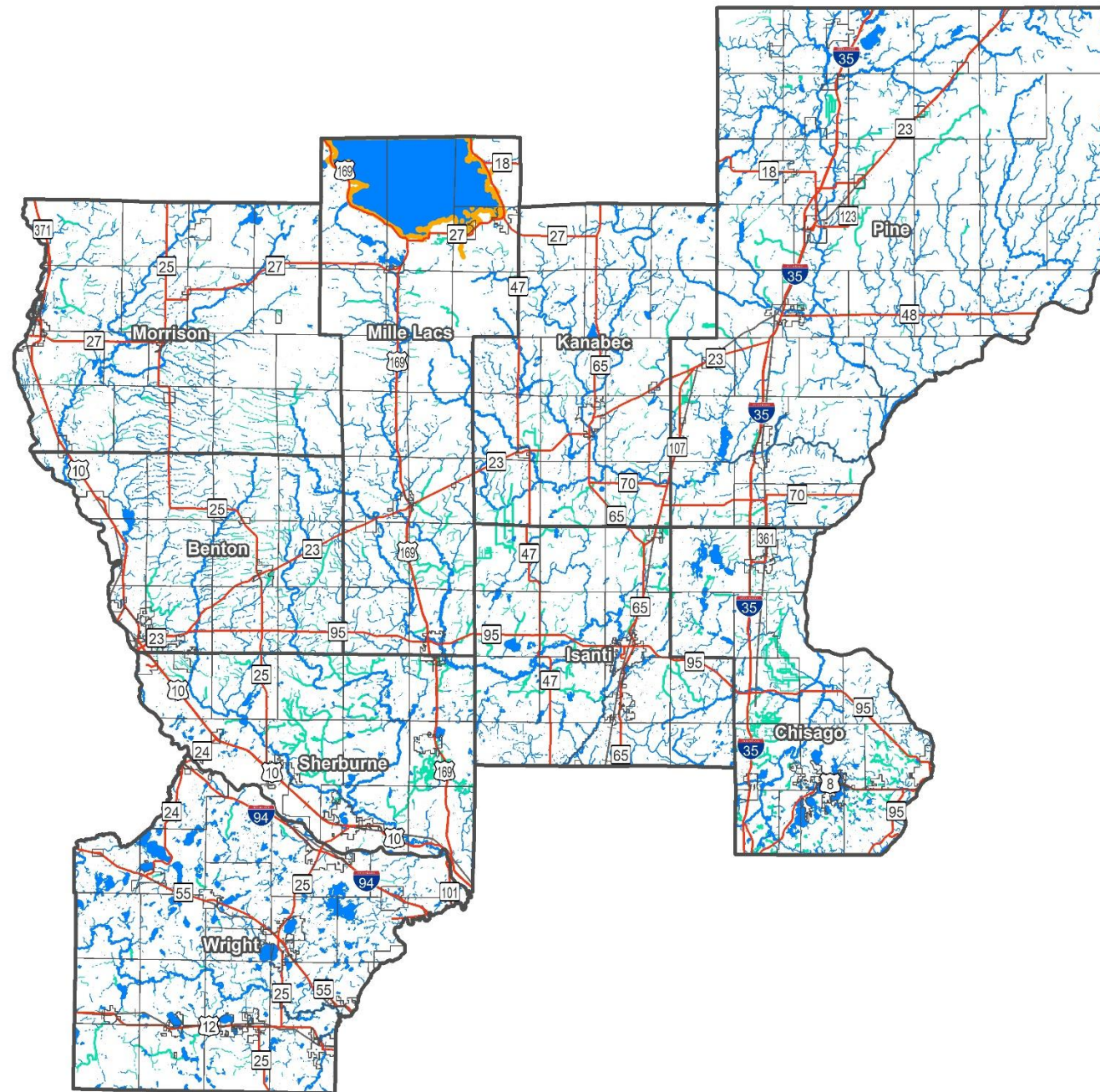


**Flowering Rush Infested Waters (March, 2018) Table**

Lake Name	Acres	Stream Name	Miles
Upper Maple	739	None	N/A
Total Lakes	739	Total Streams	0.00

# Spiny Water Flea Infested (March, 2018) Waters

## East Central Landscape Region









### Spiny Water Flea Infested Lakes

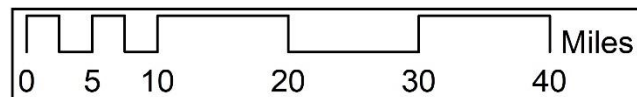


### Spiny Water Flea Infested Streams



### All Water Features

-  Lake, Pond or Reservoir; River or Stream
-  River
-  Stream (Perennial)
-  Stream (Intermittent)
-  Drainage Ditch (Perennial)
-  Drainage Ditch (Intermittent)



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons



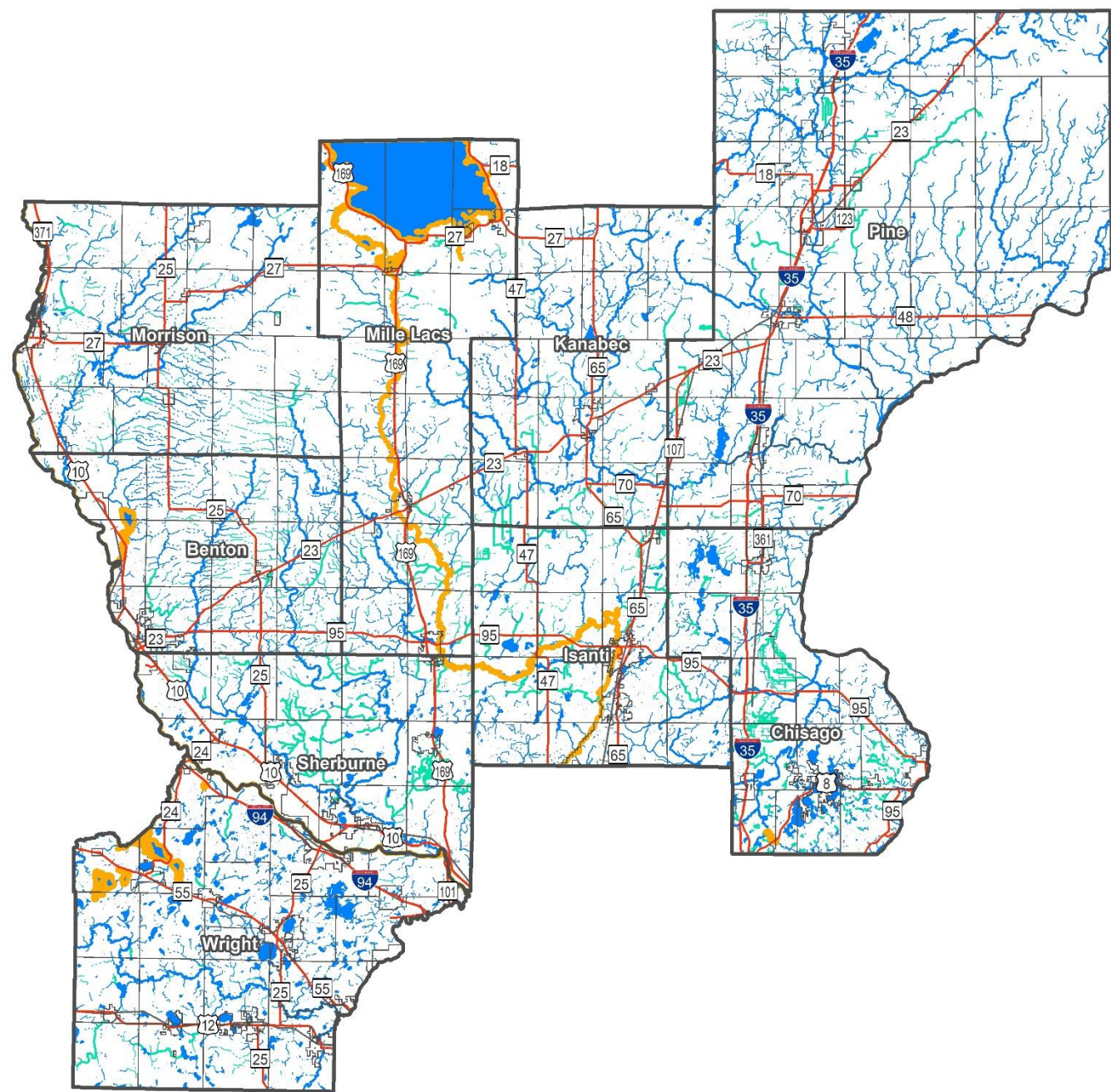
**Spiny Water Flea Infested Waters (March, 2018) Table**

Lake Name	Acres	Stream Name	Miles
Mille Lacs	64,834	Big Point	0.5
Total Lakes	64833.7	Cedar Creek	1.4
		Cove Bay Creek	0.1
		Port Mille Lacs Harbors Creek	0.1
		Sucker Creek, South	2.5
		Sucker Creek, West	0.6
		Twin Bay Outlet	0.1
		Unnamed Streams	3.3
		Total Streams	8.7



# Zebra Mussel Infested Waters (March, 2018)

## East Central Landscape Region









### Zebra Mussel Infested Lakes

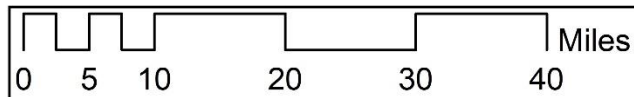


### Zebra Mussel Infested Streams



### All Water Features

-  Lake, Pond or Reservoir; River or Stream
-  River
-  Stream (Perennial)
-  Stream (Intermittent)
-  Drainage Ditch (Perennial)
-  Drainage Ditch (Intermittent)



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons

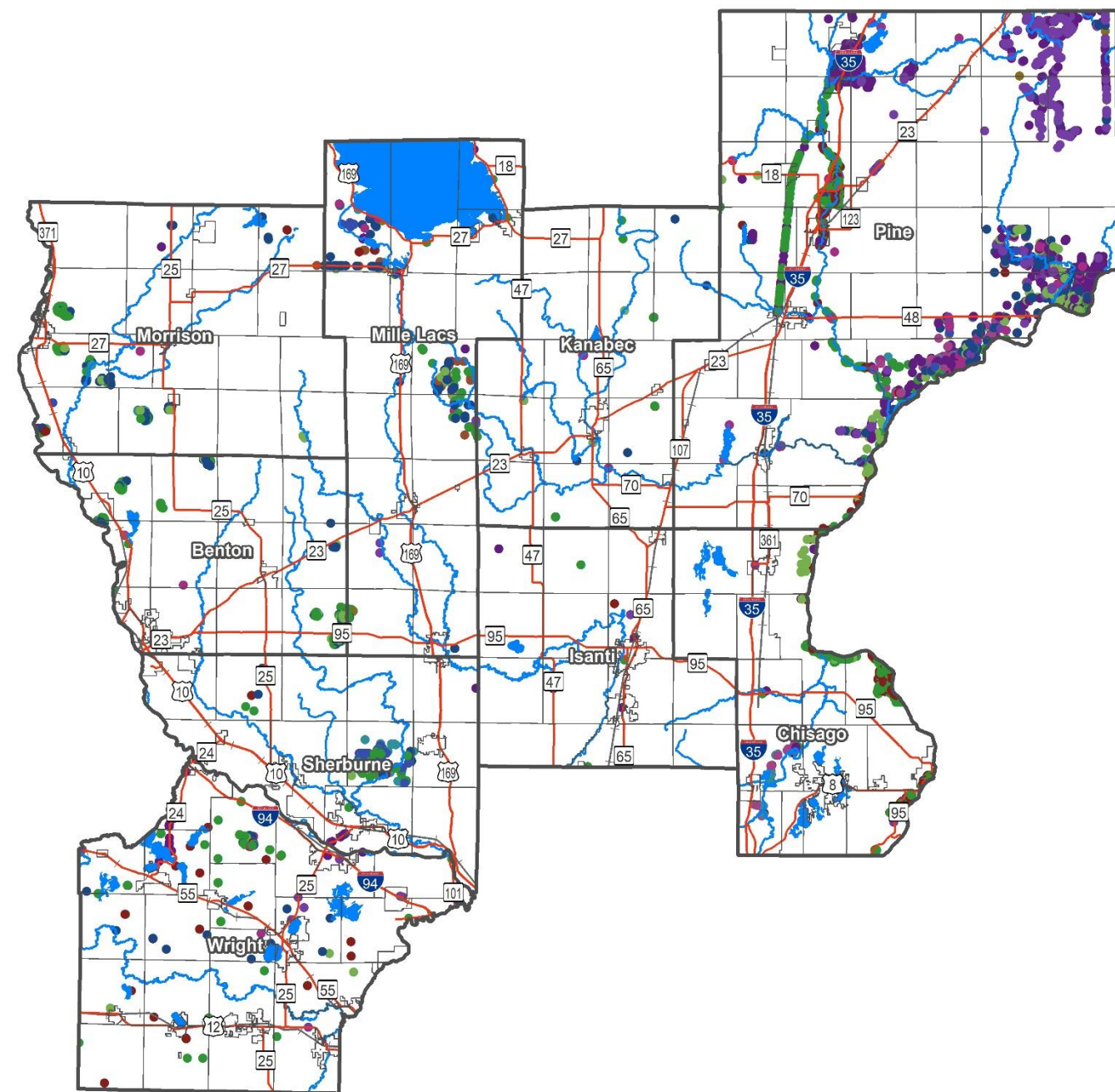


**Zebra Mussel Infested Waters (March, 2018) Table**

Lake Name	Acres	Stream Name	Miles
Augusta	110	Big Point	0.5
Cedar	790	Cedar Creek	1.4
Clearwater	2,540	Clearwater River	11.8
Comfort	218	Cove Bay Creek	0.1
East Lake Sylvia	669	Mississippi River (Pine R. to St. Anthony Falls)	100.7
Fish	97	Port Mille Lacs Harbors Creek	0.1
John	397	Rum River	127.0
Little Comfort	37	Sucker Creek, South	2.5
Little Rock	1,311	Sucker Creek, West	0.6
Mille Lacs	64,834	Twin Bay Outlet	0.1
Ogechie	410	Unnamed Streams	3.3
Onamia	1,040	Total Streams	248.2
Shakopee	585		
Unnamed	6		
Unnamed (Little Rock Channel)	153		
West Lake Sylvia	904		
Wiegand	29		
Total Lakes	74,131		

# DNR Terrestrial Invasive Species Observations

## East Central Landscape Region

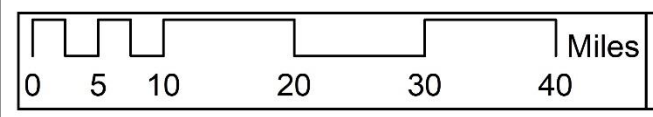


### DNR Terrestrial Invasive Species Observations

- Amur maple
- Canada thistle
- European buckthorn
- birdsfoot trefoil
- bull thistle
- bush honeysuckles (exotic)
- common mullein
- common tansy
- hoary alyssum
- spotted knapweed
- tansy
- thistle

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MN Geospatial Commons; Other Features - MN Geospatial Commons





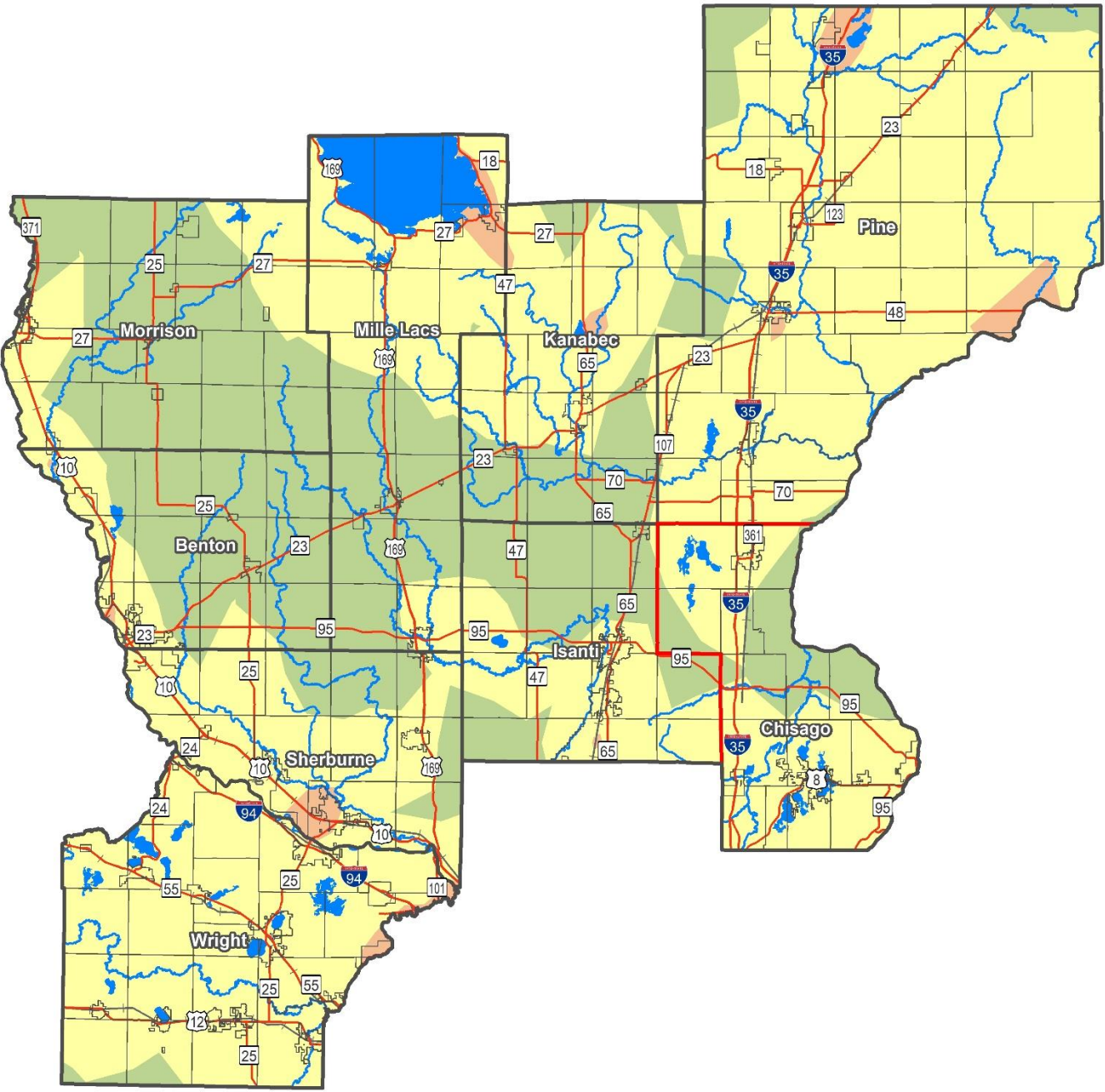
## DNR Terrestrial Invasive Species Observations Table

Shown On Map		Not Shown On Map		Not Shown On Map	
Common Name	Count	Common Name	Count	Common Name	Count
Amur maple	195	autumn olive	1	longleaf dock	1
birdsfoot trefoil	293	babysbreath	1	meadow hawkweed	1
bull thistle	508	barnyardgrass	3	meadow knapweed	64
bush honeysuckles (exotic)	964	bigleaf lupine	1	Morrow's honeysuckle	20
Canada thistle	758	bittersweet nightshade	2	multiflora rose	2
common mullein	154	bittersweets	1	musk thistle	47
common tansy	561	black locust	12	narrowleaf hawksbeard	1
European buckthorn	1857	bristly locust	1	Norway maple	3
hoary alyssum	138	brown marmorated stink bug	10	orange hawkweed	91
spotted knapweed	2186	burnet-saxifrage	19	oriental bittersweet	7
tansy	143	common St. Johnswort	7	oxeye daisy	45
thistle	169	common teasel	2	perennial sowthistle	61
		common valerian	2	purple crown-vetch	30
		cow vetch	34	Queen Anne's lace, wild carrot	2
		crack willow	1	red bartsia	1
		creeping bellflower	1	redtop	8
		creeping charlie	29	roughstalk bluegrass	1
		creeping yellow loosestrife, creeping Jenny	2	Scots pine	1
		eastern poison-ivy	7	showy fly honeysuckle, Bell's honeysuckle	9
		elecampane	37	Siberian elm	118
		emerald ash borer	1	Siberian peashrub	90
		garlic mustard	106	smooth brome	63
		glossy buckthorn	70	sowthistle	13
		greater celandine	1	spiny plumeless thistle	14
		hairy vetch	7	Tatarian honeysuckle	21
		Japanese barberry	83	true forget-me-not	1
		Japanese knotweed	16	white sweetclover	95
		Kentucky bluegrass	1	wild parsnip	120
		knapweed root weevil	27	yellow fieldcress	1
		ladysthumb	3	yellow sweet-clover	19
		leafy spurge	47	yellow toadflax	100
		lesser knapweed flower weevil	1		

Observations were made between **5/27/2004** and **6/26/2014**. Each observation may vary for the number of plants observed, distribution of plants, and acres infected. Separate observations may represent the same location, therefore the count of observations may over-represent the distribution of a species.

# Emerald Ash Borer Introduction Risk

## East Central Landscape Region



### Emerald Ash Borer Introduction Risk

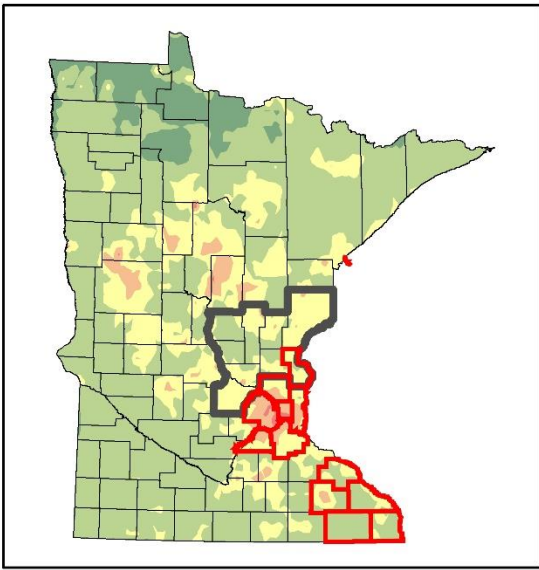
- Very Low
- Low
- Moderate
- High
- Very High

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers

### Inset Map

- East Central Region
- Quarantine Boundaries (3/5/2016)
- County Boundaries

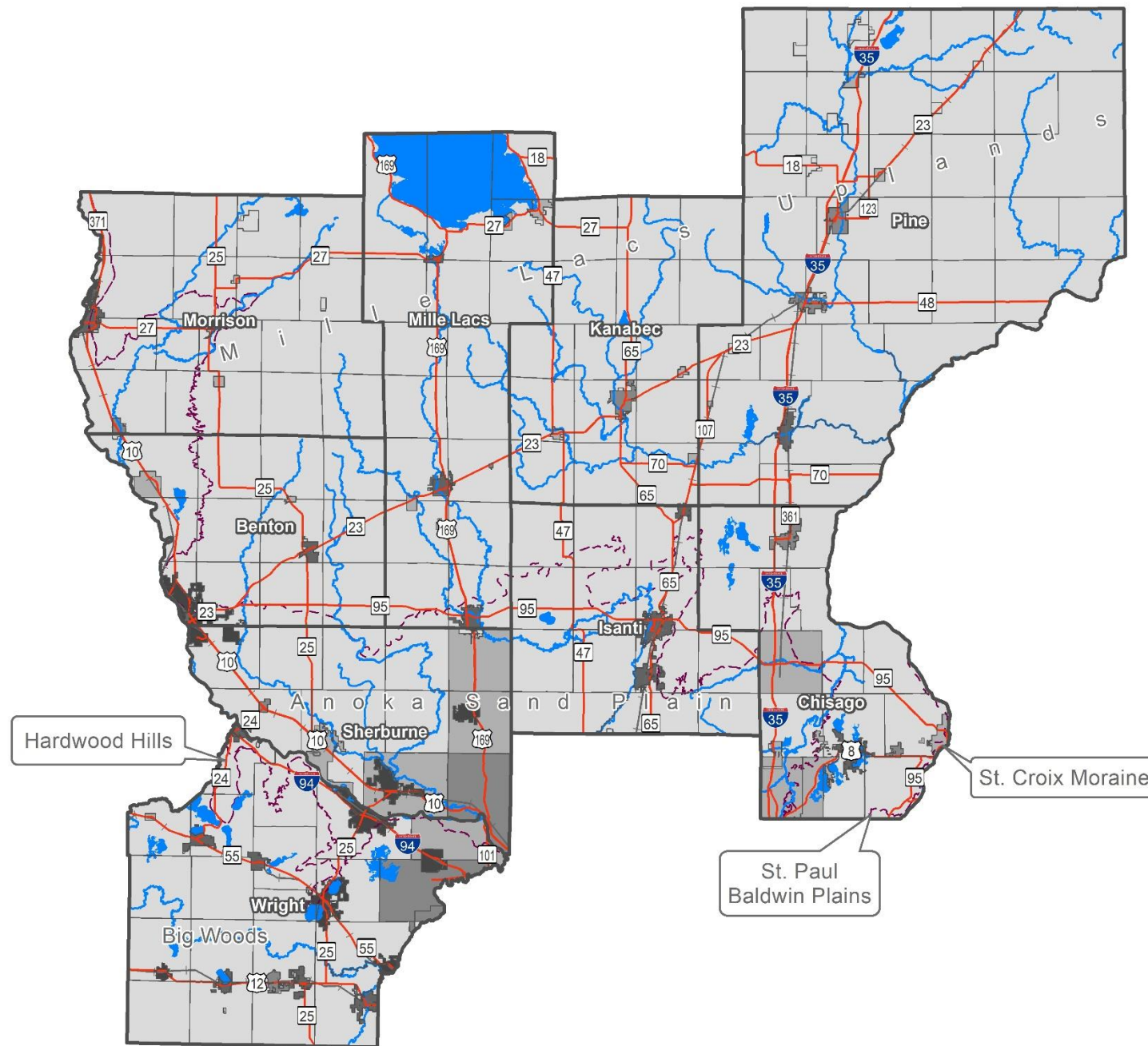


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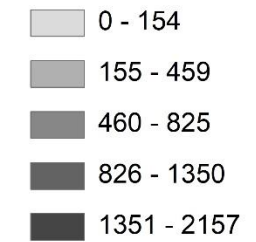


# 2010 US Census Population Density

## East Central Landscape Region

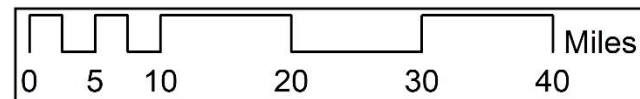


### 2010 Population Density (persons/sq mi)



Classes by natural breaks

### Other Features



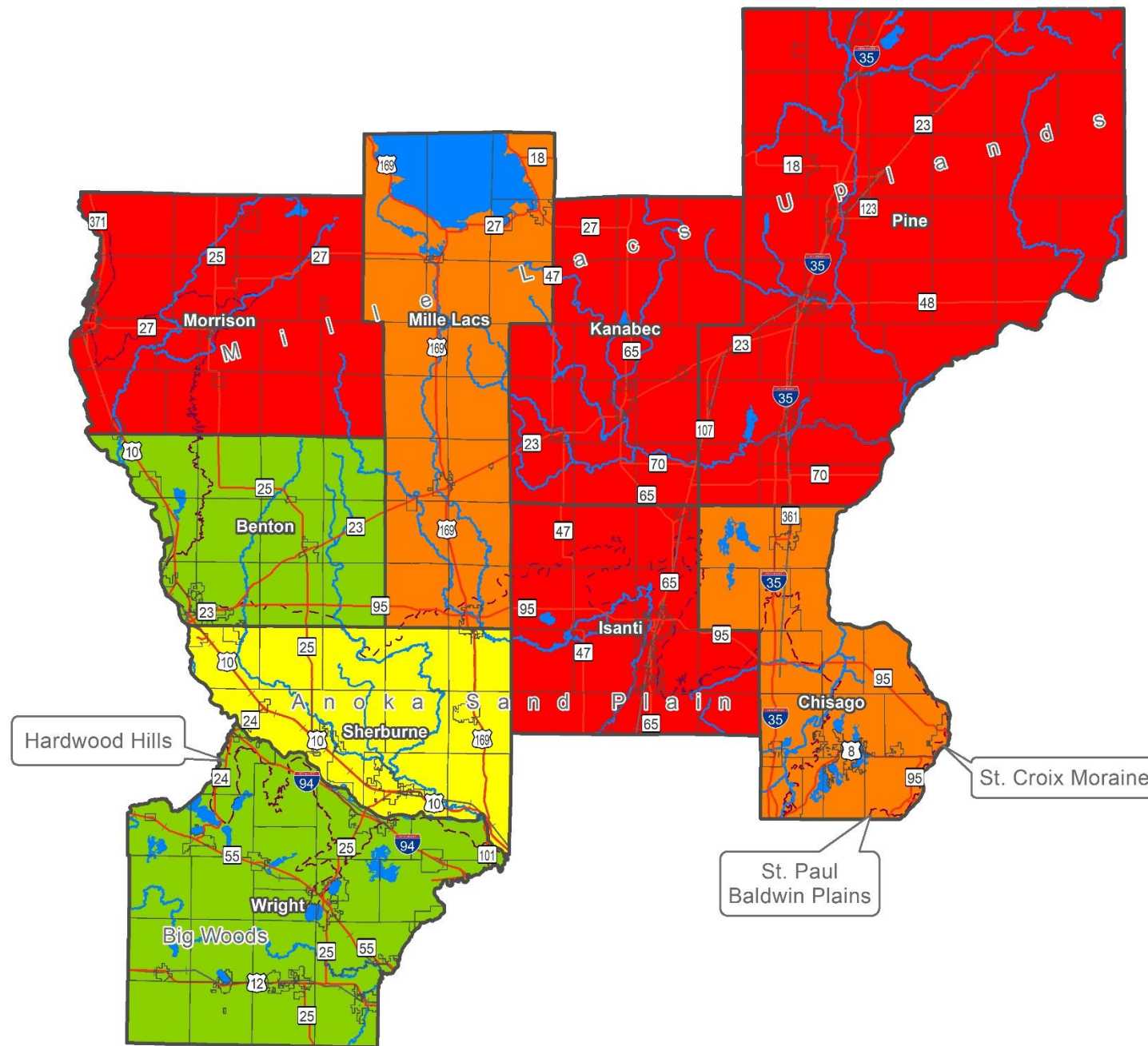
Sources: Main - US Census; Other Features - MN Geospatial Commons



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# Forestry Jobs by County (2008)

## East Central Landscape Region



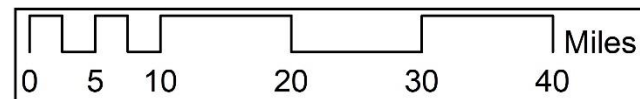
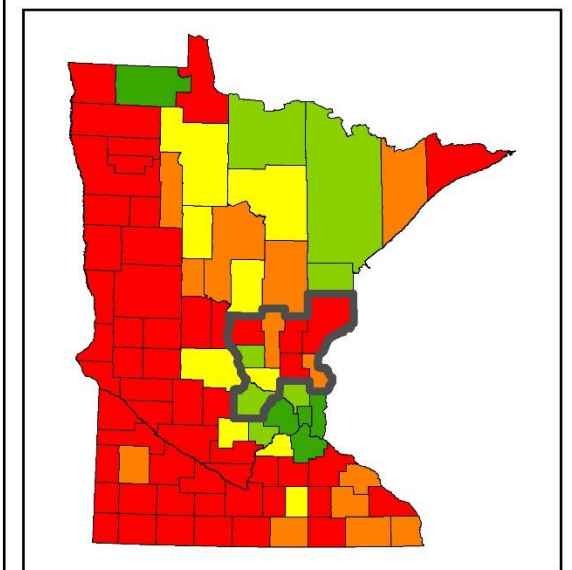
### Forestry Jobs by County (2008)

- 0 - 87
- 88 - 332
- 333 - 688
- 689 - 1308
- 1309 - 3122

Classes are by Natural Breaks for statewide data.

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers
- ECS Subsections



Sources: Main - MNDNR FOR; Other Features - MN Geospatial Commons

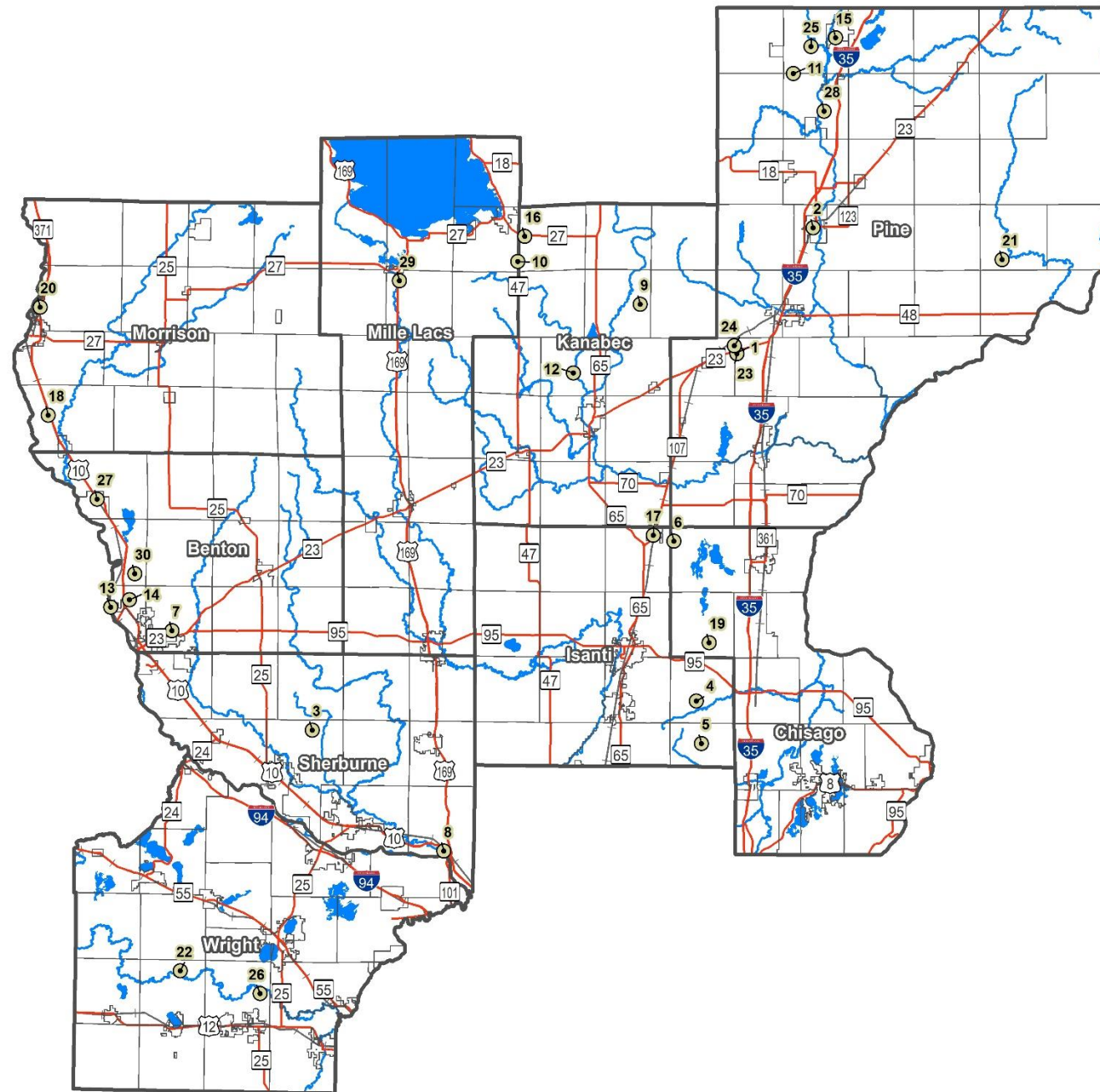




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# Sawmills (2013)

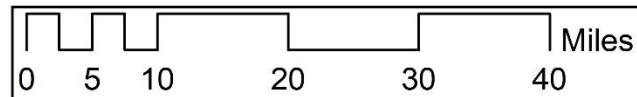
## East Central Landscape Region



● Sawmills (September, 2013)

### Other Features

- County Boundaries
- Municipal Boundaries
- Highways
- Railroads
- Lakes
- Rivers



Sources: Main - MDA; Other Features - MN Geospatial Commons



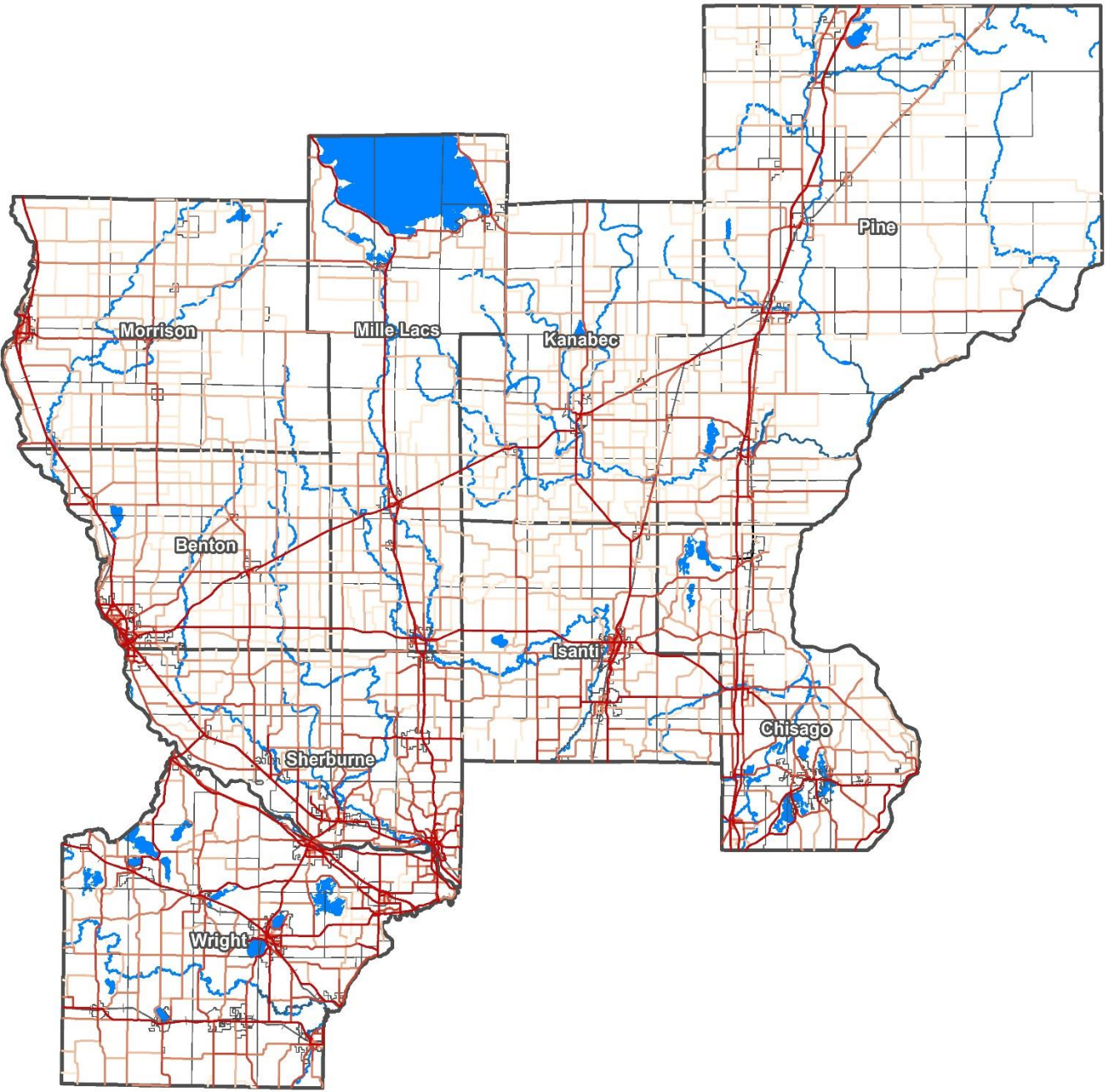
## Sawmills (2013) Table

Map Number	Name	City
1	Bass Lake Millworks	Sandstone
2	Bass Lake Millworks	Sandstone
3	Berthiaume Logging	Becker
4	Besta Logging	St. Francis
5	Country Sawmill	Stacy
6	East Central Forest Products	Braham
7	Ed'S Custom Log Sawing	Sauk Rapids
8	Elk River Box Factory	Elk River
9	Graber, Barry	Brook Park
10	High Island Logging And Export	Isle
11	Horton Sawmill	Willow River
12	Hovland - Einer Mill	Mora/ Knife Lake Twp
13	International Paper - Sartell	Sartell
14	Kirchner Sawmill	Sauk Rapids
15	L & L Sales	Sturgeon Lake
16	Larson Enterprises Of Isle	Isle
17	Lepinski Pallet Supply	Braham
18	Nelson - Roger Woodyard	Bellevue Twp
19	Pallet Man Inc.	Harris
20	Paul'S Fireplace Wood	Little Falls
21	Ponderosa Sawmill	Sandstone
22	Raymond (James) Mill	Howard Lake
23	Rootkie Iron & Millwork	Brook Park
24	Rootkie Mill - Residence/Log Storage	Brook Park
25	Rybak Inc	Sturgeon Lake
26	Solberg (Ted) Construction	Buffalo
27	Warren Wood	Rice
28	Willie'S Mill	Willow River
29	Woodline Sawmill	Onamia
30	Z-Log-N-Saw	Sauk Rapids



# Annual Average Daily Traffic

## East Central Landscape Region



### Annual Average Daily Traffic (2010 - 2012)

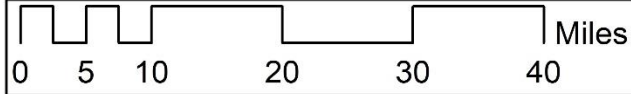
- 5 - 205
- 206 - 590
- 591 - 1550
- 1551 - 4000
- 4001 - 75000

Class breaks by quantile.

— No Data Available

### Other Features

- County Boundaries
- Municipal Boundaries
- Lakes
- Rivers



Sources: Main - MNDOT; Other Features - MN Geospatial Commons



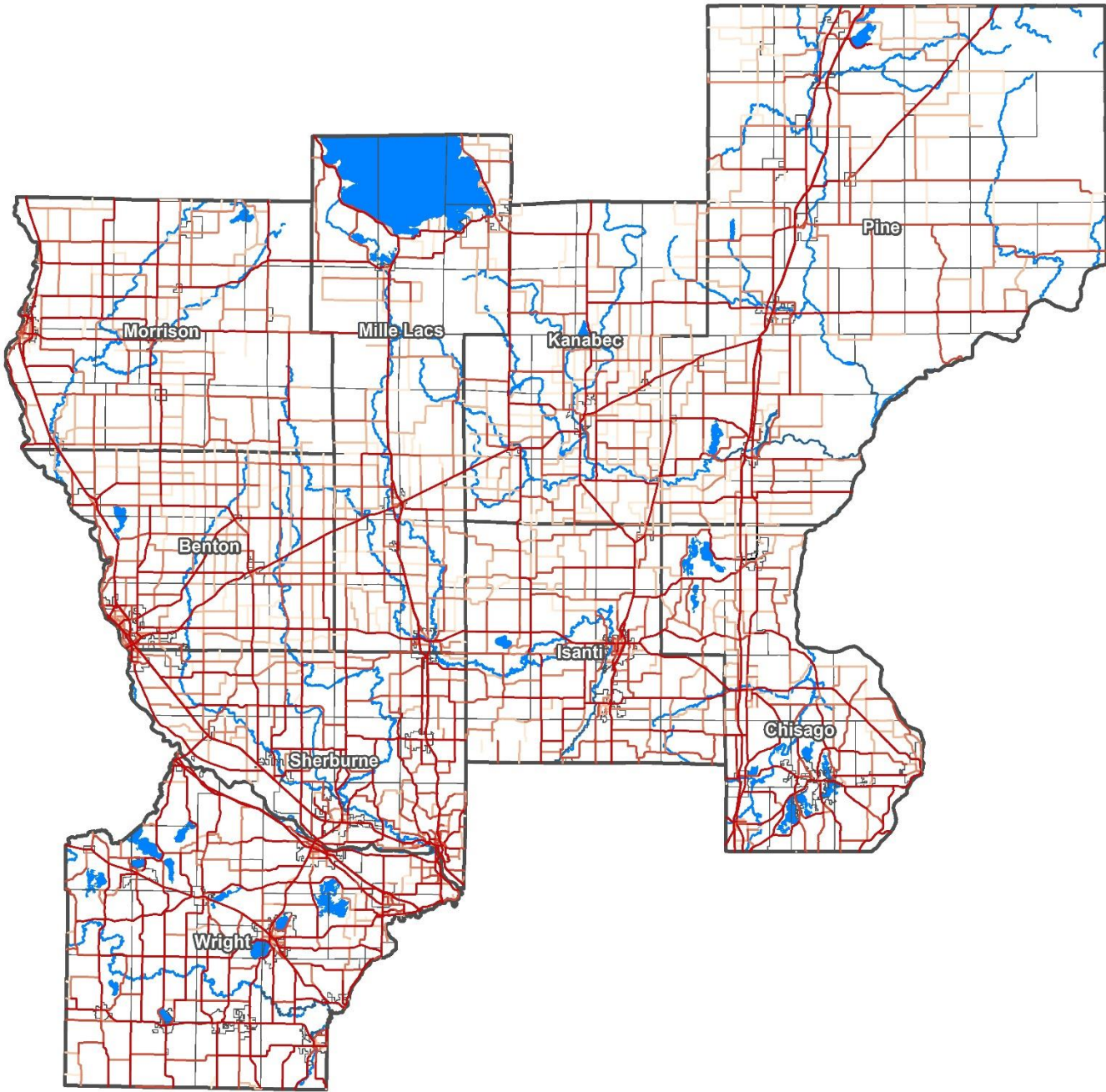
Annual Average Daily Traffic Table

Route Type	Annual Average Daily Traffic
US Highway	1,367,300
MN Highway	1,734,500
County State Aid Highway	2,454,155
Municipal State Aid Street	1,330,547
County Road	357,530
Township Road	1,040
Municipal Street	22,650
Interstate	786,500
Total East Central Region	8,054,222

Annual Average Daily Traffic (AADT) is the number of vehicles that travel a section of road per day (averaged for 365 days in one year). MNDOT measures traffic for road sections every 2-4 years. Note that AADT is per section of road. If more sections of road exist for a Route Type, more AADT will be reported for that Route Type in the table above. For a normalized comparison of the amount of traffic on each route type, refer to the Annual Average Daily Vehicle Miles Traveled.

# Annual Average Daily Vehicle Miles Traveled

## East Central Landscape Region



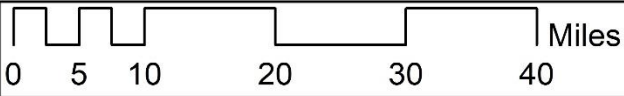
### Annual Average Daily Vehicle Miles Traveled (2010 - 2012)

- 0.04 - 196.35
  - 196.36 - 560.26
  - 560.27 - 1403.17
  - 1403.18 - 4267.80
  - 4267.81 - 879335.36
- Class breaks by quantile.

— No Data

### Other Features

- County Boundaries
- Municipal Boundaries
- Lakes
- Rivers



Sources: Main - MNDOT; Other Features - MN Geospatial Commons





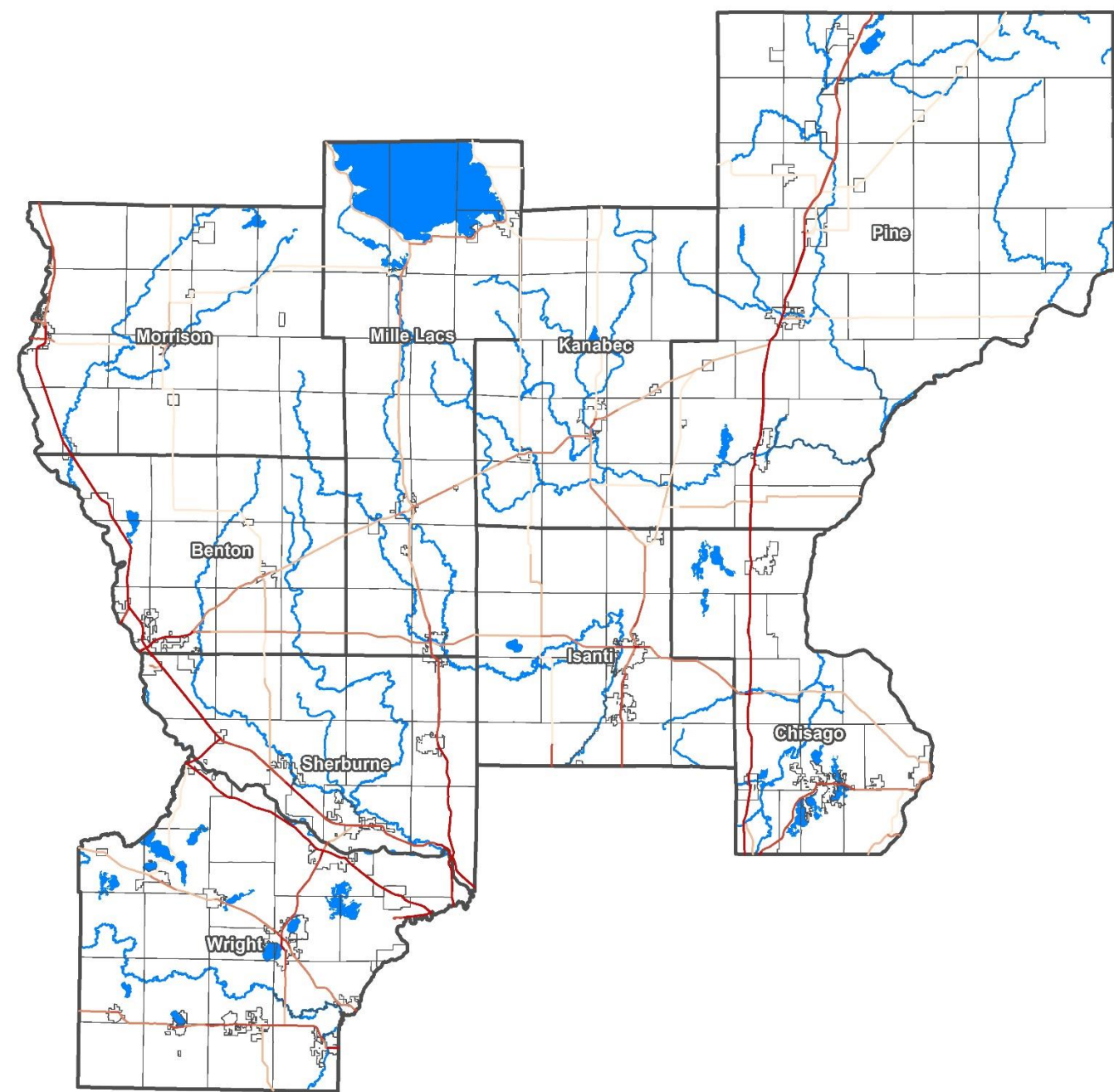
**Annual Average Daily Vehicle Miles Traveled Table**

Route Type	Length (miles)	Annual Average Daily Vehicle Miles Traveled
US Highway	327.6	5,792,223
MN Highway	647.4	3,979,821
County State Aid Highway	2531.8	3,420,971
Municipal State Aid Street	209.8	496,170
County Road	1498.7	549,802
Township Road	1.4	499
Municipal Street	13.2	13,921
Interstate	214.7	6,254,354
Total East Central Region	5444.5	20,507,761

Annual Average Daily Vehicle Miles Traveled (AAD VMT) is the number of vehicles that travel a section of road per day (averaged for 365 days in one year) multiplied by the length of the section of road. If 2 vehicles traveled a 2 mile section of road every day over the course of one year, the AAD VMT for that section of road would be 4. The AAD VMT should be used when comparing routes for traffic volume given that it provides a normalized comparison for traffic measurements (the Annual Average Daily Traffic count can be skewed by the presence of multiple sections of a Route Type).

# Heavy Commercial Annual Average Daily Traffic

## East Central Landscape Region



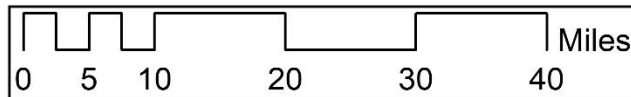
### Heavy Commercial Annual Average Daily Traffic (2010 - 2012)

- 20 - 170
- 171 - 400
- 401 - 670
- 671 - 1050
- 1051 - 8200

Class breaks by quantile.

### Other Features

- County Boundaries
- Municipal Boundaries
- Lakes
- Rivers



Sources: Main - MNDOT; Other Features - MN Geospatial Commons



Heavy Commercial Annual Average Daily Traffic Table

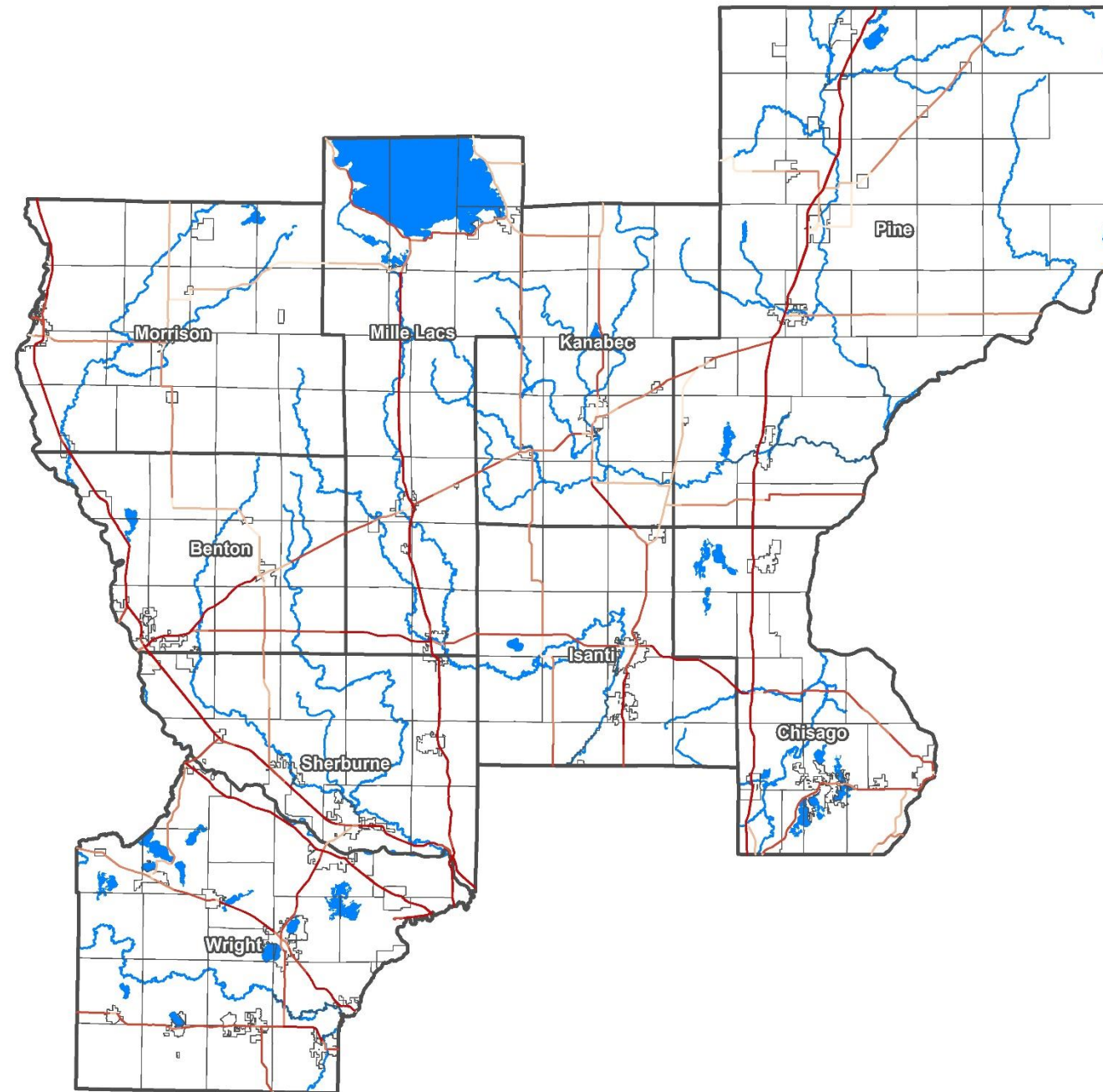
Route Type	Heavy Commercial Annual Average Daily Traffic
US Highway	83,835
MN Highway	102,915
Interstate	79,540
Total East Central Region	266,290

Heavy Commercial Annual Average Daily Traffic (HCAADT) is the number of trucks with at least 2 axles and 6 tires that travel a section of road per day (averaged for 365 days in one year). MNDOT measures traffic for road sections every 2-4 years. Note that HCAADT is per section of road. If more sections of road exist for a Route Type, more HCAADT will be reported for that Route Type in the table above. For a normalized comparison of the amount of traffic on each route type, refer to the Heavy Commercial Annual Average Daily Vehicle Miles Traveled map.



# Heavy Commercial Annual Average Daily Vehicle Miles Traveled

## East Central Landscape Region



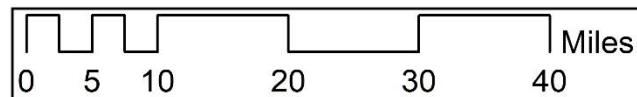
### Heavy Commercial Annual Average Daily Vehicle Miles Traveled (2010 - 2012)

- 4.26 - 223.40
- 223.41 - 534.36
- 534.37 - 1192.36
- 1192.37 - 3242.09
- 3242.10 - 162034.83

Class breaks by quantile.

### Other Features

- County Boundaries
- Municipal Boundaries
- Lakes
- Rivers



Sources: Main - MNDOT; Other Features - MN Geospatial Commons



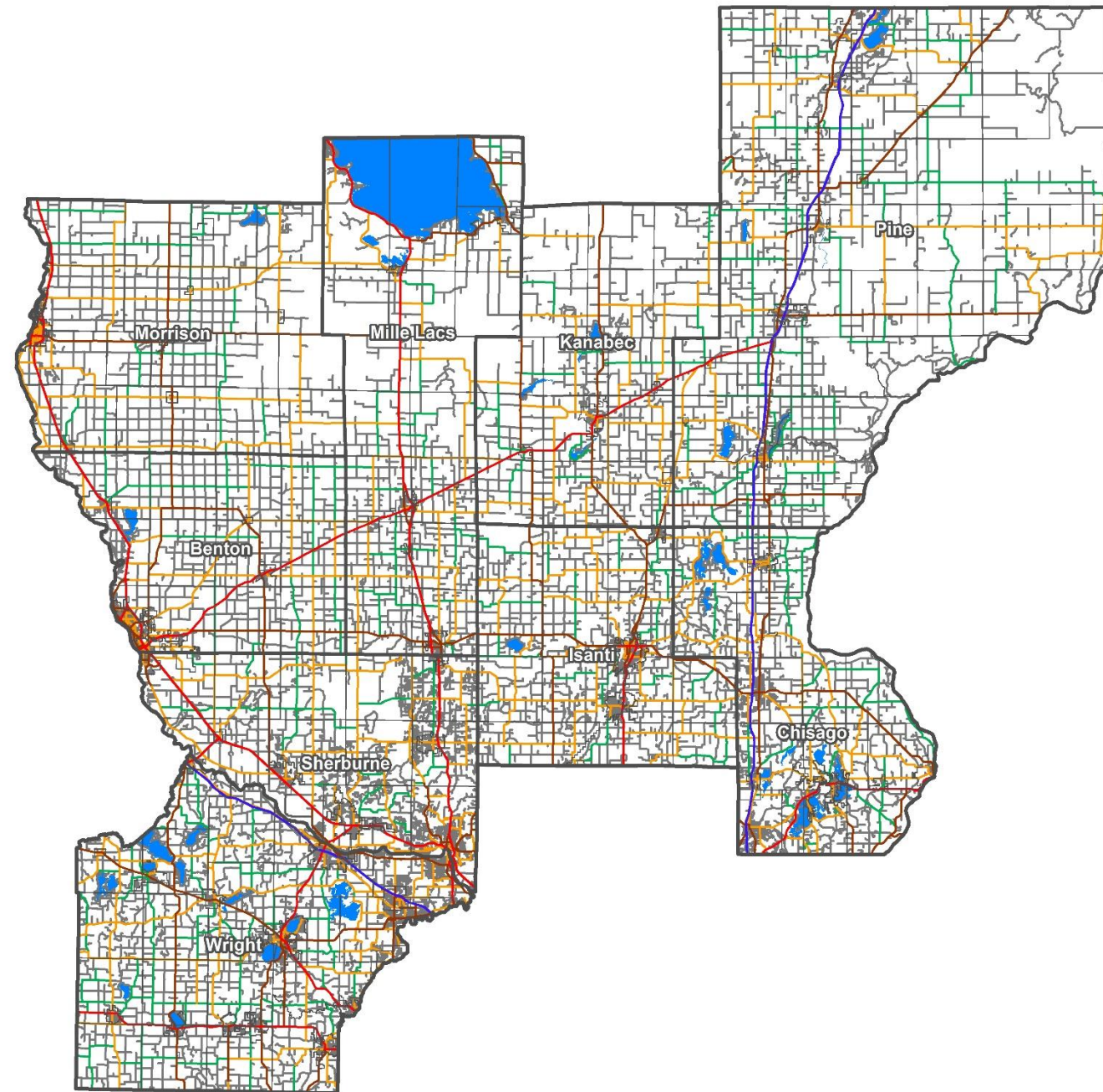
**Heavy Commercial Annual Average Daily Vehicle Miles Traveled Table**

Route Type	Length (miles)	Heavy Commercial Annual Average Daily Vehicle Miles Traveled
US Highway	327.6	361,846
MN Highway	647.4	244,659
Interstate	214.7	641,335
Total East Central Region	1189.7	1,247,840

Heavy Commercial Annual Average Daily Vehicle Miles Traveled (HCAAD VMT) is the number of trucks with at least 2 axles and 6 tires that travel a section of road per day (averaged for 365 days in one year) multiplied by the length of the section of road. If 2 trucks traveled a 2 mile section of road every day over the course of one year, the HCAAD VMT for that section of road would be 4. The HCAAD VMT should be used when comparing routes for traffic volume given that it provides a normalized comparison for traffic measurements (the Heavy Commercial Annual Average Daily Traffic count can be skewed by the presence of multiple sections of a Route Type).

# Road Functional Classes

## East Central Landscape Region

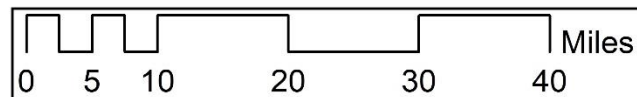


### Road Functional Classes

- Principal Arterial - Interstate
- Principal Arterial - Other Freeways & Expressways
- Principal Arterial - Other
- Minor Arterial
- Major Collector
- Minor Collector
- Local

### Other Features

- County Boundaries
- Municipal Boundaries
- Lakes



Sources: Main - MNDOT; Other Features - MN Geospatial Commons





### Road Functional Classes Table

Road Functional Class	Miles
Principal Arterial - Interstate	215
Principal Arterial - Other	501
Minor Arterial	669
<b>Total Arterial</b>	<b>1,385</b>
Major Collector	1,597
Minor Collector	1,055
<b>Total Collector</b>	<b>2,652</b>
Local	7,692
<b>Total Local</b>	<b>7,692</b>
<b>Total East Central Region</b>	<b>11,729</b>

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