

# **Northeast Landscape Planning Committee Meeting #7 – Ecological Policy Framework (cont'd)**

## Resource review

- Landcover data
- Watershed data
- FIA data

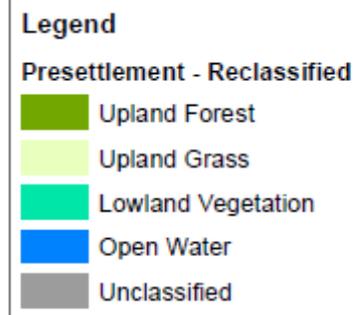
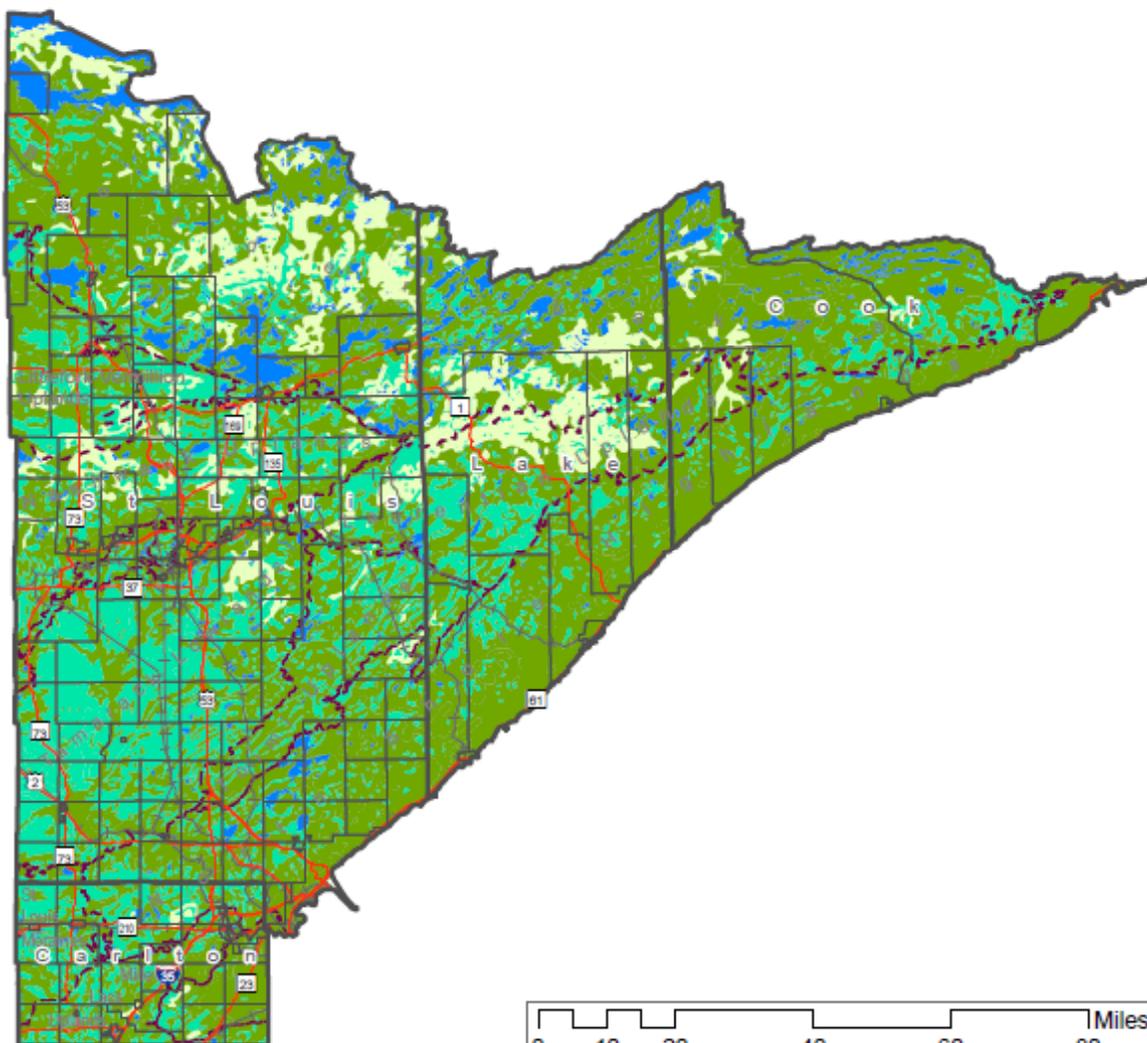
# Land Cover Datasets

## MFRC Landscape Program

<b>Historical Assessments</b>	Big Woods Landscape Plan (MN DNR) Doug MacCleary (US FS Assistant Director) article
<b>Pre-settlement Inventories</b>	1974 1988
<b>State of Minnesota Land Cover Inventories – LMIC</b>	1969 1988
<b>GAP</b>	1992
<b>National Land Cover Data (NLCD)</b>	1992 2001 2006 2011?

# Presettlement Land Cover (1895) - Reclassified

## Northeast Landscape Region

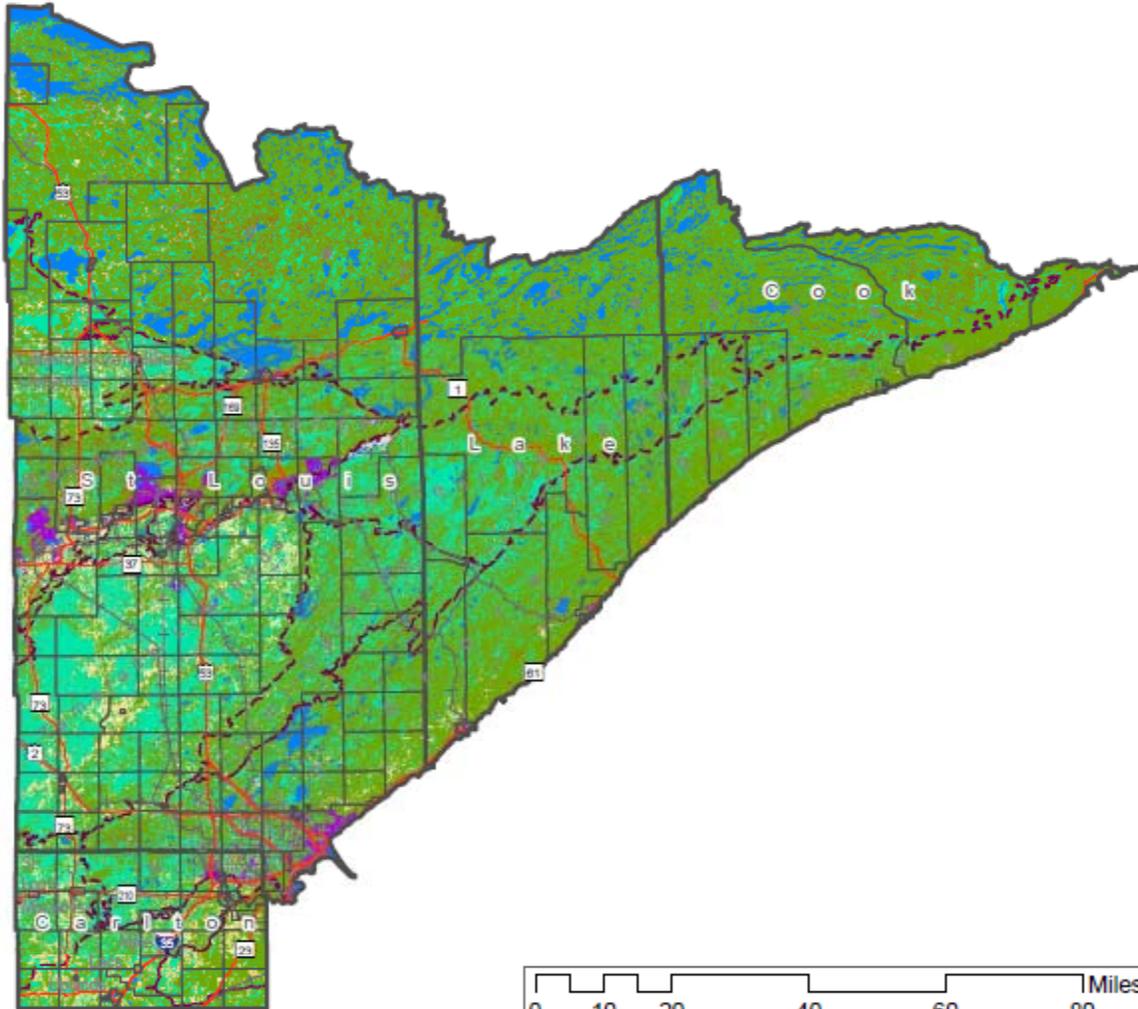


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# GAP Land Cover (1992) - Reclassified

## Northeast Landscape Region



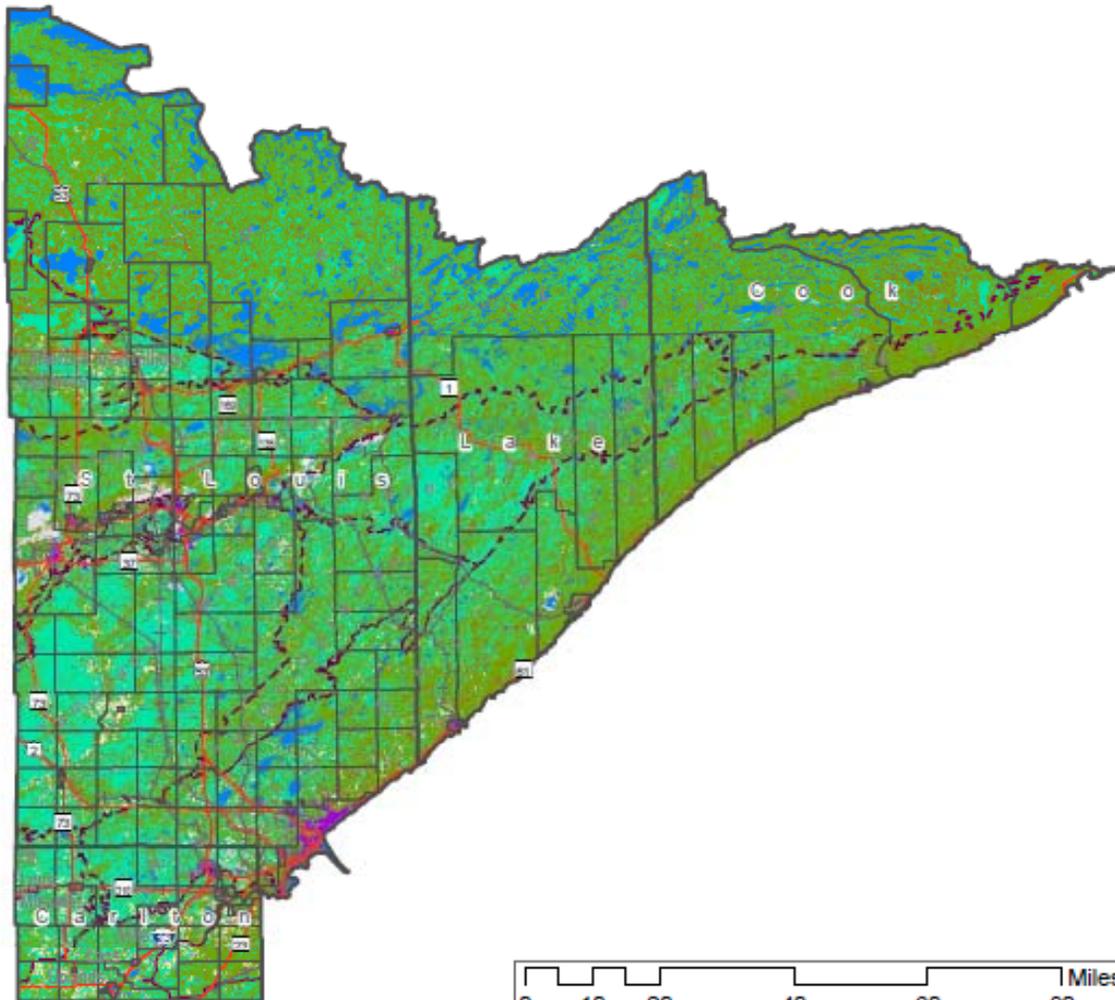
### Legend

- GAP 1992 - Reclassified**
- Upland Forest
  - Upland Shrub
  - Upland Grass
  - Lowland Vegetation
  - Agriculture
  - Developed
  - Barren
  - Open Water

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# NLCD Land Cover (2006) - Reclassified

## Northeast Landscape Region



### Legend

#### NLCD 2006 - Reclassified

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



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## Land Use/Cover in the Northeast Landscape: presettlement, 1992, 2001, 2006

Cover Type	Presettlement				GAP 1992 (compared to Presettlement)			
	Acres	% of Total	Acres Change	% Change	Acres	% of Total	Acres Change	% Change
Upland Forest	4,428,714	60.1	-	-	3,928,833	53.4	-499,881	-11.3
Upland Shrub	0	0.0	-	-	427,374	5.8	427,374	n/a
Upland Grass	688,738	9.4	-	-	292,368	4.0	-396,371	-57.6
Lowland Vegetation	1,805,454	24.5	-	-	1,878,267	25.5	72,813	4.0
Agriculture	0	0.0	-	-	106,289	1.4	106,289	n/a
Developed	0	0.0	-	-	115,799	1.6	115,799	n/a
Barren	0	0.0	-	-	37,402	0.5	37,402	n/a
Open Water	425,582	5.8	-	-	576,353	7.8	150,771	35.4
Unclassified	15,156	0.2	-	-	960	0.0	-14,196	-93.7
<b>Totals</b>	<b>7,363,644</b>	<b>100.0</b>	-	-	<b>7,363,644</b>	<b>100.0</b>	-	-
Cover Type	NLCD 2001 (compared to GAP 1992)				NLCD 2006 (compared to NLCD 2001)			
	Acres	% of Total	Acres Change	% Change	Acres	% of Total	Acres Change	% Change
Upland Forest	3,480,330	47.3	-448,503	-11.4	3,439,594	46.7	-40,736	-1.2
Upland Shrub	472,971	6.4	45,598	10.7	473,577	6.4	605	0.1
Upland Grass	166,443	2.3	-125,925	-43.1	186,589	2.5	20,146	12.1
Lowland Vegetation	2,424,108	32.9	545,841	29.1	2,440,580	33.1	16,472	0.7
Agriculture	14,534	0.2	-91,755	-86.3	14,843	0.2	309	2.1
Developed	182,030	2.5	66,231	57.2	183,665	2.5	1,635	0.9
Barren	40,963	0.6	3,561	9.5	46,510	0.6	5,548	13.5
Open Water	581,902	7.9	5,549	1.0	577,923	7.8	-3,979	-0.7
Unclassified	363	0.0	-597	-62.2	363	0.0	0	0.0
<b>Totals</b>	<b>7,363,644</b>	<b>100.0</b>	-	-	<b>7,363,644</b>	<b>100.0</b>	-	-

# **Watersheds**

## **Northeast Landscape Region**

### **Lake Superior Basin**

Lake Superior North  
Lake Superior South  
Cloquet River  
St. Louis River

### **Rainy River Basin**

Rainy River – Rainy Lake  
Rainy River – Headwaters  
Littlefork River  
Vermilion River

### **St. Croix Basin**

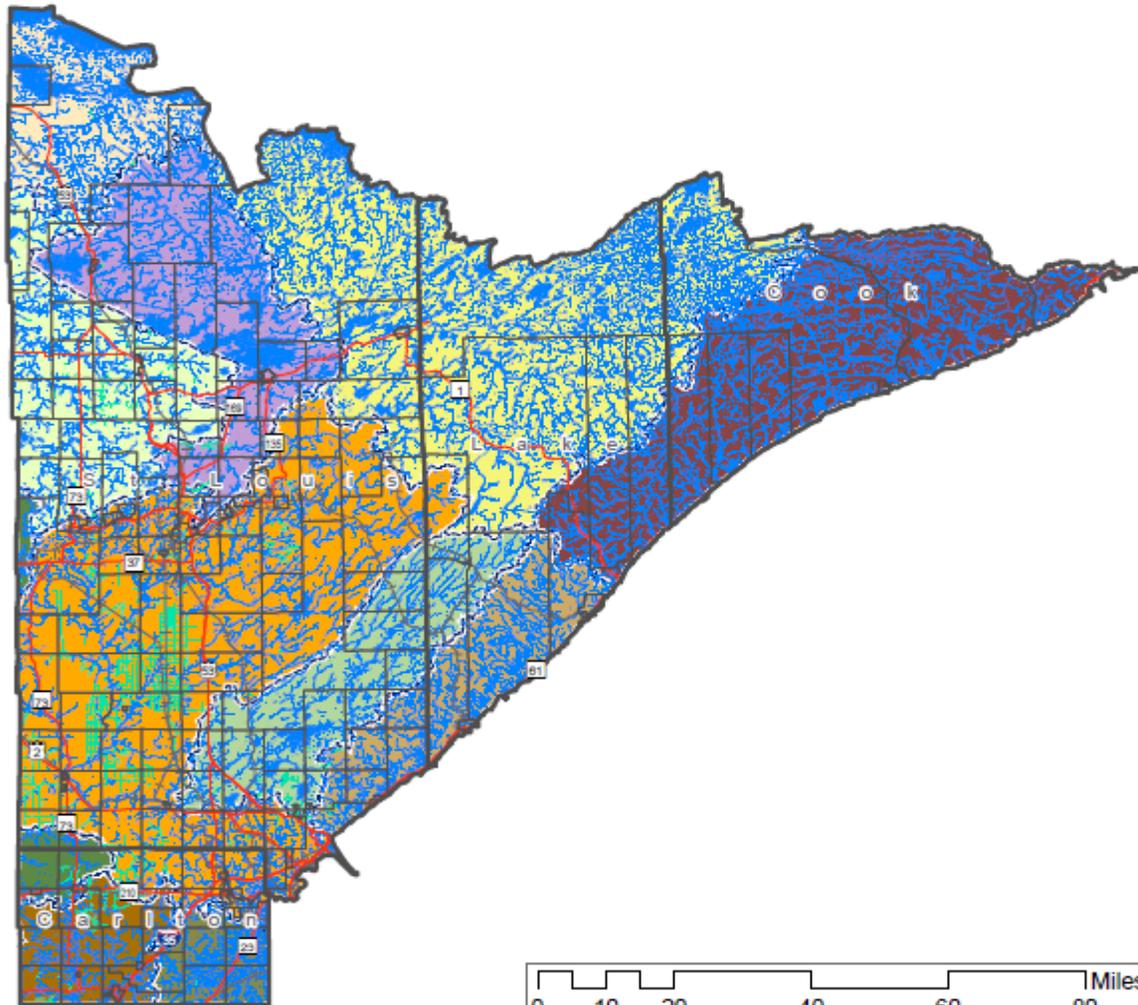
Kettle River  
Nemadji River

### **Upper Mississippi River Basin**

Mississippi River - Grand Rapids

# Major Watersheds

## Northeast Landscape Region



**Legend**

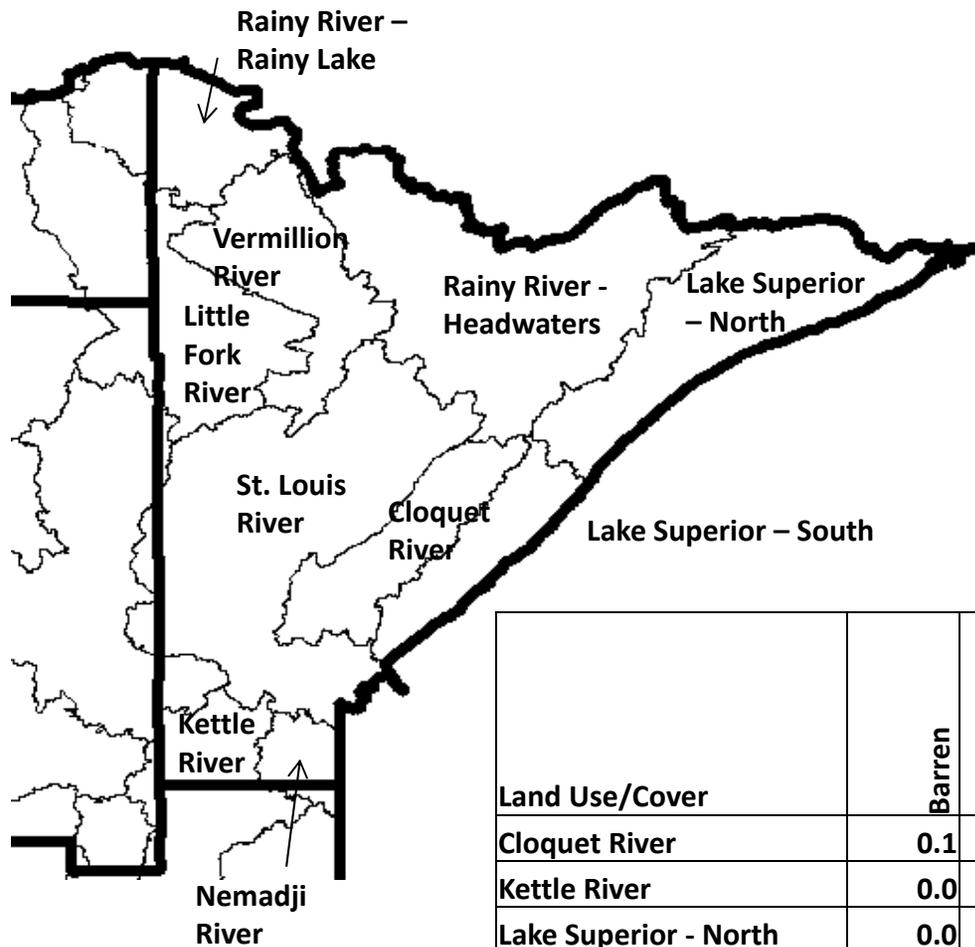
**DNR Level 04 - HUC 08 - Majors**

- Cloquet River
- Kettle River
- Lake Superior - North
- Lake Superior - South
- Little Fork River
- Mississippi River - Grand Rapids
- Nemadji River
- Rainy River - Headwaters
- Rainy River - Rainy Lake
- St. Louis River
- Vermilion River
- Lakes
- River
- Stream (Perennial)
- Stream (Intermittent)
- Drainage Ditch (Perennial)
- Drainage Ditch (Intermittent)



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## Land Use/Cover by Watershed

Percent of Watershed

Land Use/Cover	Barren	Crops	Developed	Forest	Grassland	Open Water	Shrub	Wetlands
Cloquet River	0.1	0.1	2.0	78.9	2.3	6.0	8.1	2.5
Kettle River	0.0	2.2	4.0	62.8	13.6	2.6	4.2	10.6
Lake Superior - North	0.0	0.0	1.9	83.5	0.4	6.0	7.5	0.6
Lake Superior - South	0.3	0.2	5.8	76.9	2.8	1.0	11.7	1.2
Little Fork River	0.8	0.5	1.7	80.8	2.2	2.5	5.6	5.9
Nemadji River	0.0	1.0	2.9	72.3	10.2	1.7	7.4	4.5
Rainy River - Headwaters	0.2	0.0	1.1	78.0	0.4	14.2	5.1	1.1
Rainy River - Rainy Lake	0.0	0.3	0.9	73.7	1.2	16.6	2.1	5.2
St. Louis River	1.4	0.3	4.2	75.3	4.3	3.4	6.0	5.1
Vermillion River	0.3	0.1	1.4	74.5	0.7	13.1	6.4	3.4

# **FIA Data**

## **MFRC Landscape Program**

### **FIA Inventories**

1934 - 1936

1953

1962

1977

1990

1999-2003

2004-2008

2009-

## FIA estimates of land use in the Northeast Landscape

Land use	NE Landscape	Carlton	Cook	Lake	St. Louis
	<b>2010</b>				
<b>Total</b>	7,348,736	566,346	1,034,774	1,437,514	4,310,101
<b>All forestland</b>	5,682,348	356,218	897,612	1,248,413	3,180,105
<b>Timberland</b>	4,580,364	346,902	603,256	913,953	2,716,252
<b>Other forestland</b>	213,804	3,095	15,354	53,851	141,504
<b>Reserved productive forestland</b>	859,075	6,221	271,737	266,080	315,037
<b>Reserved other forestland</b>	29,105	-	7,265	14,529	7,312
<b>Nonforest</b>	1,070,704	199,703	31,252	64,837	774,912
<b>Non-Census water</b>	68,121	3,515	10,104	13,860	40,642
<b>Census water</b>	527,563	6,909	95,807	110,404	314,443
	<b>2003</b>				
<b>Total</b>	7,368,179	540,513	1,038,194	1,437,904	4,351,568
<b>All forestland</b>	5,484,718	307,385	865,261	1,191,648	3,120,425
<b>Timberland</b>	4,431,726	300,103	595,851	889,266	2,646,506
<b>Other forestland</b>	178,769	7,282	10,471	51,514	109,503
<b>Reserved productive forestland</b>	840,726	-	248,448	239,365	352,913
<b>Reserved other forestland</b>	33,497	-	10,491	11,503	11,503
<b>Nonforest</b>	1,219,749	227,625	43,500	94,520	854,104
<b>Non-Census water</b>	128,865	1,284	31,033	26,558	69,989
<b>Census water</b>	534,848	4,219	98,402	125,179	307,049
	<b>Change (2003 to 2010 in %)</b>				
<b>Total</b>	-0.3	4.8	-0.3	0.0	-1.0
<b>All forestland</b>	3.6	15.9	3.7	4.8	1.9
<b>Timberland</b>	3.4	15.6	1.2	2.8	2.6
<b>Other forestland</b>	19.6	-57.5	46.6	4.5	29.2
<b>Reserved productive forestland</b>	2.2		9.4	11.2	-10.7
<b>Reserved other forestland</b>	-13.1		-30.8	26.3	-36.4
<b>Nonforest</b>	-12.2	-12.3	-28.2	-31.4	-9.3
<b>Non-Census water</b>	-47.1	173.8	-67.4	-47.8	-41.9
<b>Census water</b>	-1.4	63.8	-2.6	-11.8	2.4

## Definitions, etc.

**Note: Methods of estimating area in these categories have changed over time. As a result, estimates of area may have changed while actual areas did not. For example, estimated total land area in the Northeast Landscape varied from 7,118,303 acres (1977) to 7,368,179 (2003) but the the Northeast Landscape did not change in extent.**

Forest land - Land with at least 10 percent cover (or equivalent stocking) by live trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. To qualify, the area must be at least 1.0 acre in size and 120.0 feet wide. Forest land includes transition zones, such as areas between forest and nonforest lands that have at least 10 percent cover (or equivalent stocking) with live trees and forest areas adjacent to urban and built-up lands. Roadside, streamside, and shelterbelt strips of trees must have a width of at least 120 feet and continuous length of at least 363 feet to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if they are <120 feet wide or an acre in size. Tree-covered areas in agricultural production settings, such as fruit orchards, or tree-covered areas in urban settings, such as city parks, are not considered forest land.

Nonforest land - Any land within the sample that does not meet the definition of accessible forest land or any of the other types of basic land covers. To qualify, the area must be at least 1.0 acre in size and 120.0 feet wide, with some exceptions that are described in the document "Forest inventory and analysis national core field guide, volume 1: field data collection procedures for Phase 2 plots, version 4.0." (<http://www.fia.fs.fed.us/library/field-guides-methods-proc/>.) Evidence of "possible" or future development or conversion is not considered. A nonforest land condition will remain in the sample and will be examined at the next occasion to see if it has become forest land.

Noncensus water - Lakes, reservoirs, ponds, and similar bodies of water 1.0 acre to 4.5 acre in size. Rivers, streams, canals, etc., 30.0 feet to 200 feet wide (1990 U.S. Census definition - U.S. Census Bureau 1994). This definition was used in the 1990 census and applied when the data became available. Earlier inventories defined noncensus water differently.

Census water - Lakes, reservoirs, ponds, and similar bodies of water 4.5 acre in size and larger; and rivers, streams, canals, etc., more than 200 feet wide (1990 U.S. Census definition; U.S. Census Bureau 1994).

## Ownership of forestland in the Northeast Landscape

Owner	Forestland (acres)					% of NE Landscape Forestland				
	NE Landscape	Carlton	Cook	Lake	St. Louis	NE Landscape	Carlton	Cook	Lake	St. Louis
	<b>2010</b>									
County/Municipal	1,157,898	39,263	9,686	192,290	916,660	20.4	0.7	0.2	3.4	16.1
National Forest	2,035,530		643,380	648,508	743,642	35.8		11.3	11.4	13.1
Other federal	145,001	3,240	9,035	25,581	107,145	2.6	0.1	0.2	0.5	1.9
Private	1,617,028	232,029	138,378	230,245	1,016,376	28.5	4.1	2.4	4.1	17.9
State	726,891	81,686	97,132	151,790	396,282	12.8	1.4	1.7	2.7	7.0
All owners	5,682,349	356,219	897,612	1,248,414	3,180,104	100.0	6.3	15.8	22.0	56.0
	<b>2003</b>									
County/Municipal	987,080	37,689	1,377	168,155	779,860	18.0	0.7	0.03	3.1	14.2
National Forest	1,870,525		579,460	595,390	695,674	34.1		10.6	10.9	12.7
Other federal	173,597	2,989	32,559	10,666	127,382	3.2	0.1	0.6	0.2	2.3
Private	1,585,367	192,901	124,694	218,027	1,049,745	28.9	3.5	2.3	4.0	19.1
State	868,149	73,806	127,169	199,409	467,764	15.8	1.3	2.3	3.6	8.5
All owners	5,484,718	307,385	865,260	1,191,647	3,120,426	100.0	5.6	15.8	21.7	56.9

## Forest cover types in the Northeast Landscape 2010

Covertypes (DNR)	All forestland (acres)					% of Total				
	NE Landscape	Carlton	Cook	Lake	St. Louis	NE Land-scape	Carlton	Cook	Lake	St. Louis
<b>Total</b>	<b>5,682,349</b>	<b>356,219</b>	<b>897,612</b>	<b>1,248,414</b>	<b>3,180,104</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Jack pine	237,005	-	42,187	67,906	126,912	4		5	5	4
Red pine	217,421	10,771	29,582	51,704	125,364	4	3	3	4	4
Eastern white pine	121,578	2,296	19,389	22,377	77,516	2	1	2	2	2
Balsam fir	325,800	1,620	76,719	118,446	129,015	6	0	9	9	4
White spruce	63,690	425	26,059	20,916	16,289	1	0	3	2	1
Black spruce	785,880	19,586	74,374	221,889	470,031	14	5	8	18	15
Tamarack	265,257	21,634	4,102	16,989	222,532	5	6	0	1	7
N white-cedar	222,790	2,908	63,738	53,233	102,911	4	1	7	4	3
Oak	16,702	11,847	-	-	4,855	0	3			0
N hardwoods	366,589	48,602	51,879	105,014	161,095	6	14	6	8	5
Lowland hardwoods	279,381	47,728	22,154	47,764	161,735	5	13	2	4	5
Cottonwood/Willow	52,299	-	-	2,994	49,305	1			0	2
Aspen	1,836,974	148,389	250,384	276,284	1,161,917	32	42	28	22	37
Birch	651,845	23,884	174,729	196,850	256,383	11	7	19	16	8
Balsam poplar	88,614	5,609	7,145	18,688	57,172	2	2	1	1	2
Non stocked	36,667	7,082	10,877	1,224	17,484	1	2	1	0	1
Other	113,856	3,838	44,294	26,135	39,589	2	1	5	2	1

Age class structure of forests in the northeast landscape in 2003 and 2010 as percent of total forestland

