



Rapid Watershed Assessment Lower Chippewa River Watershed

Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best actions to achieve their goals.

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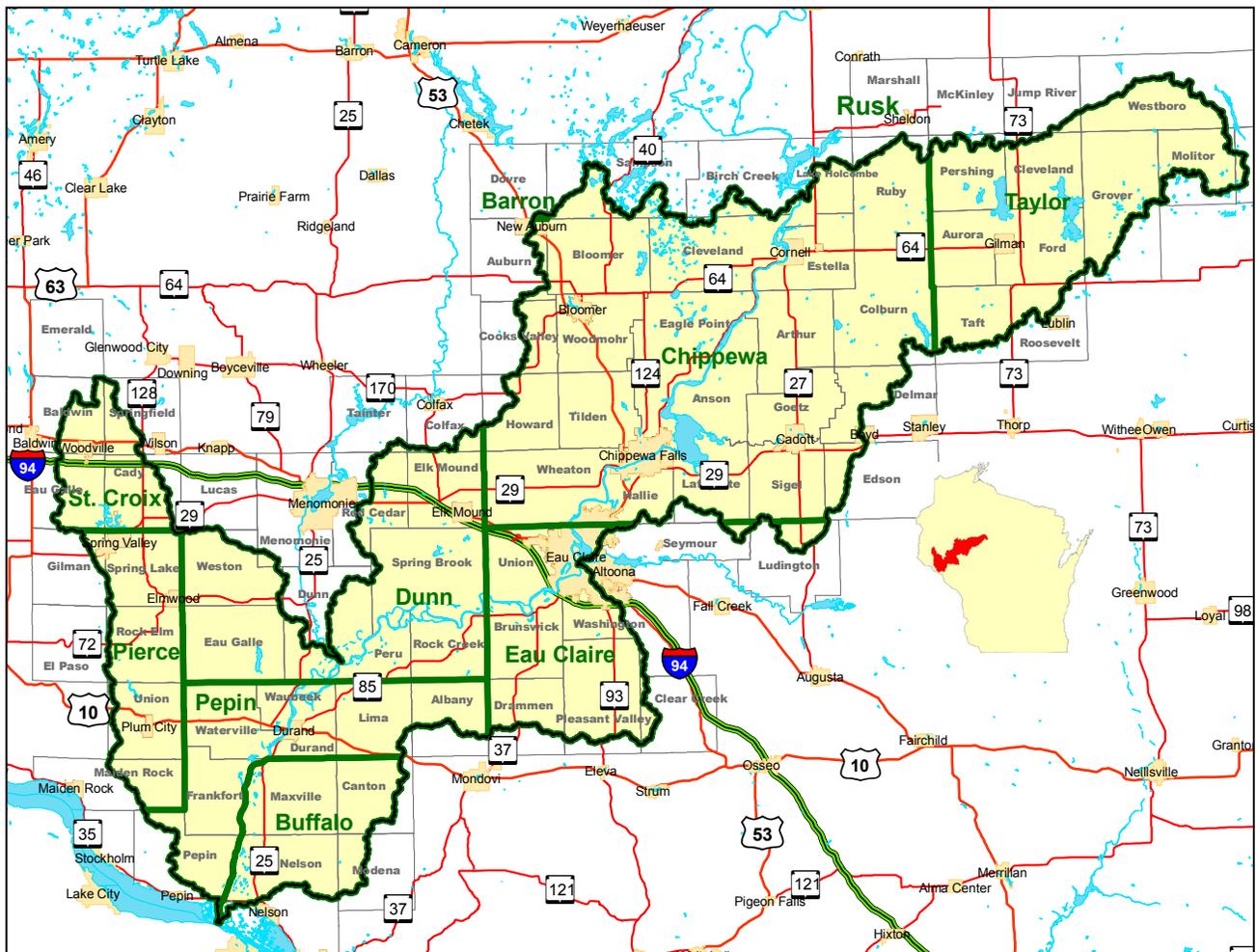
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INTRODUCTION ¹

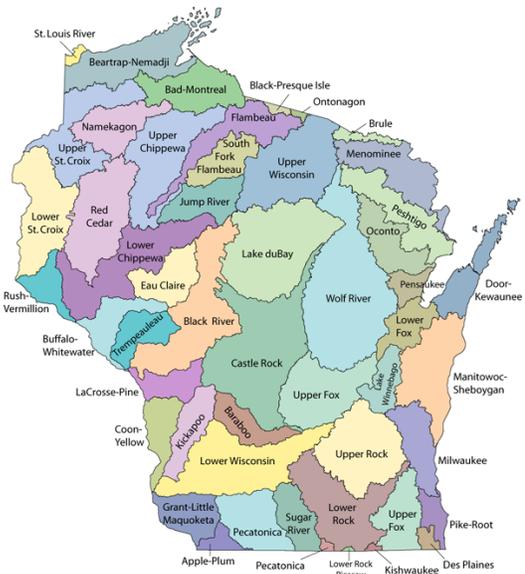
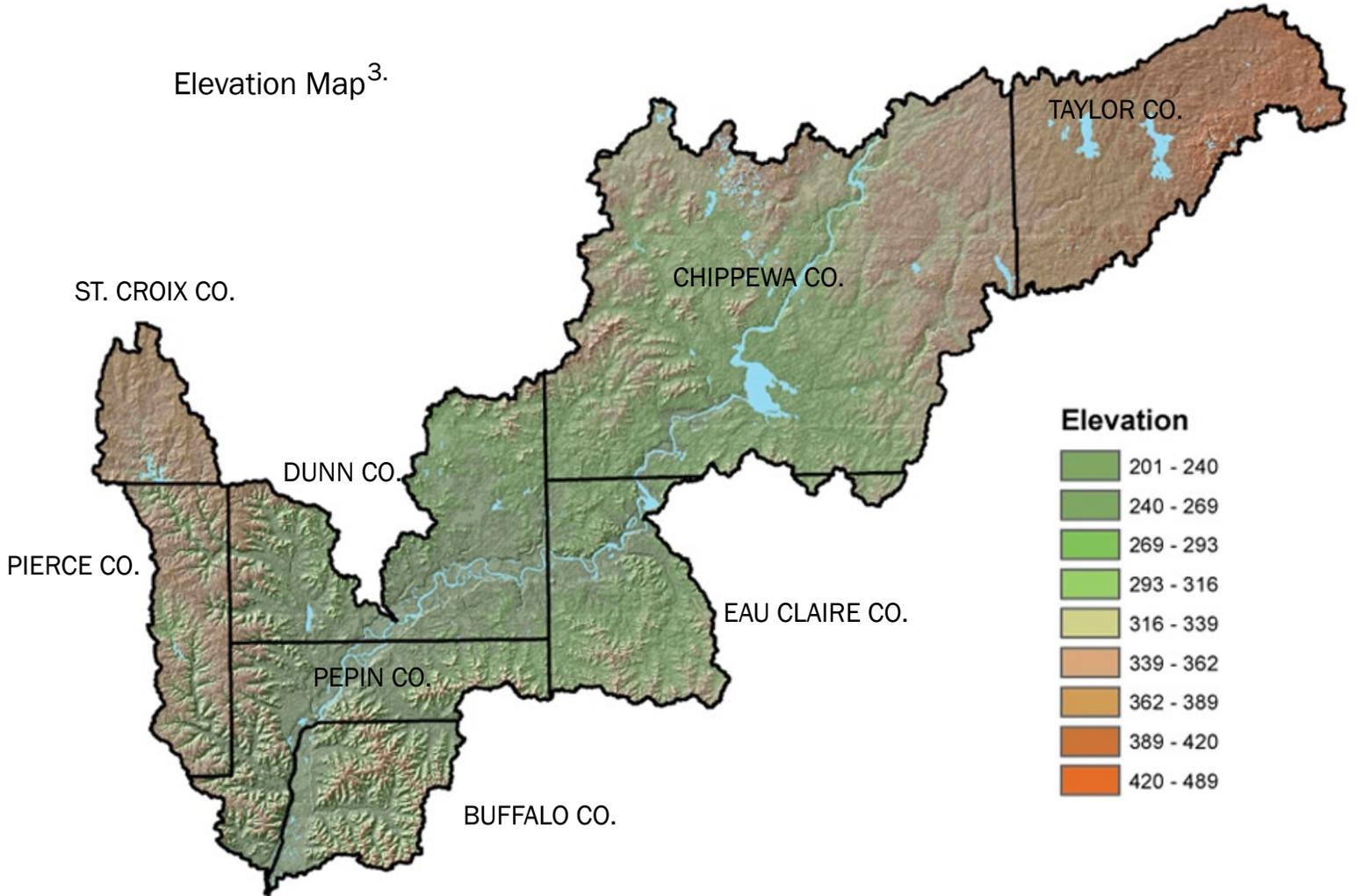
The Lower Chippewa watershed encompasses over 1.3 million acres in northwest Wisconsin, beginning where the Chippewa River leaves Lake Holcombe in Chippewa County. From here it flows southwest and enters the Mississippi River just east of Pepin, in Pepin County. Major tributaries include the Fisher River, Duncan Creek, Elk Creek, and the Eau Galle River. The Eau Claire River and Red Cedar River are also tributaries to the Chippewa River and are categorized as 8-digit hydrologic unit code watersheds themselves. There are several small, natural lakes in northwest Chippewa County, a glaciated landscape, and the watershed transitions into a dendritic drainage pattern as the Chippewa River flows into the Driftless Area to the southwest. There are several impoundments on the Chippewa River with the largest being Lake Wissota, just northeast of Chippewa Falls, at 6,300 acres.

The two largest land uses in the watershed are agriculture, at 58.5% of the watershed, and forestland at 33.5%. Wetlands, open water, and urban areas comprise the rest of the watershed. Farms consist of dairy, cash grain, beef and some irrigated vegetable operations. Major crops include corn, soybeans, and alfalfa.

The major population center of watershed is the city of Eau Claire, with 62,593 residents. Nearby Chippewa Falls has a population of 13,041. The rest of the watershed is largely rural and dotted with several small cities and villages. Agriculture, manufacturing, outdoor recreation, tourism and the timber industry are large components of the regional economy.



Elevation Map³.

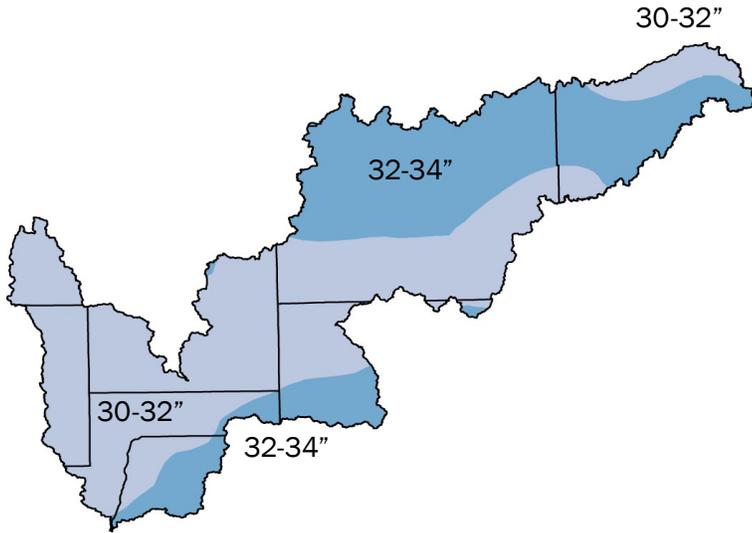


Wisconsin Watershed Map

Acreage in the Lower Chippewa River Watershed

County	County Acres	Acres in HUC	% in HUC	% of County in HUC
Buffalo	453988	76409	6	16.8
Pepin	159159	117389	9	73.8
Eau Claire	412876	120206	9	29.1
Pierce	378821	79781	6	21.1
Dunn	552621	188850	14	34.2
Saint Croix	470634	47812	4	10.2
Chippewa	665988	504199	38	75.7
Taylor	629535	182795	14	29.0
Rusk*	595500	20	0	0.0
Barron*	569207	250	0	0.0

* not shown due to size of acreage



Average Annual Precipitation Map (inches)⁴.

COMMON RESOURCE AREAS².

Common Resource Area delineations are defined as a geographical areas where resource concerns, problems and treatment needs are similar. Common Resource areas are a subdivision of an existing Major Land Resource Area (MLRA). Landscape conditions, soil, climate and human considerations are used to determine the boundary of Common Resource Areas.

90A.1 NORTHERN WISCONSIN GROUND MORaine

Nearly level to moderately steep, loamy, sandy, and organic soils. Mixed deciduous and coniferous forest, common lakes and wetlands. Scattered cropland and pasture.

90B.1 CENTRAL WISCONSIN GROUND MORaine

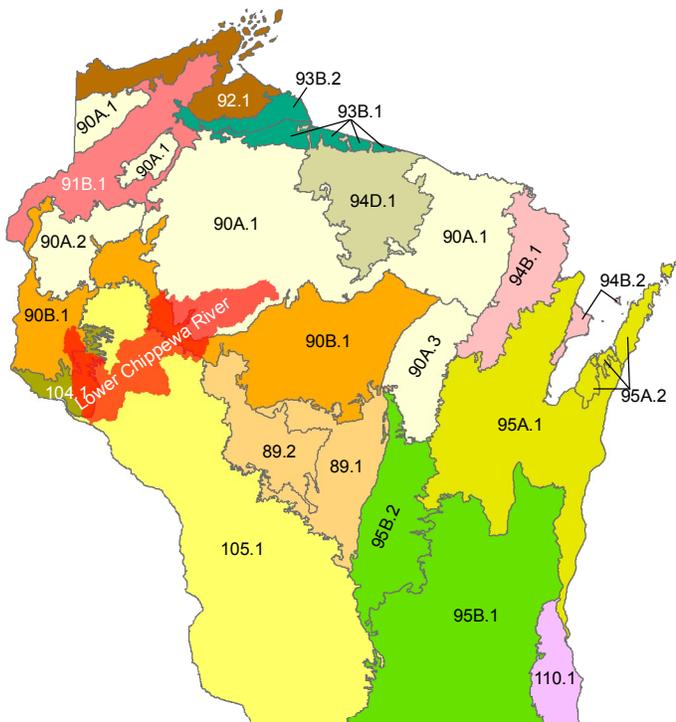
Nearly level and gently sloping loamy soils. Mostly cropland and pasture, with areas of mixed deciduous and coniferous forest, wetlands, and a few lakes. Urban development around Wausau and in St Croix County.

104.1 WEST WISCONSIN TILL PLAIN

Gently sloping to very steep dissected till plain. Mississippi and Chippewa River valleys. Soils formed in thin silty material over loamy till, underlain by sedimentary bedrock. Mostly cropland and pasture on ridgetops, deciduous forest on sideslopes.

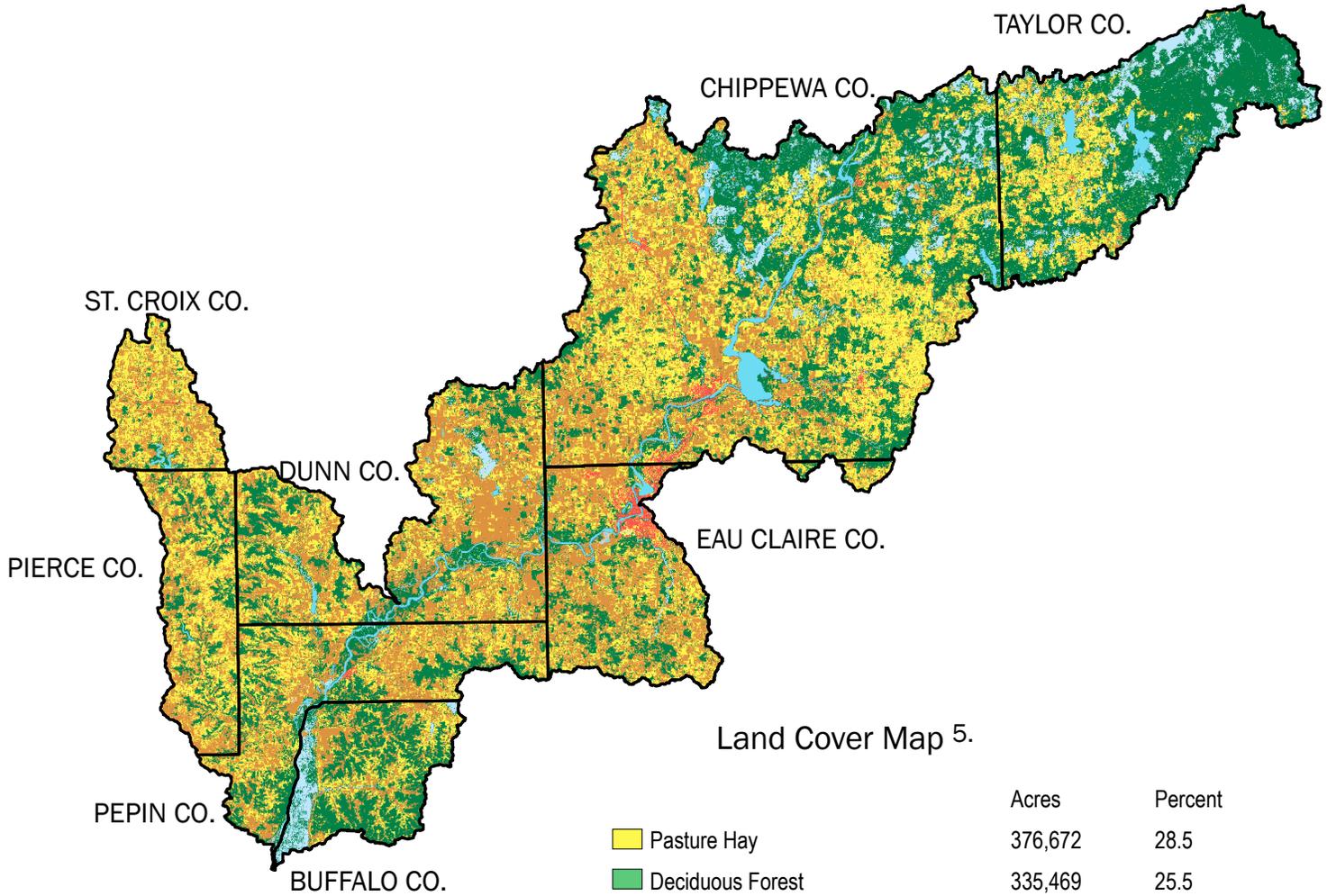
105.1 WEST WISCONSIN DRIFTLESS LOESS HILLS

Highly dissected hills and valleys. Mississippi, Chippewa, and Wisconsin River valleys. Western Baraboo Hills. Silty soils over bedrock residuum. Mostly cropland and pasture on ridgetops, deciduous forest on steep sideslopes. Eau Claire and LaCrosse urban areas.



Common Resource Area Map





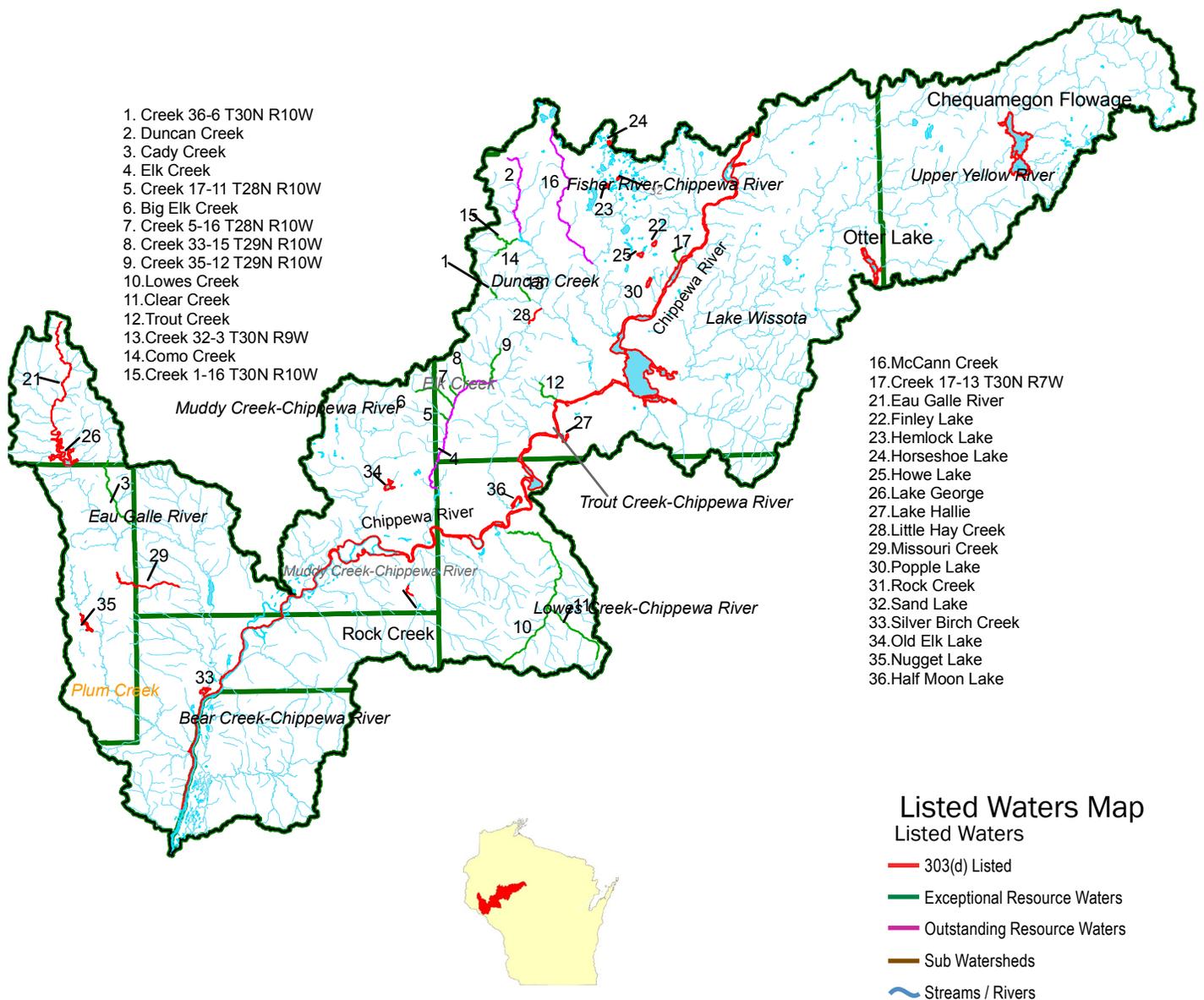
Land Cover Map ⁵.

	Acres	Percent
 Pasture Hay	376,672	28.5
 Deciduous Forest	335,469	25.5
 Row Crops	396,278	30.1
 Open Water	22,658	1.6
 Woody Wetlands	50,745	3.8
 Small Grains	0	0.0
 Emergent Herbaceous Wetlands	9,727	0.7
 Commercial/Industrial / Transport	6,148	0.5
 Grasslands / Herbaceous	2,132	0.2
 Low Intensity Residential	1,068	0.5
 High Intensity Residential	1,280	0.1
 Evergreen Forest	28,796	2.2
 Mixed Forest	78,750	6.0
 Transitional	215	0
 Urban / Recreational Grasses	5,092	0.4
 Quarries / Strip Mines, Gravel Pits	329	0.0
 Bare Rock / Sand / Clay	0	0.0
Total Acres	1,321,366	100



ASSESSMENT OF WATERS ⁶

Section 303(d) of the Clean Water Act states that water bodies that are not meeting their designated uses (fishing, swimming), due to pollutants, must be placed on this list. The 303(d) impaired Waters List is updated every two years. Wisconsin is required to develop TMDLs, Total Maximum Daily Loads, for water bodies on this list. Exceptional Resource Waters (ERW) provide valuable fisheries, hydrologically or geologically unique features, outstanding recreational opportunities, unique environmental settings, and which are not significantly impacted by human activities may be classified as exceptional resource waters. Outstanding Resource waters (ORW) and ERW differ in that ORW do not have an associated point source discharge, where ERWs do.



For information on specific subwatersheds, 303(d) or Exceptional/Outstanding Resource Waters (ERW/ORW):
<http://dnr.wi.gov/water/wm/wqs/303d/faqs.html> and <http://dnr.wi.gov/org/gmu/gpsp/gpbasin/>

SOILS ^{7.}

The soils in this watershed have formed on a variety of different landforms and from a variety of different parent materials.

In the upper part of the watershed the soils formed dominantly on ground moraines and end moraines with interspersed outwash landforms, bogs, and ice-walled lake plains. The less sloping ground moraine is generally mantled with windblown silty material (loess) and underlain by sandy loam and loam till. Steeper areas formed mostly in sandy loam till. Outwash areas are generally sandy and gravelly although some are mantled with silty deposits. The low relief portions of the ice-walled lakes are mantled with silty deposits. Perched water tables are common in this part of the watershed.

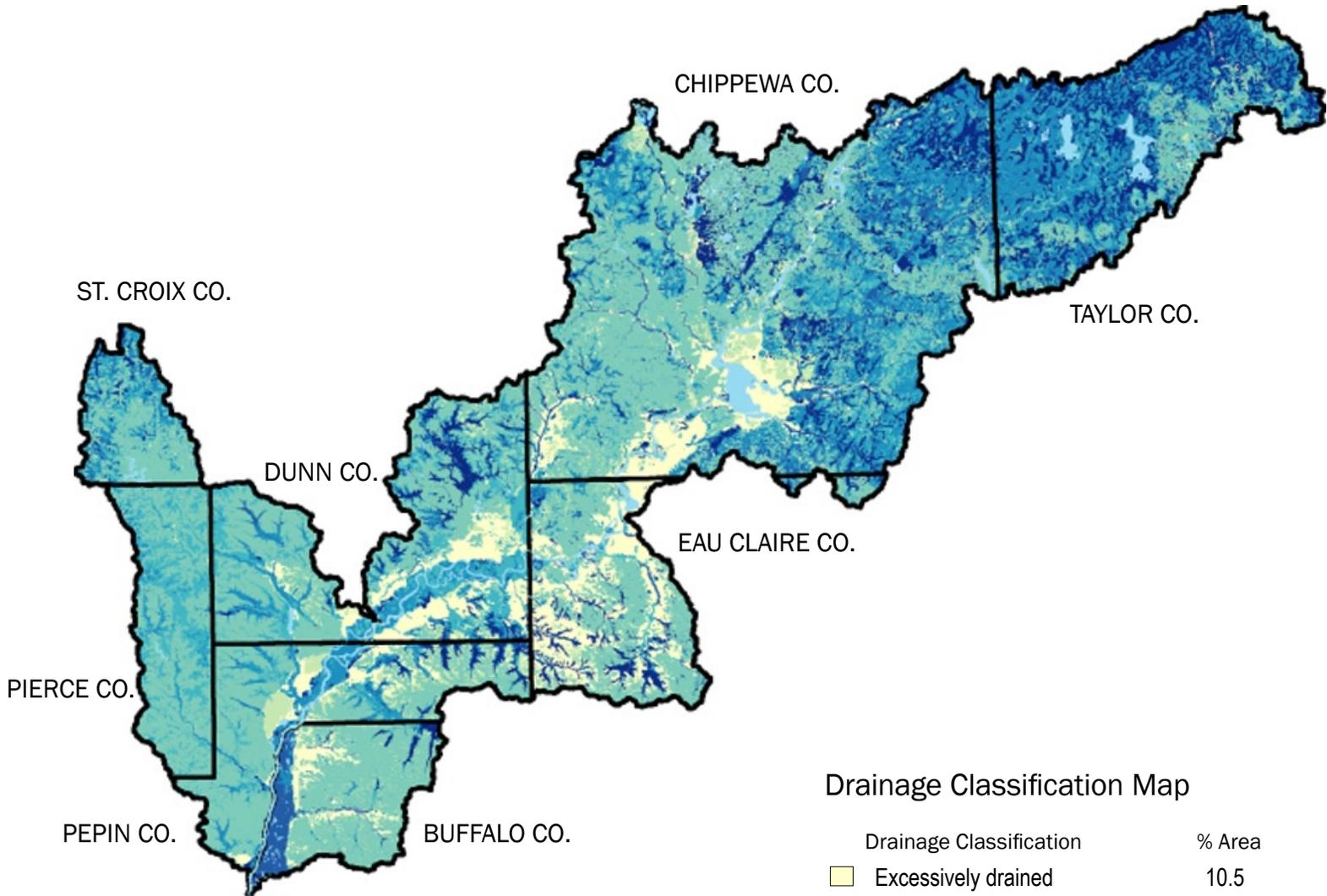
The central part of the watershed is dominantly Cambrian sandstone hills of moderate and steep relief and is dissected by valleys filled with outwash. The highest elevations often have a thin mantle of silty deposits over bedrock and are well drained. Perched water tables are common in the less sloping shaly sandstone formations found at the lowest elevations. The Chippewa River flows through a wide floodplain of sandy and loamy alluvial soils that are often underlain by valuable gravel and cobble deposits. Wetlands are common throughout this part of the watershed.

The lower part of the watershed is characterized by the wide Chippewa River floodplain dissecting the adjacent high relief bedrock-controlled hills. The highest elevations in this part of the watershed are mantled by the indurated Prairie du Chien dolostone and are underlain by the softer Cambrian sandstones. Soils on the stable hill summits formed dominantly in loess overlying clayey pedisegment and dolostone residuum. The highest elevations in the northwestern lobe of the lower watershed are mantled by loess and remnant deposits of till from glacial ice advances which occurred more than 25,000 years ago. Valleys on the north and west side of the Chippewa River contain stream terraces, tributary floodplains, and drainageways containing thick deposits of silty alluvium. Valleys on the south and east side of the river are generally sandy. The uplands in the lower watershed often have 2 to 5 feet of loess and stable summits of hills near the Mississippi River may have 10 feet or more of loess. Erosion, flooding, and sedimentation are major concerns in these areas. Water tables are mostly apparent and wetlands are also common in the valleys of the lower watershed.



DRAINAGE CLASSIFICATION

Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the “Soil Survey Manual.”



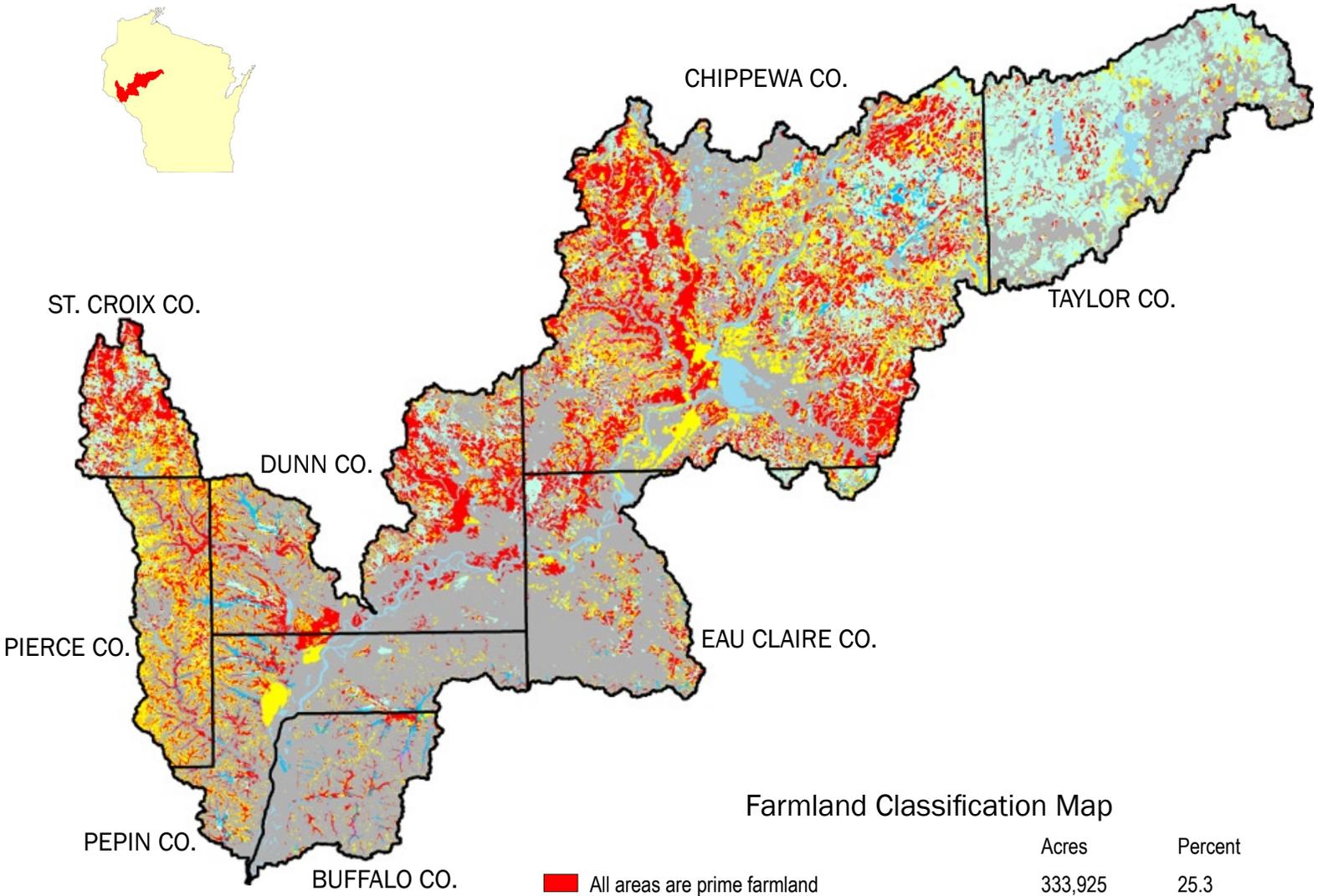
Drainage Classification Map

Drainage Classification	% Area
 Excessively drained	10.5
 Somewhat excessively drained	4.2
 Well drained	33.9
 Moderately well drained	19.3
 Somewhat poorly drained	15.3
 Poorly drained	5.9
 Very poorly drained	8.2
 Unclassified	2.5



FARMLAND CLASSIFICATION

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. Farmland classification identifies the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the Federal Register, Vol. 43, No 21, January 31, 1978.



Farmland Classification Map

	Acres	Percent
 All areas are prime farmland	333,925	25.3
 Farmland of statewide importance	198,692	15.1
 Prime farmland if drained	183,670	13.9
 Not Prime farmland	589,438	44.7
 Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	9,191	0.7

Note:

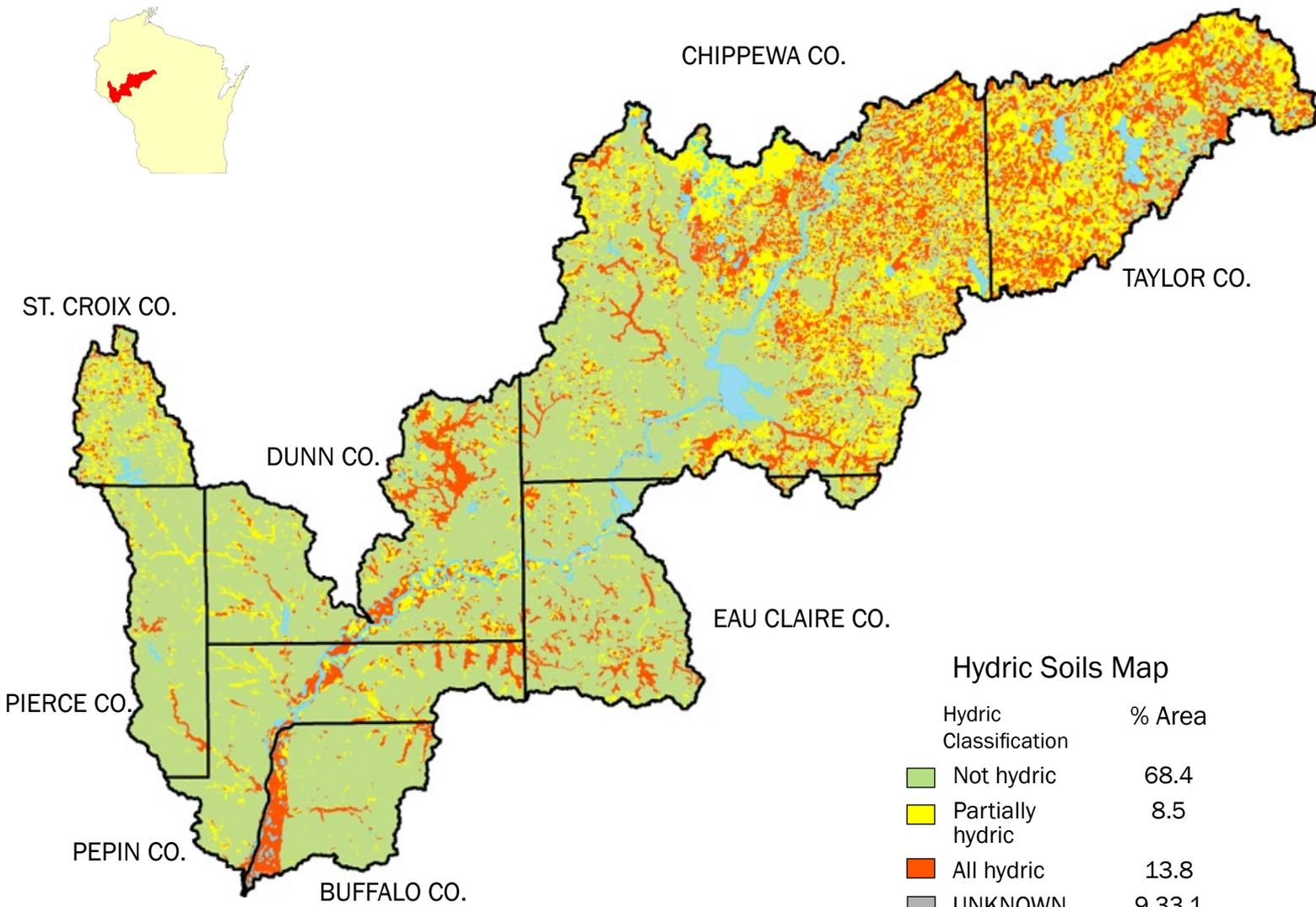
The work to resolve inconsistencies brought on by the county based soil survey approach by implementing the Major Land Resource Area soil survey approach is currently underway. By typifying soil series and mapunit concepts across similar geographic areas instead of by political boundaries, the inconsistencies between counties that exist now will be resolved. Updated soil survey information will be continually made available and can be obtained through the Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables. Visit the Soil Data Mart at <http://soildatamart.usda.gov> to download SSURGO certified soil tabular and spatial data.

HYDRIC SOILS

This rating provides an indication of the proportion of the map unit that meets criteria for hydric soils. Map units that are dominantly made up of hydric soils may have small areas, or inclusions of non-hydric soils in the higher positions on the landform, and map units dominantly made up of non-hydric soils may have inclusions of hydric soils in the lower positions on the landform.

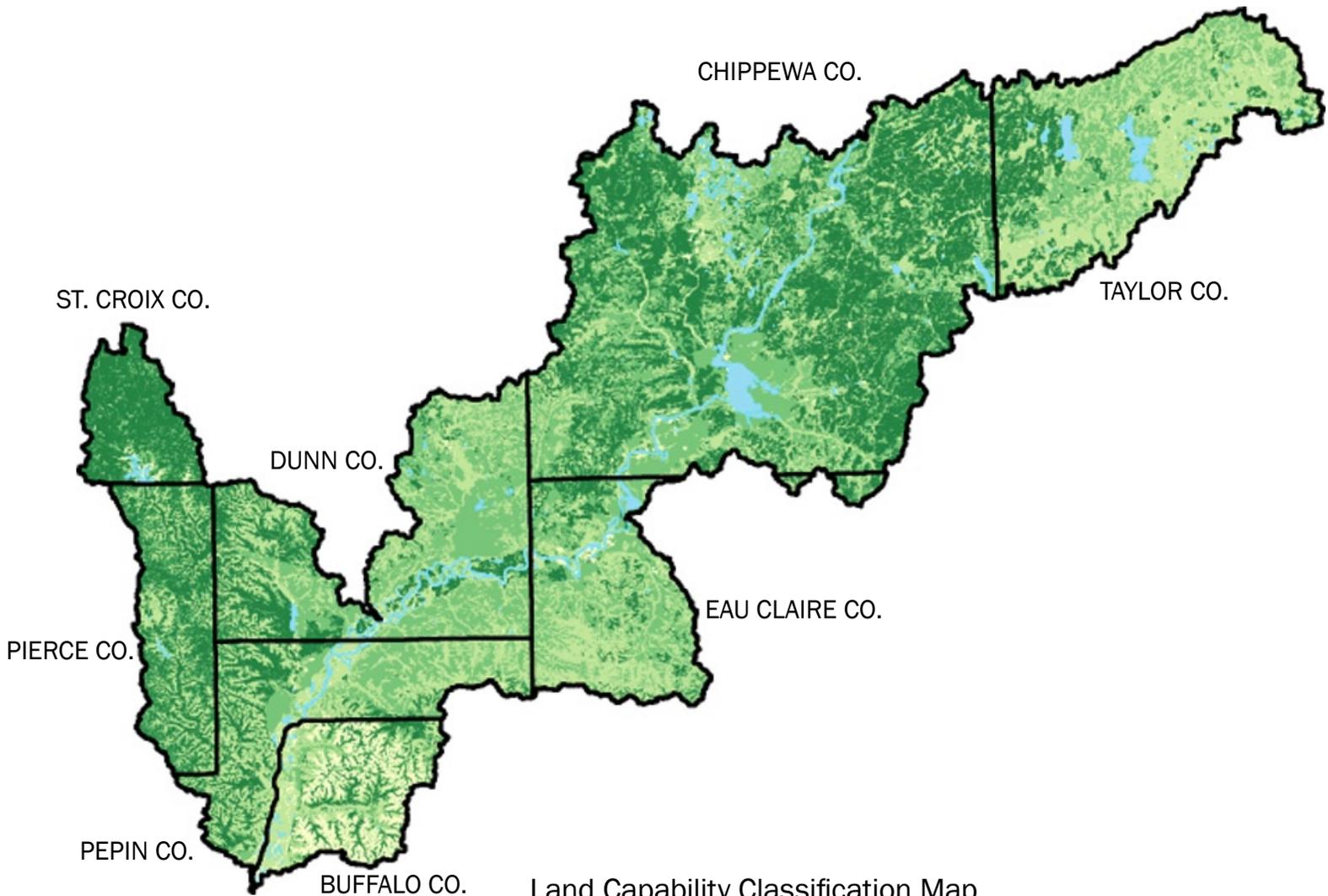
Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make on site determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).



LAND CAPABILITY CLASSIFICATION

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.



Land Capability Classification Map

Land Capability Classification	% Area
Well Suited	25.9
Moderately well suited	42.1
Poorly suited	28.4
Unsuited includes	3.6
Water	



RESOURCE CONCERNS

The major resource concerns from production lands in the watershed include sheet, rill and ephemeral gully erosion and excessive nutrients and organics in surface water and groundwater. Of the wells tested in the watershed, 15% exceed the 10 ppm nitrate drinking water standard. Some best management practices (BMPs) well-suited to address these concerns include mulch-till and no-till planting, nutrient management, grassed waterways, and cover crops. As in other parts of Wisconsin, aquatic and terrestrial invasive species are also a concern.

PERFORMANCE MEASURES ⁸.

PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	TOTAL
Total Conservation Systems Planned (acres)	2,440	25,028	28,330	22,357	24,823	N/A	30,892	133,870
Total Conservation Systems Applied (acres)	2,199	22,693	25,026	22,357	23,208	N/A	24,714	120,197
Conservation Practices								
Total Waste Management (313) (numbers)	0	6	5	1	2	4	2	20
Riparian Forest Buffers (391) (acres)	0	299	835	1,159	741	147	31	3,212
Erosion Control Total Soil Saved (tons/year)	0	59,908	39,656	54,963	28,170	N/A	N/A	182,697
Total Nutrient Management (590) (Acres)	0	10,802	14,331	21,261	10,123	13,152	5,195	74,864
Pest Management Systems Applied (595A) (Acres)	0	2,508	1,222	1,771	5,615	2,256	2,620	15,992
Prescribed Grazing 528a (acres)	290	290	1,682	1,227	1,305	1,785	496	7,075
Tree & Shrub Establishment (612) (acres)	52	757	864	1,248	919	680	122	4,642
Residue Management (329A-C) (acres)	0	7,543	6,720	8,930	6,178	3,825	11,054	44,250
Total Wildlife Habitat (644 - 645) (acres)	38	7,874	4,951	6,894	4,423	55	1,261	25,496
Total Wetlands Created, Restored, or Enhanced (acres)	58	287	274	447	489	402	514	2,471
Acres enrolled in the Farm Bill programs								
Conservation Reserve Program	1,457	6,765	5,002	5,306	1,740	N/A	1,288	21,558
Wetlands Reserve Program	0	300	230	334	451	N/A	778	2,093
Environmental Quality Incentives Program	0	9,881	4,679	5,981	7,539	N/A	7,220	35,300
Wildlife Habitat Incentive Program	0	0	0	0	92	N/A	22	114
Farmland Protection Program	0	0	769	0	0	N/A	97	866

CENSUS AND SOCIAL DATA (RELEVANT)⁹.

There are 3,028 farms in the watershed, covering a total of 335,433 acres. Average farm size in the watershed is 111 acres compared to a statewide average of 201 acres in Wisconsin. Please refer to the tables below for more detailed information or visit the web site of the Wisconsin Office of the National Agricultural Statistics Service at: http://www.nass.usda.gov/Statistics_by_State/Wisconsin/index.asp

2002 Ag Census Data		Barron	Buffalo	Chippewa	Dunn	Eau Claire	Pepin	Pierce	St. Croix	Taylor	Total
Farms by Size	Farms (number)	1647	65	616	236	106	45	91	75	148	3,028
	Land in farms (acres)	26259	18336	142159	55828		10018	16039	12407	36000	335,433
	Total cropland (acres)	13121	2	25	7	4	1	4	4	3	13,171
	Irrigated land (acres)	6	9	90	44	24	9	23	23	22	251
	Principal operator by primary occupation - Farming (number)	49	20	230	95	46	16	37	29	55	578
	Farms by size - 1 to 10 acres	2	25	215	66	26	15	21	14	54	438
	Farms by size - 11 to 49 acres	10	8	43	15	4	3	4	3	9	100
	Farms by size - 50 to 179 acres	42	2	13	8	1	1	2	1	3	74
	Farms by size - 180 to 499 acres	35	9689	90783		11972	6209	10929	9312	18647	193,257
	Farms by size - 500 to 999 acres	9	132	1184	3625	246	55	5	159	2	5,417
	Farms by size - 1,000 acres or more	3	43	423	132	59	27	49	38	96	869
Livestock and Poultry	Livestock and poultry - Cattle and calves inventory (farms)	58	36	408	114	50	25	43	32	92	859
	Livestock and poultry - Cattle and calves inventory - Beef cows (farms)	45	16	135	50	20	9	18	15	26	333
	Livestock and poultry - Cattle and calves inventory - Milk cows (farms)	9	15	214	45	21	11	15	10	49	391
	Livestock and poultry - Hogs and pigs inventory (farms)	2	2	18	7	5	2	3	2	5	47
	Livestock and poultry - Sheep and lambs inventory (farms)	1	1	16	6	4	1	3	2	4	39
	Livestock and poultry - Layers 20 weeks old and older inventory (farms)	6	3	28	14	7	2	5	3	10	77
	Livestock and poultry - Broilers and other meat-type chickens sold (farms)	1	2	10	4	2	0	1	1	2	23
Selected Crops Harvested	Selected crops harvested - Corn for grain (acres)	343	2760	24898		2962	2059	3541	2399	2760	51,773
	Selected crops harvested - Corn for silage or greenchop (acres)	415	537	6435	1646	363	371	471	541	1565	12,344
	Selected crops harvested - Wheat for grain, all (acres)	0	8	191	209	0	0	32	132	10	581
	Selected crops harvested - Wheat for grain, all - Winter wheat for grain (acres)	0	0	147	162	0	0	14	129	10	462
	Selected crops harvested - Wheat for grain, all - Spring wheat for grain (acres)	0	0	44	46	0	0	18	3	0	112
	Selected crops harvested - Oats for grain (acres)	191	223	2818	949	392	165	421	258	404	5,821
	Selected crops harvested - Barley for grain (acres)	199	42	358	123	74	14	77	25	113	1,027
	Selected crops harvested - Soybeans for beans (acres)	0	1157	8545	5217	1612	907	1492	1273	1526	21,728
	Selected crops harvested - Forage - land used for all hay and all haylage, grass silage, and greenchop (see text) (acres)	8858	3174	31986	9176	3462	1939	2802	2321	8432	72,149
	Selected crops harvested - Vegetables harvested for sale (see text) (acres)	7	8	164	329	52	17	6	208	8	800
	Selected crops harvested - Land in orchards (acres)	5	0	115	22	12	0	8	0	4	166

POPULATION ETHNICITY^{10.}

Total Population = 164,428
 Urban population = 35,173
 Rural Population = 129,253
 White alone = 154,253
 Hispanic or Latino = 1,973
 Two or more races = 1,555
 Black or African American alone = 285
 Some other race alone = 832
 American Indian and Alaska Native alone = 6,821
 Asian Alone = 658
 Native Hawaiian and Other Pacific Islander alone = 32

URBAN POPULATION^{11.}

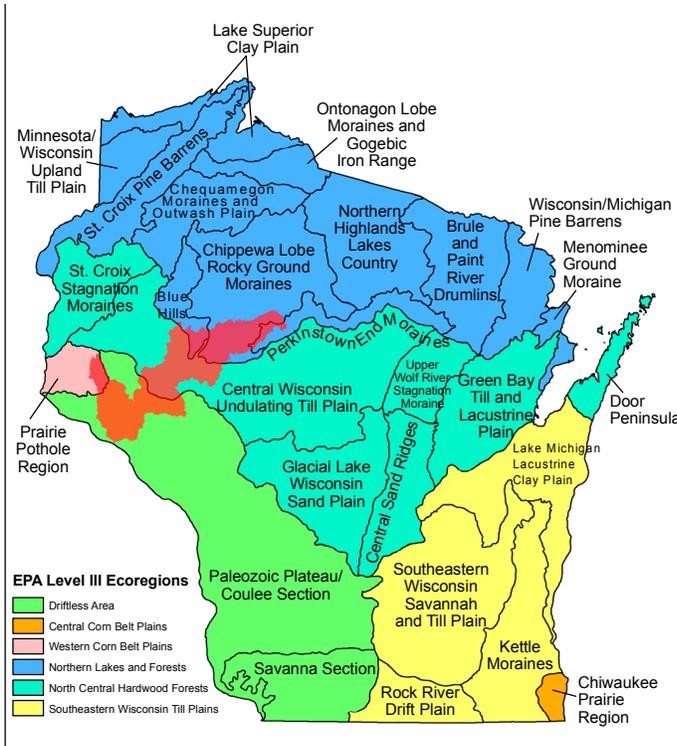
Name	1990	2000	2004	Median Income*
Bloomer	3,085	3,393	3,290	38,715
Boyd	683	678	649	37,250
Cadott	1,328	1344	1309	33,295
Chippewa Falls	12,727	13223	13041	32,744
Cornell	1,541	1,463	1,402	30,690
Durand	2,003	1,956	1,935	30,064
Eau Claire	56,856	62,018	62,593	36,399
Elk Mound	765	786	826	36,513
Elmwood	775	839	803	33,558
Gilman	412	474	461	32,708
New Auburn	485	562	543	30,341
Plum City	534	577	580	38,438
Spring Valley	1,051	1,192	1,254	38,482
Woodville	942	1,111	1,254	38,828

12.

ECOLOGICAL LANDSCAPES
GENERAL DESCRIPTIONS

PRAIRIE POTHOLE REGION

The Prairie Pothole Region is characterized by smooth to undulating topography, productive prairie soils, and loess- and till-capped dolomite bedrock. The potential natural vegetation is predominantly tall grass prairie with a gradual transition eastward to more mixed hardwoods, distinguishing this region from the greater concentration of mixed hardwoods of both St. Croix Stagnation Moraines to the north and the Central Wisconsin Undulating Till Plain to the east, and the mixed prairie and oak savanna of Coulee Section to the south.



PALEOZOIC PLATEAU/COULEE REGION

Dissected slopes and open hills with most of the gentle slope on the lowland characterize the Coulee Section ecoregion. Soils are well drained silty loess over residuum, limestone, sandstone or shale, with soils over quartzite in the Baraboo Hills area. Land use in the region is predominantly mixed agriculture/woodland, with most of the agriculture occurring on the lowlands and more level hilltops. The potential natural vegetation of this Coulee Section ecoregion is a mosaic of oak forests and prairie, with larger areas of sugar maple/basswood/oak forests than in Savanna Section ecoregion.

BLUE HILLS

The Blue Hills ecoregion has greater relief and a higher concentration of lakes than most surrounding ecoregions, and it contains lakes with generally lower trophic states than those of adjacent ecoregions to the east, south, and southwest. End moraines, hummocky hills and depressions, along with areas of Precambrian intrusives are common to Blue Hills as compared to the predominantly rocky ground moraines in to the east. Periodic outcrops of pink quartzite have influenced the topography of the region. The Blue Hills region supports a potential natural vegetation of hemlock/sugar maple/yellow birch, white pine and red pine forests, a transition from predominantly hemlock/sugar maple/pine forests of ecoregions in the east to sugar-maple/basswood/oak forests, oak forests, and prairie vegetation of the North Central Hardwood Forest regions to the west.

CHIPPEWA LOBE ROCKY GROUND MORAINES

Much of the Chippewa Lobe Rocky Ground Moraines ecoregion is comprised of productive but rocky soils, scattered wetlands, extensive eskers and drumlins, and outwash plains. This ecoregion has a considerably lower density of lakes that generally have higher trophic states than the Chequamegon Moraine and Outwash Plains, the Blue Hills, the Northern Highlands Lake Country, and the Perkinstown End Moraine ecoregions. The rocky soils of this region are a contrast with the well-drained loamy soils in of the Blue Hills region and the sandy soils in the Northern Highlands Lake Country. This ecoregion also supports a potential natural vegetation mosaic of northern mesic forest (hemlock/sugar maple/yellow birch/white and red pine) and wetland vegetation (swamp conifers/white cedar/black spruce), compared to the predominantly red and white pine forest of the Northern Highlands Lake Country and the lower hemlock component of forests in Blue Hills and Perkinstown End Moraine ecoregions central wisconsin undulating till plain

PERKINSTOWN END MORAIN

The Perkinstown End Moraine ecoregion is characterized by hilly to rolling collapsed moraines with outwash sand and gravel and Precambrian intrusive rocks. Relief in this ecoregion is greater than in surrounding regions. The soils are coarse, loamy, and moderate to well drained, over till, in contrast to the more rocky and poorly drained soils of Chippewa Lobe Rocky Ground Moraine region to the south. In addition, this ecoregion has fewer lakes than adjacent level IV ecoregions in the Northern Lakes and Forests.

WATERSHED ASSESSMENT

To assess a watershed's agricultural nonpoint pollution potential, a model was used to generate a watershed assessment score relative to other 8-digit watersheds in Wisconsin. Factors used in the model include acres of cropland, acres of highly erodible land (HEL), and the number of animal units in the watershed. Scores ranged from 0.0 (lowest conservation need) to 24.2 (highest conservation need). The scores may be useful in determining funding allocations on a watershed basis for agricultural nonpoint pollution control initiatives. The model does not attempt to measure pollution levels and does not reflect pollution potential from point sources of pollution or other nonpoint pollution sources beyond the above criteria.

The watershed assessment score for the Wolf River Watershed is 15.9.

WATERSHED PROJECTS, STUDIES, MONITORING, ETC.

Since 1990 there have been two Wisconsin Department of Natural Resources (WDNR) Priority Watershed projects in the Lower Chippewa watershed. Both projects, Duncan Creek and Lowes Creek, are completed and provided cost-sharing and technical assistance to landowners for the implementation of BMPs. The watershed projects were carried out through county land/soil and water conservation departments and other partners. In 2004 and 2005, sign-ups were held for the NRCS Conservation Security Program in the Lower Chippewa watershed, one of 22 pilot watersheds in the country. It is unique among programs in that it rewards farmers that have already addressed resource concerns while other programs provide incentives to fix resource problems.

Nearly the entire area of the watershed is within the eligible area of the Conservation Reserve Enhancement Program (CREP). CREP is a local, state, and federal partnership effort that builds upon the USDA Conservation Reserve Program (CRP). Practices such as filter strips, riparian buffers, and grassed waterways are available to landowners who agree to a fifteen year agreement that involves installation, practice, and annual payments with the option of a perpetual easement.

The Discovery Farms Program also has an active BMP and water quality monitoring program in the watershed, on a farm in Dunn County.

The WDNR conducts water quality monitoring in the watershed each year. The WDNR Surface Water Data Viewer (SWDV) is an online interactive mapping tool with multiple water-related datasets. (<http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer>)

PARTNER GROUPS

- Discovery Farms <http://www.uwdiscoveryfarms.org/index.htm>
- River Alliance of Wisconsin <http://www.wisconsinrivers.org/>
- River Country Resource Conservation and Development Council <http://www.rivercountryrcd.org/>
- Trout Unlimited <http://www.wisconsintu.org/chapters.htm>
 - Kiap-TU-Wish Chapter www.lambcom.net/kiaptuwish/
 - Wisconsin Clear Waters Chapter
- USDA Farm Service Agency <http://www.fsa.usda.gov/wi/news/default.asp>,
- US Fish and Wildlife Service <http://www.fws.gov/midwest>
- USDA-Natural Resources Conservation Service <http://www.wi.nrcs.usda.gov>
- University of Wisconsin Cooperative Extension <http://www.uwex.edu/ces/> and <http://basineducation.uwex.edu>
- West Central Wisconsin Regional Planning Commission <http://wcrpc.org/>
- Wisconsin Department of Agriculture, Trade, and Consumer Protection <http://www.datcp.state.wi.us>
- Wisconsin Department of Natural Resources <http://dnr.wi.gov/>
- Wisconsin Land and Water Conservation Association (County Land Conservation Committee organization)
www.wlwca.org
 - Land and Water Conservation Directory <http://datcp.state.wi.us/arm/agriculture/land-water/conservation/pdf/ar-pub-119-2007.pdf>

FOOTNOTES/BIBLIOGRAPHY

Sources:

1. "The State of the Lower Chippewa River" 2001, WDNR <http://www.dnr.state.wi.us/org/gmu>
"All data is provided "as is." There are no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for general planning purposes only.
2. Common Resource Area (CRA) Map delineations are defined as geographical areas where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) map delineation or polygon. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a Common Resource Area. Online linkage: <http://soils.usda.gov/survey/geography/cra.html>.
3. The relief map was created using the National Elevation Dataset (NED) 1 arc second, approximately 30 meters, digital elevation model (DEM) raster product assembled by the U.S. Geological Survey (USGS). A hillshade grid was derived from the 30m DEM and draped over the DEM to symbolize the map and create a 3-D effect. The data was downloaded from the NRCS Geospatial Data Gateway <http://datagateway.nrcs.usda.gov/>. For more information about NED visit <http://ned.usgs.gov/>.
4. Average Annual Precipitation data was originated by Chris Daly of Oregon State University and George Taylor of the Oregon Climate Service at Oregon State University and published by the Water and Climate Center of the Natural Resources Conservation Service in 1998. Annual precipitation data was derived from the climatological period of 1961-1990. Parameter-elevation Regressions on Independent Slopes Model (PRISM) derived raster data is the underlying data set from which the polygons and vectors were created. For more information about PRISM visit http://www.ocs.orst.edu/prism/prism_new.html. Precipitation data was downloaded from the NRCS Geospatial Data Gateway <http://datagateway.nrcs.usda.gov/>.
5. The Land Use/Land Cover data was generated from the National Land Cover Dataset (NLCD) compiled from Landsat satellite TM imagery (circa 1992) with a spatial resolution of 30 meters and supplemented by various ancillary data (where available). The data was assembled by the USGS and published in June of 1999. The analysis and interpretation of the satellite imagery was conducted using very large, sometimes multi-state image mosaics. For more information about NLCD visit <http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html>. The data was downloaded from the NRCS Geospatial Data Gateway <http://datagateway.nrcs.usda.gov/>.
6. 303(d) listed streams were derived from the Water Quality Standards Section of the Wisconsin Department of Natural Resources (WDNR) website: [http://dnr.wi.gov/org/water/wm/wqs/303d/Lists303d/Approved_2004_303\(d\)_list.pdf](http://dnr.wi.gov/org/water/wm/wqs/303d/Lists303d/Approved_2004_303(d)_list.pdf). For more information about the individual sub-watersheds visit <http://dnr.wi.gov/org/gmu/gpsp/gpbasin/index.htm>. For a list and explanation of Outstanding and Exceptional Resource Waters visit: <http://dnr.wi.gov/org/water/wm/wqs/orwerw/>.
7. Soil Survey Geographic Database (SSURGO) tabular and spatial data were downloaded for the following surveys:
 - Barron Co. WI (WI005) Published 20061019
 - Buffalo Co., WI (WI011) Published 20061204
 - Dunn Co. WI (WI033) Published 20061031
 - EauClaire Co., WI (WI035) Published 20061101
 - Pepin Co., WI (WI091) Published 20061031
 - Pierce Co., WI (WI093) Published 20061031
 - Rusk Co., WI (WI107) Published 20060921
 - Taylor Co., WI (WI119) Published 20061204

St. Croix Co. WI (WI109) Published 20061019

Metadata and SSURGO data for the aforementioned surveys were downloaded from the NRCS Soil Data Mart at <http://soildatamart.nrcs.usda.gov>. Component and layer tables from the tabular data were linked to the spatial data to derive the soil classifications found in this section. Visit the online Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables.

8. Performance Results System (PRS) data was extracted from the PRS homepage by year, conservation systems and practices and Hydrologic Unit Code (HUC) level. HUC level reporting was not available where N/A is listed. For more information on these and other performance reports visit <http://ias.sc.egov.usda.gov/prshome/>.

9. Ag Census data were downloaded from the National Agricultural Statistics Service (NASS) Website and the data were adjusted by percent of HUC in the county. For more information on individual census queries visit the NASS website at <http://www.nass.usda.gov/>.

10. Population ethnicity data were extracted from the Census 2000 Summary File 3 compiled by the U.S. Census Bureau. The data were adjusted by Block Group percentage in the HUC. Population items were selected from the SF30001 table. For more information on census data and definitions visit <http://www.census.gov/Press-Release/www/2002/sumfile3.html>.

11. Urban population and median household income data were derived from the American FactFinder assembled by the U.S. Census Bureau. American FactFinder is a quick source for population, housing, income and geographic data. For other census items and trends visit http://factfinder.census.gov/home/saff/main.html?_lan

12. Level III and IV Ecoregions Regions of Wisconsin map and descriptions were derived from electronic coverages available from Wisconsin DNR, Bureau of Integrated Science Services Branch in cooperation with the U.S Environmental Protection Agency. For more information visit ftp://ftp.epa.gov/wed/ecoregions/wi/wi_eco_pg.pdf

