Rapid Watershed Assessment
Castle Rock 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.

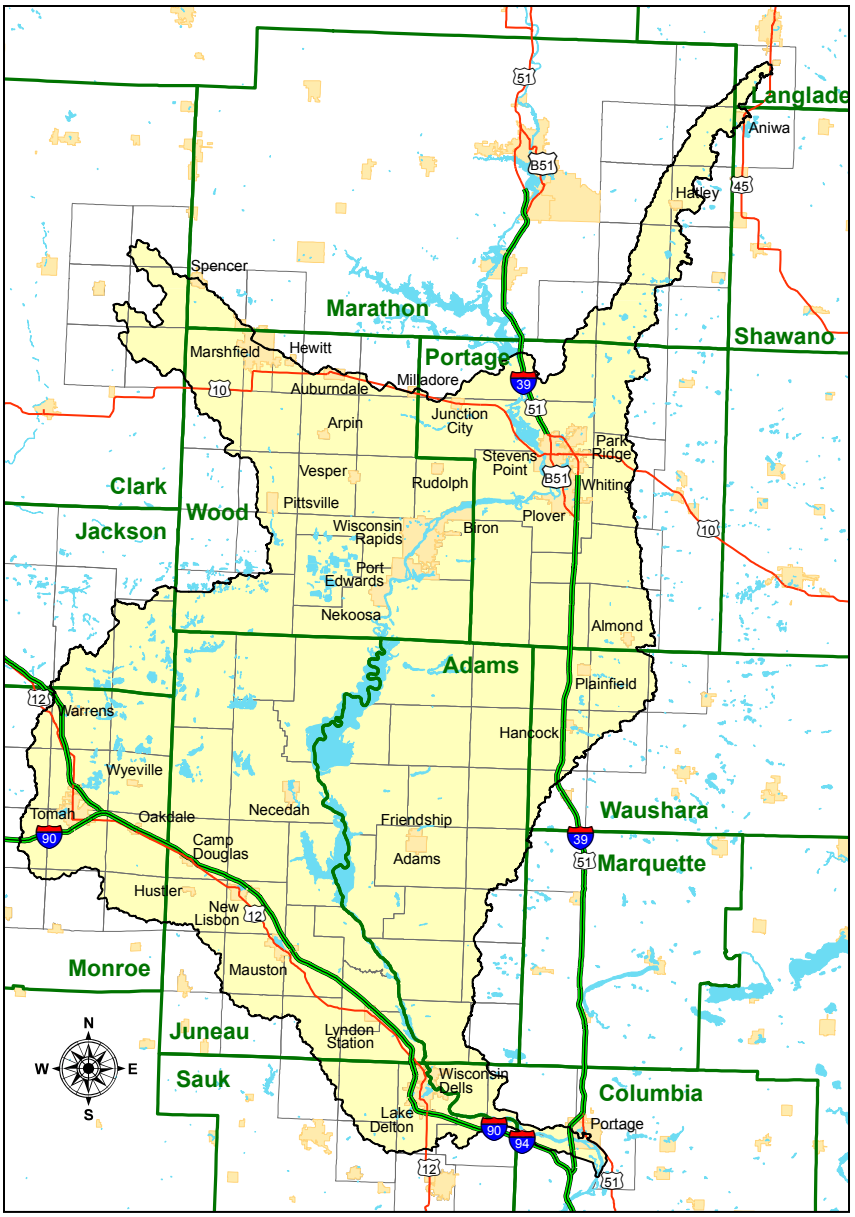
Contents

INTRODUCTION [1].

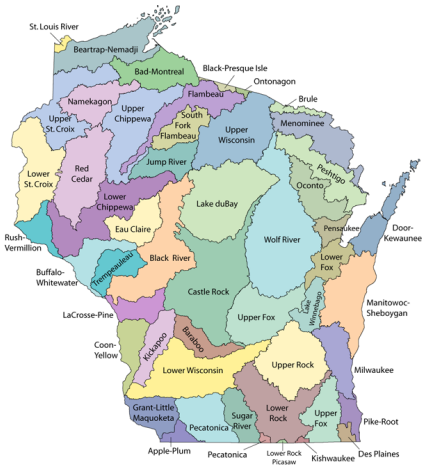
The Castle Rock watershed encompasses a large area of central Wisconsin and is divided roughly down the middle by the Wisconsin River, from the Stevens Point area to the city of Portage. Several dams, built to provide power and water for industry, are located on the river. The Petenwell and Castle Rock dams form two of the four largest inland water bodies in Wisconsin, at 23,043 acres and 13,955 acres, respectively. Other significant impoundments include the Biron Flowage and the Wisconsin River Flowage. Several smaller, natural lakes can also be found in the west central portion of the watershed. Major tributaries to the Wisconsin River include the Plover River, Yellow River, Mill Creek, Big and Little Roche A Cri Creeks, and the Lemonweir River.

The two largest land uses are forestland, at nearly 44% of the watershed, and agriculture at nearly 42%. Wetlands and open water make up the majority of the remaining area. A large area in the center of the watershed, known as the Central Sands of Wisconsin, is intensively farmed for vegetables, with the aid of irrigation. Potatoes, sweet corn, and snap beans are the primary vegetable crops, along with field corn and soybeans. In addition, the watershed is also home to many dairy and beef farms that incorporate alfalfa and grass hay into their rotations. Many cranberry operations are also found in the watershed, mainly in an area extending south and west of Wisconsin Rapids to Warrens.

The largest population centers in the watershed are Stevens Point, Wisconsin Rapids, and a portion of the city of Marshfield. The paper industry is a vital part of the northern area of the watershed's economy. Agriculture, outdoor recreation, and tourism are also large components of the regional economy, with the latter being particularly important in the Wisconsin Dells area.



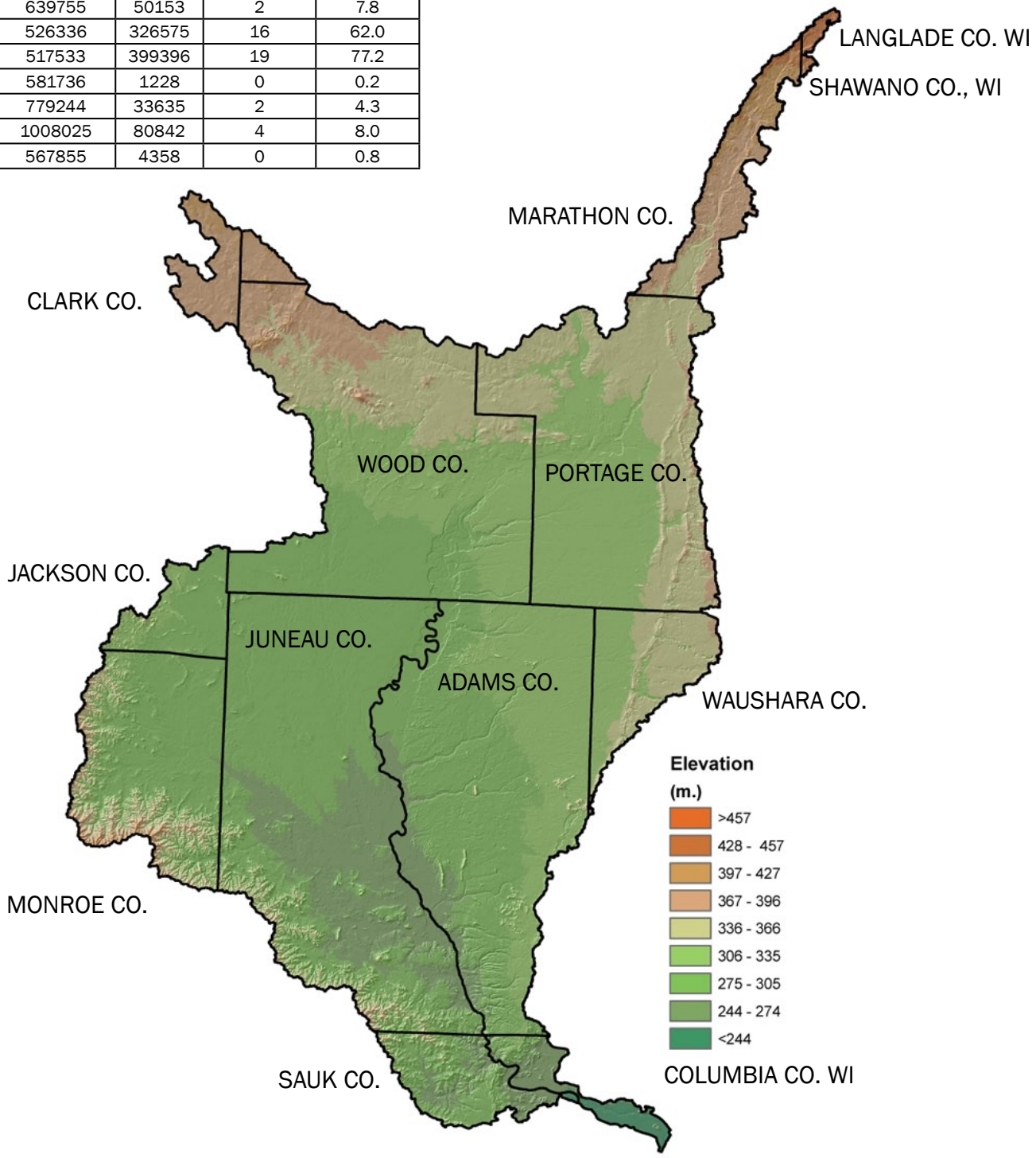
Location Map



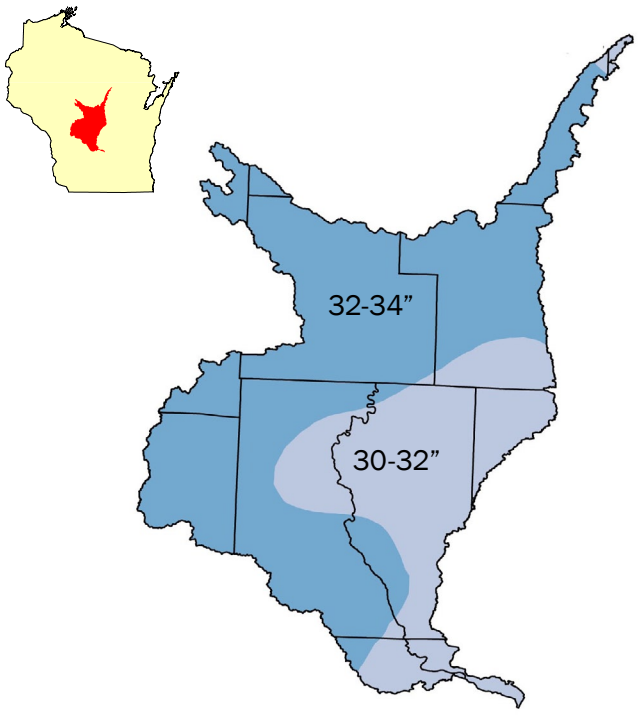
Wisconsin Watershed Map

Acreage in the Castle Rock River Watershed

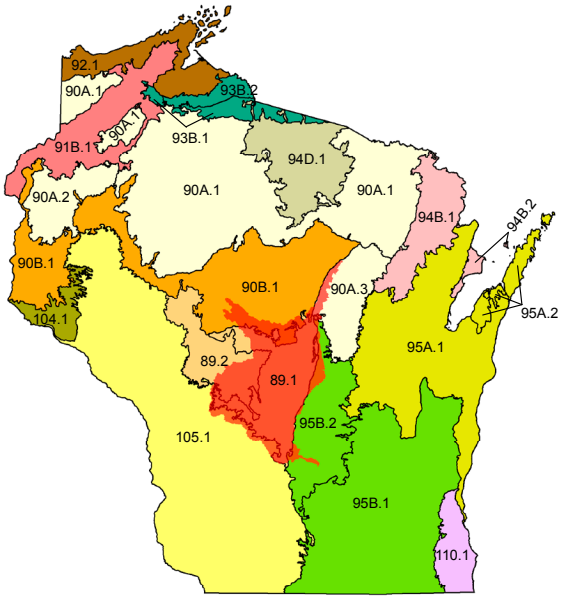
County	County Acres	Acres in HUC	% of HUC from County	% of County in HUC
Columbia	509123	31303	2	6.1
Sauk	542683	61533	3	11.3
Marquette	296858	370	0	0.1
Monroe	580838	176208	8	30.3
Waushara	407694	80413	4	19.7
Adams	440260	388200	19	88.2
Juneau	514267	446563	21	86.8
Jackson	639755	50153	2	7.8
Portage	526336	326575	16	62.0
Wood	517533	399396	19	77.2
Shawano	581736	1228	0	0.2
Clark	779244	33635	2	4.3
Marathon	1008025	80842	4	8.0
Langlade	567855	4358	0	0.8



Elevation Map[3].



Average Annual Precipitation Map (inches)[4.]



Common Resource Area Map

COMMON RESOURCE AREAS[2.]

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.

89.1 CROPPED AND FORESTED CENTRAL SANDS
Nearly level and gently sloping sandy soils. Wisconsin River valley. Irrigated cropland, pasture, cranberries, and vegetable crops. Mixed coniferous and deciduous forest. Development around Wisconsin Rapids, Stevens Point, and Wausau.

89.2 FORESTED CENTRAL SANDS
Nearly level and gently sloping, wet, sandy, loamy, and organic soils underlain by sandstone and shale bedrock. Mixed coniferous and deciduous forest. Few cropland, pasture or developed areas.

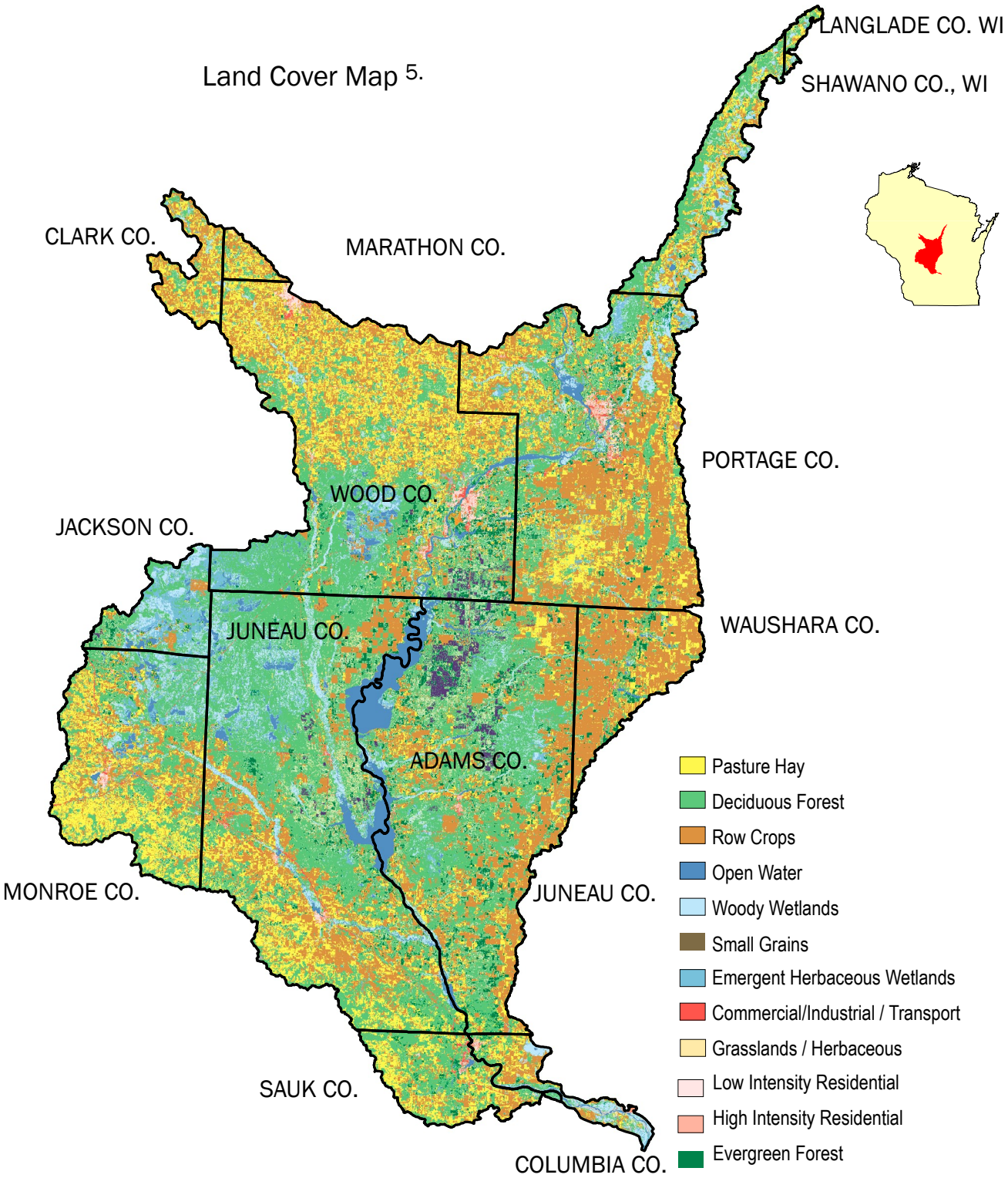
90A.3 NORTHERN GREEN BAY LOBE MORAINE
Gently sloping to moderately steep moraine. Loamy and organic soils. Deciduous and coniferous forest, cropland, pasture, scattered wetlands.

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.

95.B2 SOUTHERN GREEN BAY LOBE MORAINE
Gently sloping to moderately steep moraine. Loamy, clayey, sandy, and organic soils. Cropland, pasture, and deciduous forest. Wisconsin River valley, eastern Baraboo Hills, scattered wetlands.

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.

Land Cover Map [5].



	Acres	Percent
Pasture Hay	339,999	16.3
Deciduous Forest	708,209	34.0
Row Crops	530,184	25.5
Open Water	73,285	3.5
Woody Wetlands	102,500	4.9
Small Grains	0	0
Emergent Herbaceous Wetlands	55,514	2.7
Commercial/Industrial / Transport	14,422	0.7
Grasslands / Herbaceous	12,296	0.6
Low Intensity Residential	10,612	0.5
High Intensity Residential	4,596	0.2
Evergreen Forest	89,711	4.3
Mixed Forest	114,946	5.5
Transitional	17,737	0.9
Urban / Recreational Grasses	4,622	0.2
Quarries / Strip Mines, Gravel Pits	1,134	0.1
Bare Rock / Sand / Clay	1,018	0.0
Total Acres	2,080,787	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/org/water/wm/wqs/303d/faqs.html and http://dnr.wi.gov/org/gmu/gpsp/gpbasin/

Outstanding Resource Waters List

A. Big Roche-a-Cri Creek
B. Plover River

Exceptional Resource Waters List

1. Beaver Creek
2. Bloody Run Creek
3. Boundary Lateral
4. Brewer Creek
5. Buena Vista Creek
6. Camel's Creek
7. Campbell Creek
8. Carter Creek
9. Chester Creek
10. Corning Creek
11. Creek 11-12 T27N R9E
12. Creek 18-9 T28N R10E
13. Creek 19-3 T28N R10E
14. Creek 20-12 T18N R1W
15. Creek 25-12 T28N R9E
16. Creek 25-15c T28N R9E
17. Creek 25-15d T28N R9E
18. Creek 26-6 T27N R9E
19. Creek 27-9 T15N R3E
20. Creek 30-15 T26N R9E
21. Creek 31-15 T26N R9E
22. Creek 32-12 T26N R9E
23. Creek 32-6 T26N R9E
24. Creek 36-3 T28N R9E
25. Creek 5-3 T28N R10E
26. Creek 8-1 T18N R1W
27. Deer Creek
28. Dell Creek
29. Ditch No. 3
30. Ditch No. 4
31. Ditch No. 5
32. Ditch No. 9
33. Duck Creek
34. Fairbanks Creek
35. Fordham Creek
36. Gilmore Creek
37. Gulch Creek
38. Hulburt Creek
39. Isherwood Lateral
40. Jeske Lateral
41. Little Hoton Creek
42. Little Lemonweir River
43. Little Plover River
44. Little Roche-a-Cri Creek
45. Lost Creek
46. Lynn Creek
47. Mill Creek
48. Mud Creek
49. N. Branch Tenmile Creek
50. Onemile Creek
51. Plainville Creek
52. Roche-a-Cri Creek
53. Rocky Creek
54. S. Branch Tenmile Creek
55. Sevenmile Creek

SOILS [7.]

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

The majority of the watershed is a large nearly level proglacial lake plain (Glacial Lake Wisconsin) that was formed by the settling and deposition of lake and off-shore sediments. The sources of the sandy sediments deposited in the nearly level lakebed are both glacial and erosional in origin. The sand east of the Yellow and Wisconsin Rivers is from proglacial stream sediments deposited by glacial melt-water streams during the Late Wisconsinan Glaciation. The sand in the western part is from hillslope sediment (primarily quartz) deposited by water that flowed over and eroded Cambrian sand and sandstone. Wind forces deposited eolian sands that formed dunes throughout much of this lake plain. Generally the soils within this lake plain have surface textures that include sand and loamy sand, but some areas include sandy loam textures. These soils range from excessively drained to poorly drained and typically have apparent water tables. They have very rapid to rapid permeability and very low to low available water capacity. Swamps, bogs, and marshes are common, especially in the western part, and include very poorly drained soils that formed in organic or sandy deposits. In the southwest part of the lake plain, along the Lemonweir River, the nearly level landscape is the result of deposition of offshore silts and clays. Post-glacial stream cutting and deposition that formed floodplains, terraces, and swamps along major rivers include soils that formed in sandy to clayey alluvium. Protruding above the lake plain, especially in the western and southern part, are isolated remnants of eroded Cambrian sandstone forming buttes, hills, knolls, ridges, and pediments. The soils on these landforms formed in sandy to loamy residuum or colluvium.

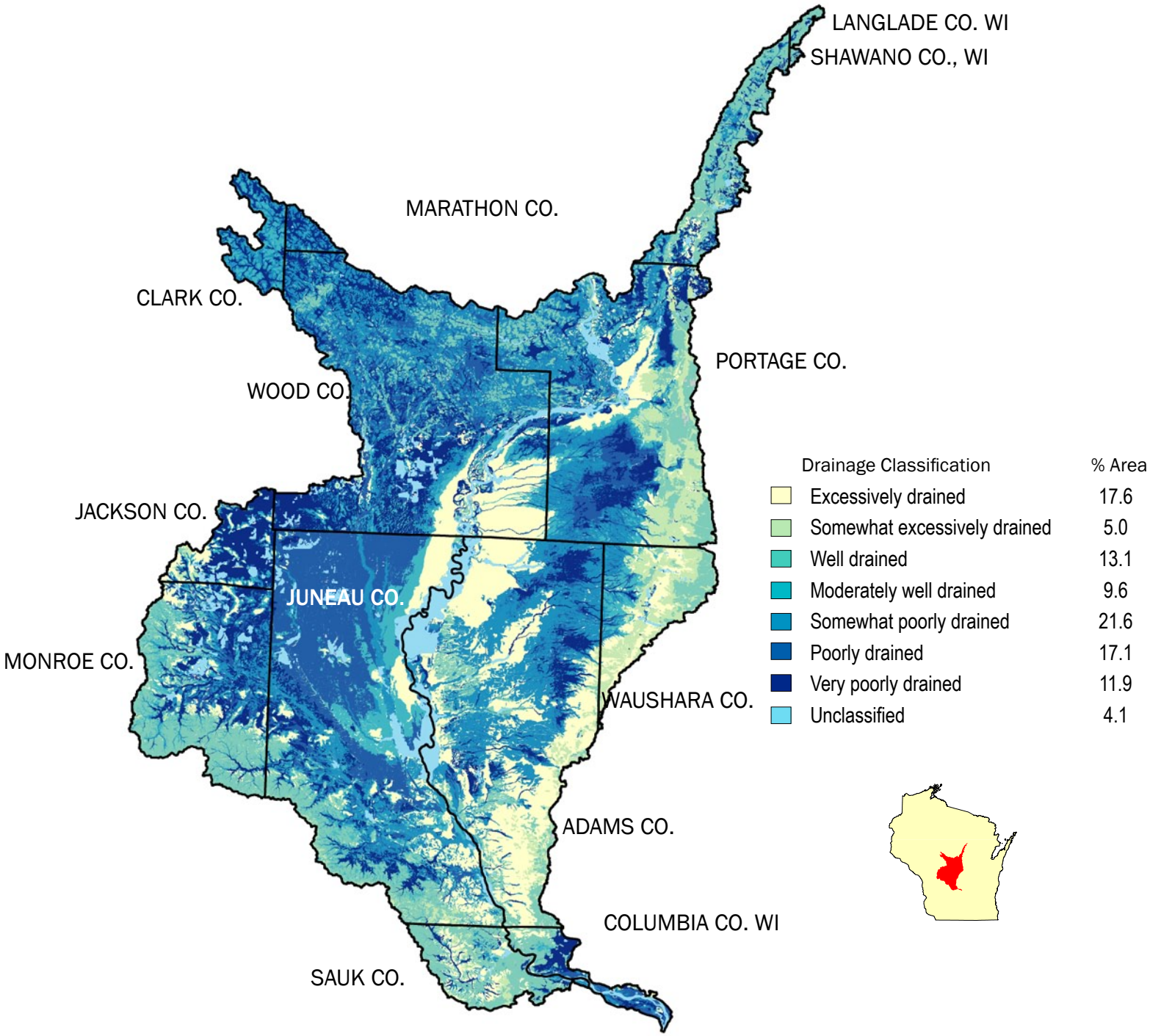
Along the southwestern edge of the watershed is a dissected landscape consisting of narrow ridges, broad sloping shoulders and hills, steep to very steep valley sides, pediments, and narrow valley floors. This landscape is the result of hillslope processes that include sheet wash, soil creep, and soil flowage that eroded the hill slopes, cut into the underlying Cambrian rock, and transported erosional debris to adjacent streams. The soils in this area formed in loess, silty alluvium, loamy to clayey residuum, and sandy to loamy colluvium over sandstone or dolostone and have surface textures that range from silt loam to loamy sand. These soils range from excessively drained to somewhat poorly drained and have moderate to rapid permeability and moderate to low available water capacity.

Along the eastern edge of the watershed is the western end moraine of the Green Bay Lobe (Holy Hill Formation) formed during the Late Wisconsinan Glaciation. The southern two thirds of this rolling moraine consist of soils that formed in brown non-calcareous to calcareous sand to sandy loam drift intermixed with soils formed in sandy to loamy deposits over acid sand and gravel outwash. They generally have surface textures that include loamy sand and sandy loam. These soils are generally well drained, but range from excessively drained to somewhat poorly drained, and typically have apparent water tables. They have moderate to very rapid permeability and moderate to low available water capacity. The northern third of this moraine include soils that formed in brown non-calcareous sandy loam till with surface textures that include sandy loam and loamy sand. These soils are generally well drained, but range from well drained to somewhat poorly drained, and typically have perched water tables. They have moderate to moderately rapid permeability and moderate to low available water capacity.

The far northern part of the watershed, just west of the City of Stevens Point, is an undulating landscape with soils that formed in either non-calcareous loamy till or in loamy residuum from igneous and metamorphic rock. These soils have surface textures that include silt loam and sandy loam. They range from well drained to somewhat poorly drained and have moderate to moderately slow permeability and moderate available water capacity. Just west of this area is an undulating landscape with soils that formed in sandy or loamy hillslope alluvium with surface textures that range from sand to silt loam. These soils are generally somewhat poorly drained, but range from moderately well drained to very poorly drained. They have rapid permeability and low available water capacity.

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."

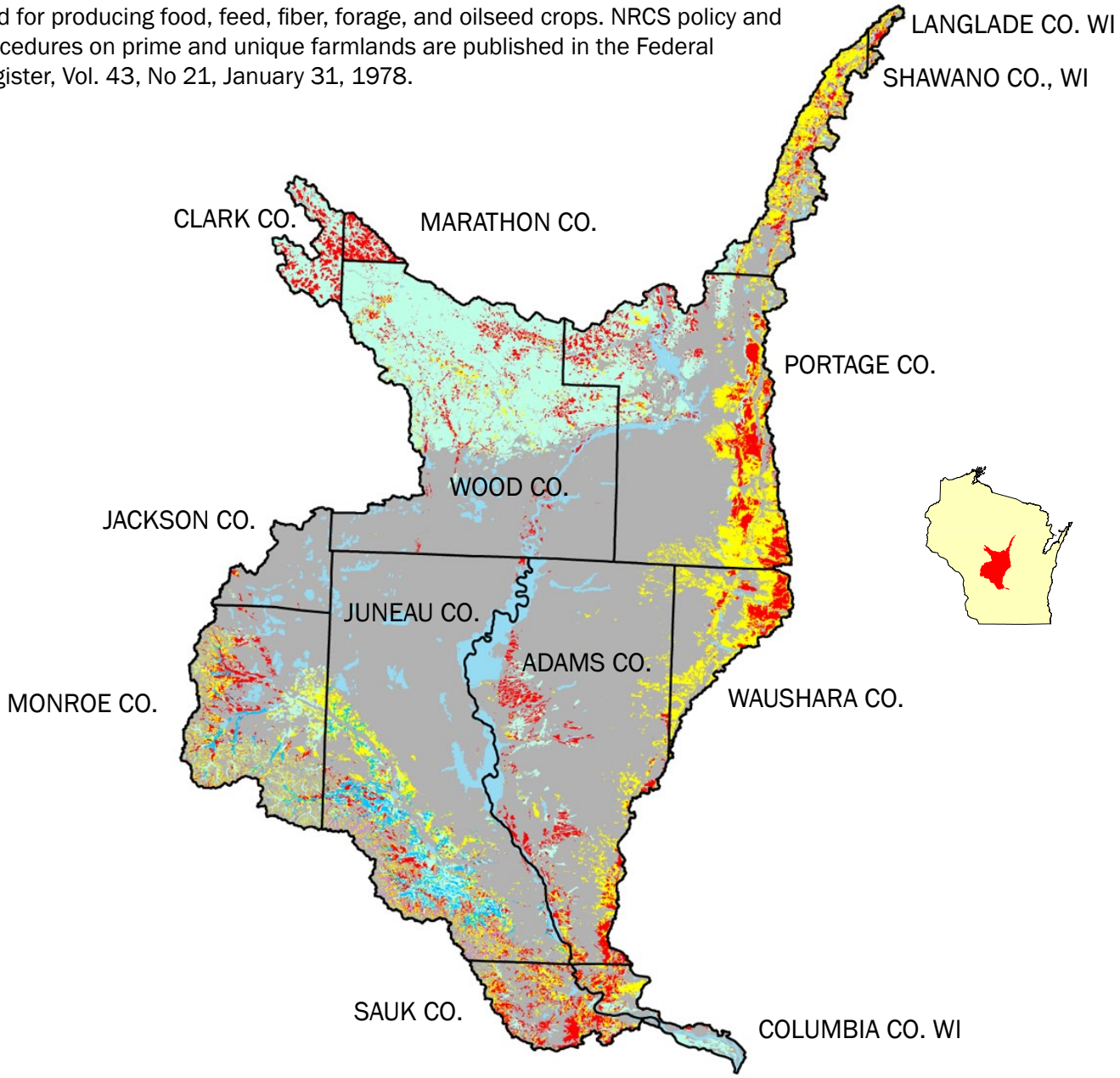


Drainage Classification Map

Visit the online 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.

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

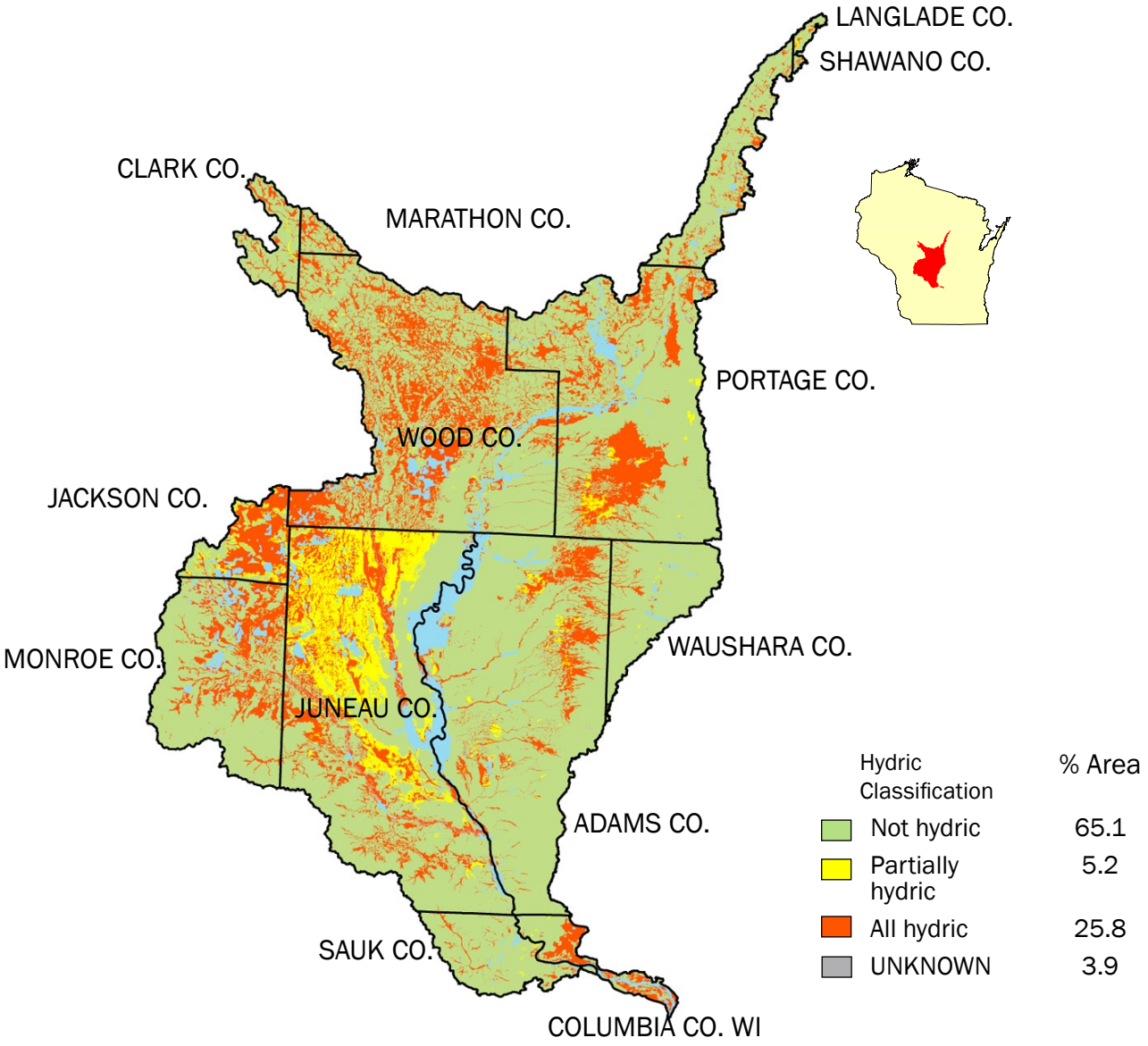
	Acres	Percent
All areas are prime farmland	195,450	9.4
Farmland of statewide importance	215,914	10.4
Prime farmland if drained	293,401	14.1
Not Prime farmland	1,351,753	65.0
Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	22,498	1.1

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.

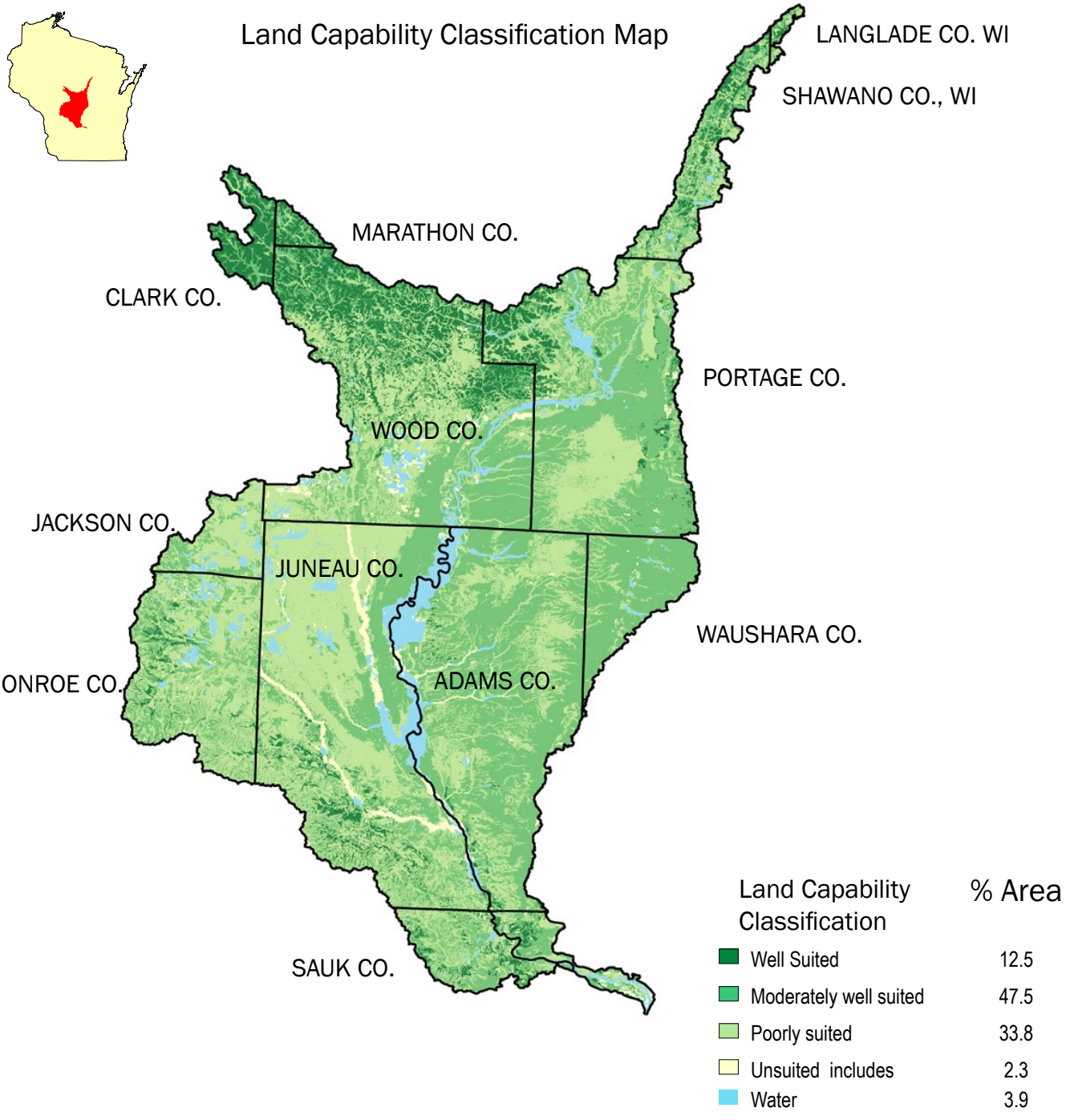
Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils, under natural conditions,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



Hydric Soils Map

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.



RESOURCE CONCERNS

Groundwater quantity and quality are two of the largest resource concerns in this watershed. A relatively high water table in the highly permeable Central Sands means continued expansion of agricultural irrigation systems and an easy pathway for groundwater contamination. Municipal and industrial pumping of groundwater is also increasing. A combination of those factors, as well as changing precipitation patterns, has resulted in the water levels of some seepage lakes and the Little Plover River dropping significantly and even drying up completely at times. Elevated nitrate levels and pesticide detections are common when wells are sampled. Irrigation water management, integrated pest management and nutrient management are three of the most important agricultural best management practices (BMPs) to address these concerns.

Other resource concerns include soil erosion and excess nutrients in surface waters. As a result, impoundments in the watershed have significant algal blooms in summers and are also a sink for pollutants, such as polychlorinated biphenyls (PCBs), used by industry in the past. As in other parts of the state, aquatic and terrestrial invasive species are also a concern.

PRS AND OTHER DATA[8.]

The following table is a product of the NRCS Performance Results System (PRS) and reflects progress made over the past several years on several key areas of conservation. The PRS provides support for reporting the development and delivery of conservation programs, analyzing and reporting progress, and management applications by NRCS and conservation partners. The public can generate additional reports by visiting the following link: http://ias.sc.egov.usda.gov/prsreport2006/

PRS PERFORMANCE MEASURES

PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	TOTAL
Total Conservation Systems Planned (acres)	4,858	6,530	11,601	13,565	16,919	N/A	34,023	87,496
Total Conservation Systems Applied (acres)	3,170	2,993	8,383	13,565	17,099	N/A	33,367	78,577
Conservation Practices								
Total Waste Management (313) (numbers)	3	2	5	4	16	2	1	33
Riparian Forest Buffers (391) (acres)	16	68	63	73	41	0	2	263
Erosion Control Total Soil Saved (tons/year)	1,826	3,621	11,182	11,979	20,339	N/A	N/A	48,947
Total Nutrient Management (590) (Acres)	666	128	14,741	12,297	14,843	2,639	3,332	48,646
Pest Management Systems Applied (595A) (Acres)	0	0	5,303	8,736	1,938	0	1,835	17,812
Prescribed Grazing 528a (acres)	0	0	564	515	839	463	2,378	4,759
Tree & Shrub Establishment (612) (acres)	36	809	868	963	922	84	60	3,742
Residue Management (329A-C) (acres)	42	499	1,981	1,438	3,392	4,847	7,858	20,057
Total Wildlife Habitat (644 - 645) (acres)	1,035	308	4,157	3,667	2,938	1,555	1,044	14,704
Total Wetlands Created, Restored, or Enhanced (acres)	132	239	152	222	324	143	192	1,404
Acres enrolled in Farmbill Programs								
Conservation Reserve Program	697	1,350	2,262	3,629	2,362	N/A	212	10,512
Wetlands Reserve Program	0	0	169	0	980	N/A	333	1,482
Environmental Quality Incentives Program	2,282	389	889	866	1,867	N/A	9,303	15,596
Wildlife Habitat Incentive Program	0	0	33	0	17	N/A	185	235
Farmland Protection Program	0	0	0	0	0	N/A	14	14

CENSUS AND SOCIAL DATA (RELEVANT)[9.]

There are 4,128 farms in the watershed, covering a total of 268,027 acres. Average farm size in the watershed is 225 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	Adams	Clark	Columbia	Jackson	Juneau	Langlade	Marathon	Marquette	Monroe	Portage	Sauk	Shawano	Waushara	Wood	Total
	Farms (number)	414	95	93	71	699	4	232	1	587	742	189	3	141	855	4,126
	Land in farms (acres)	123539	19838	21251	20136	156204	1129	42501	146	106588	181108	39901	541	37937	176055	926,873
	Total cropland (acres)	90945	13561	16139	10365	94743	700	27307	93	56304	130958	25252	375	26945	108127	601,814
	Irrigated land (acres)	44060	14	95	355	7764	122	514	5	1121	57245	1409	0	9637	4580	126,920
	Principal operator by primary occupation - Farming (number)	245	69	57	39	375	3	146	0	347	416	106	2	83	562	2,451
Farms by Size	Farms by size - 1 to 10 acres	12	2	7	3	25	0	15	0	25	53	8	0	7	29	187
	Farms by size - 11 to 49 acres	95	12	20	11	162	1	45	0	107	151	35	1	33	194	867
	Farms by size - 50 to 179 acres	159	39	34	30	292	2	93	0	275	295	78	1	48	338	1,684
	Farms by size - 180 to 499 acres	99	36	21	18	157	1	66	0	141	174	51	1	37	222	1,024
	Farms by size - 500 to 999 acres	23	5	7	5	40	0	10	0	29	42	13	0	8	52	235
	Farms by size - 1,000 acres or more	26	1	4	4	23	0	4	0	10	26	5	0	7	20	129
Livestock and Poultry	Livestock and poultry - Cattle and calves inventory (farms)	141	69	38	28	323	2	126	0	336	366	99	2	48	530	2,108
	Livestock and poultry - Cattle and calves inventory - Beef cows (farms)	78	14	14	10	122	1	35	0	118	138	39	0	16	191	776
	Livestock and poultry - Cattle and calves inventory - Milk cows (farms)	28	47	13	16	109	1	68	0	156	140	40	1	18	255	891
	Livestock and poultry - Hogs and pigs inventory (farms)	24	5	5	2	26	0	6	0	26	24	9	0	7	42	177
	Livestock and poultry - Sheep and lambs inventory (farms)	8	3	5	3	17	0	6	0	25	22	7	0	5	34	135
	Livestock and poultry - Layers 20 weeks old and older inventory (farms)	31	10	5	3	31	0	13	0	48	52	11	0	12	50	267
	Livestock and poultry - Broilers and other meat-type chickens sold (farms)	15	2	2	1	6	0	4	0	16	16	3	0	4	18	87
Selected Crops Harvested	Selected crops harvested - Corn for grain (acres)	17569	2690	7372	2498	26877	47	4892	26	13155	21814	7865	82	5136	20538	130,563
	Selected crops harvested - Corn for silage or greenchop (acres)	1464	1339	601	516	3794	36	2909	4	4580	5786	1544	48	951	6842	30,416
	Selected crops harvested - Wheat for grain, all (acres)	940	44	385	16	943	21	187	1	145	205	203	6	228	325	3,647
	Selected crops harvested - Wheat for grain, all - Winter wheat for grain (acres)	628	27	381	16	877	0	175	0	0	86	203	0	228	0	2,620
	Selected crops harvested - Wheat for grain, all - Spring wheat for grain (acres)	312	16	4	0	66	0	11	0	0	120	0	0	0	0	529
	Selected crops harvested - Oats for grain (acres)	1505	446	201	304	1499	87	721	1	1655	2215	517	12	191	2363	11,717
	Selected crops harvested - Barley for grain (acres)	0	168	11	27	96	6	219	0	95	205	37	3	23	490	1,379
	Selected crops harvested - Soybeans for beans (acres)	13049	1161	3154	1544	20450	43	2119	12	4560	5950	3249	26	2631	8454	66,402
	Selected crops harvested - Forage - land used for all hay and all haylage, grass silage, and greenchop (see text) (acres)	11200	5753	2553	2888	19102	222	11695	21	20630	34434	7889	153	3946	44581	165,067
	Selected crops harvested - Vegetables harvested for sale (see text) (acres)	22889	6	273	6	3730	13	311	2	35	27831	120	4	5907	338	61,464
	Selected crops harvested - Land in orchards (acres)	6	3	3	2	16	0	4	0	33	22	19	0	4	30	142

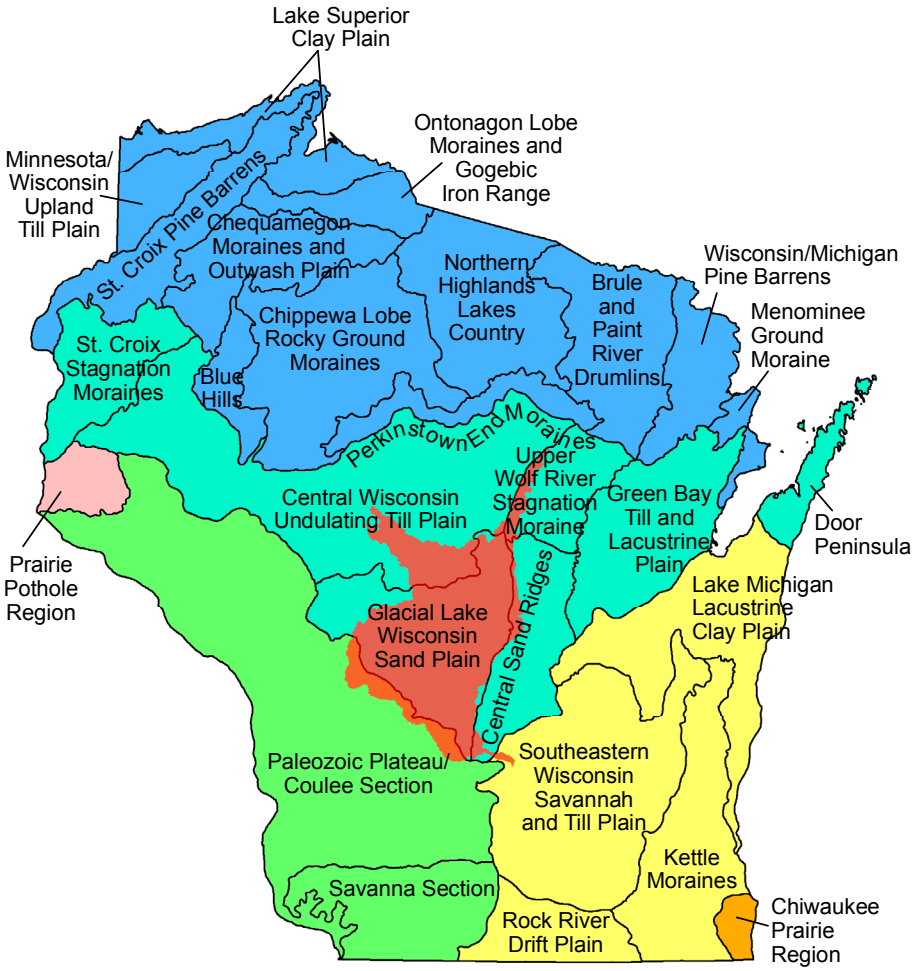
URBAN POPULATION [11.]

Name	1990	2000	2005	Median Income*
Park Ridge	546	488	451	57,031
Hewitt	595	670	682	53,295
Plover	8,176	10,520	11,256	51,238
Port Edwards	1,848	1,944	1,797	48,850
Hatley	295	476	490	47,875
Milladore	314	268	258	46,458
Biron	794	915	851	42,557
Whiting	1,838	1,760	1,691	42,381
Rudolph	451	423	422	41,125
Auburndale	665	738	728	41,103
Spencer	1,757	1,932	1,833	40,665
Camp Douglas	512	592	586	39,583
Nekoosa	2,557	2,590	2,585	39,375
Vesper	598	541	529	38,750
Wyeville	154	146	141	38,750
Almond	455	459	431	37,857
Marshfield	19,291	18,800	18,796	37,248
Pittsville	838	866	847	36,750
Plainfield	839	899	899	36,328
Portage	8,640	9,728	10,035	35,815
Wisconsin Dells	2,393	2,418	2,559	35,699
Oakdale	162	297	316	35,500
Hancock	382	463	462	35,341
Wisconsin Rapids	18,245	18,435	17,621	34,956
Lake Delton	1,470	1,982	3,053	34,951
New Lisbon	1,491	1,436	2,464	34,479
Junction City	502	440	413	33,750
Stevens Point	23,006	24,551	24,298	33,178
Mauston	3,439	3,740	4,291	32,341
Necedah	743	888	878	32,135
Tomah	7,570	8,419	8,620	31,986
Arpin	312	337	320	31,563
Warrens	343	286	291	29,464
Aniwa	249	272	268	28,542
Lyndon Station	474	458	465	27,059
Adams	1,715	1,914	1,781	26,250
Friendship	728	698	766	24,615
Hustler	156	113	117	21,250

POPULATION ETHNICITY [10.]

Total Population = 198,127
Urban population = 101,607
Rural Population = 96,521
White alone = 190,035
Hispanic or Latino = 3,026
Two or more races = 1,860
Black or African American alone = 872
Some other race alone = 963
American Indian and Alaska Native alone = 1,647
Asian Alone = 2,634
Native Hawaiian and Other Pacific Islander alone = 84

ECOLOGICAL LANDSCAPES[12.] GENERAL DESCRIPTIONS



UPPER WOLF RIVER STAGNATION MORAINE

The Upper Wolf River Stagnation Moraine ecoregion is characterized by the hummocky ground and end moraines and pitted outwash, in contrast to the level till plains of Green Bay Till and Lacustrine Plain ecoregion to the east and the irregular till plain of Central Wisconsin Undulting Till Plain ecoregion to the west. This region supports a potential natural vegetation mosaic of hemlock/beech/ sugar-maple, wetland vegetation, and mixed conifers, as compared to the predominantly oak forests of the Central Sand Ridges to the south. Land use is mixed agriculture/woodland with a larger area of extensive forest than adjacent level IV ecoregions in the North Central Hardwoods Forests. This is due to land use practices within the Menominee Indian Reservation; more forest cover is still intact, and agricultural practices are less significant. The lake trophic state in this ecoregion is generally higher than in the Central Sand Ridges to the south.

CENTRAL WISCONSIN UNDULATING TILL PLAIN

The Central Wisconsin Undulating Till Plain ecoregion has a greater percentage of agricultural land use than adjacent St. Croix Stagnation Moraines ecoregion. The land cover mosaic of woodland and agriculture includes large areas of cropland that produce silage corn, oats, barley, and some apples. This region has fewer lakes, with higher trophic states, than adjacent level IV ecoregions in the North Central Hardwood Forests. The undulating to rolling irregular plains of sandy loam till and outwash sands also distinguish this ecoregion from the St. Croix Stagnation Moraines to the west and the lacustrine sand plains of Glacial Lake Wisconsin to the south. This ecoregion has areas in the far east that are underlain with igneous metamorphic rock outcrops, and areas in the west and southwest that are underlain by sandstone and shale. Outcrops of sandstone comprise roughly 70% of the total area of the ecoregion. The region supports a transitional potential natural vegetation mosaic of oak, hemlock/sugar maple/yellow birch, and white pine/red pine forests in the north, and more sugar maple/ basswood/ oak forests to the south.

GLACIAL LAKE WISCONSIN SAND PLAIN

Compared to adjacent ecoregions, the Glacial Lake Wisconsin Sand Plain is an area of low relief. The droughty outwash, lacustrine and slope wash sands, sand buttes, and stream bottom and wetland soils support a potential natural vegetation (PNV) of jack pine/scrub-oak forests and barrens, along with sedge meadows and conifer swamps, which characterize this flat sandy lake plain. This PNV is in contrast to the predominantly white and black oak vegetation of the Central Sand Ridges ecoregion. The region is also distinguished by its more extensive wetlands and a lack of natural lakes. Most of the existing lakes have been constructed for use in cranberry production. Land use in this region consists of woodland and agriculture, with crops including cranberries, strawberries, and potatoes.

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.

CENTRAL SAND RIDGES

The Central Sand Ridges ecoregion has the highest density of lakes with the lowest trophic states of all level IV ecoregions in the North Central Hardwood Forests. Pitted glacial outwash with extensive eskers and drumlins, ice contact deposits, rolling ground moraines, and steep end moraines distinguish this region from the flat lake plain of adjacent Glacial Lake Wisconsin Sand Plain ecoregion. The dry, sandy, and loamy till soils of the region support a potential natural vegetation of oak savanna (white oak, black oak, and bur oak) with areas of sedge meadows, unlike the wetland vegetation and pine or oak barrens of Glacial Lake Wisconsin Sand Plain ecoregion and the mosaic of hemlock/beech/maple forests and mixed conifers of the Upper Wolf River Stagnation Moraine to the north.

SOUTHEASTERN WISCONSIN SAVANNAH AND TILL PLAIN

Nearly level to strongly sloping till plain with prominent drumlins. Well drained silty and loamy soils with poorly drained organic soils in the depressions. Mostly cropland with a mix of livestock and cash grain enterprises. Grazing land and scattered deciduous forest, lakes, and marshes are also present. Primary resource concerns include cropland and construction site erosion, surface water quality, storm water management, and wetland habitat protection and restoration.

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 Coon-Yellow Watershed is 12.8.

WATERSHED PROJECTS, STUDIES, MONITORING, ETC.

Since 1990 there have been four Wisconsin Department of Natural Resources (WDNR) Priority Watershed and Priority Lake projects in the Castle Rock watershed. These projects provide cost-sharing and technical assistance to landowners for the implementation of BMPs. The Upper Yellow River, Port Edwards-Groundwater Prototype, and Lake Tomah projects are completed while the Dell Creek project will continue through 2009. The watershed projects are carried out through county land/soil and water conservation departments and other partners.

Small portions of the watershed are 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. An area of the watershed in Clark, Marathon, Portage and Wood counties is within the northern grassland area of CREP that offers BMPs beneficial to grassland birds, particularly prairie chickens.

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

- Central Wisconsin Groundwater Center http://www.uwsp.edu/CNR/gndwater/
- Petenwell Castle Rock Property Owners' Association http://petenwellcastlerock.org/
- River Alliance of Wisconsin http://www.wisconsinrivers.org/
- Trout Unlimited http://www.wisconsintu.org/chapters.htm
  - Wisconsin River Valley Chapter www.wrvtu.org
  - Frank Hornberg Chapter www.HornbergTU.org
  - Central Wisconsin Chapter www.cwtu.org
  - Coulee Region Chapter www.CouleeRegionTU.org
- 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
- 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 Central Wisconsin River Basin" April 2002, 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 (WIDNR) website: 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:

Adams Co. WI (WI001) Published 20061019
Clark Co., WI (WI019) Published 20061020
Columbia Co. WI (WI021) Published 20060123
Jackson Co., WI (WI053) Published 20061207
Juneau Co., WI (WI057) Published 20061207
Langlade Co., WI (WI067) Published 20061020
Marathon Co., WI (WI073) Published 20061019
Marquette Co., WI (WI077) Published 20060303

Monroe Co., WI (WI081) Published 20060123
Portage Co. WI (WI097) Published 20061019
Sauk Co., WI (WI111) Published 20050913
Shawano Co. WI (WI115) Published 20061020
Waushara Co., WI (WI137) Published 20060120
Wood Co., WI (WI141) 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