



Rapid Watershed Assessment Apple Plum 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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INTRODUCTION ¹

The Apple-Plum watershed encompasses over 950,000 acres southwest Wisconsin, northwest Illinois and east central Iowa. The Apple River, beginning south and east of Shullsburg, WI, flows south-southwest, entering the Mississippi River south of Hanover, IL. The Plum River, entirely within Illinois, enters the Mississippi River at Savanna. Other significant rivers in the eastern portion of the watershed that begin in Wisconsin and drain directly to the Mississippi in Illinois are the Menominee, Little Menominee, Sinsinawa and Galena (also known locally as the Fever). Larger tributaries to the Mississippi from the Iowa side include Catfish Creek near Dubuque, Mill Creek near Bellevue, and the Elk River north of Clinton, IA. The landscape transitions from rolling agricultural land to cropped ridges and bluffs surrounded by steep, forested slopes and narrow, cropped valleys one gets closer to the Mississippi River. Many of the smaller streams in the watershed are able to support trout fisheries due to baseflow from coldwater springs.

The majority of the land in the watershed, 66.5%, is devoted to agriculture. Forest accounts for 22.8% of the area while wetlands, urban areas and open water comprise the balance of the watershed. Farms consist of dairy, cash grain, hog, and beef operations. Major crops include corn, soybeans and alfalfa.

The city of Dubuque, Iowa (pop. 57,798), in the northeast corner of the watershed, is the largest population center of the region. The rest of the watershed is largely rural and dotted with several small cities and villages. Galena, IL (pop. 3,405) and Savanna, IL (pop. 3,288) are the only other cities with greater than 3,000 residents. Agriculture, manufacturing, tourism and outdoor recreation are large components of the regional economy.

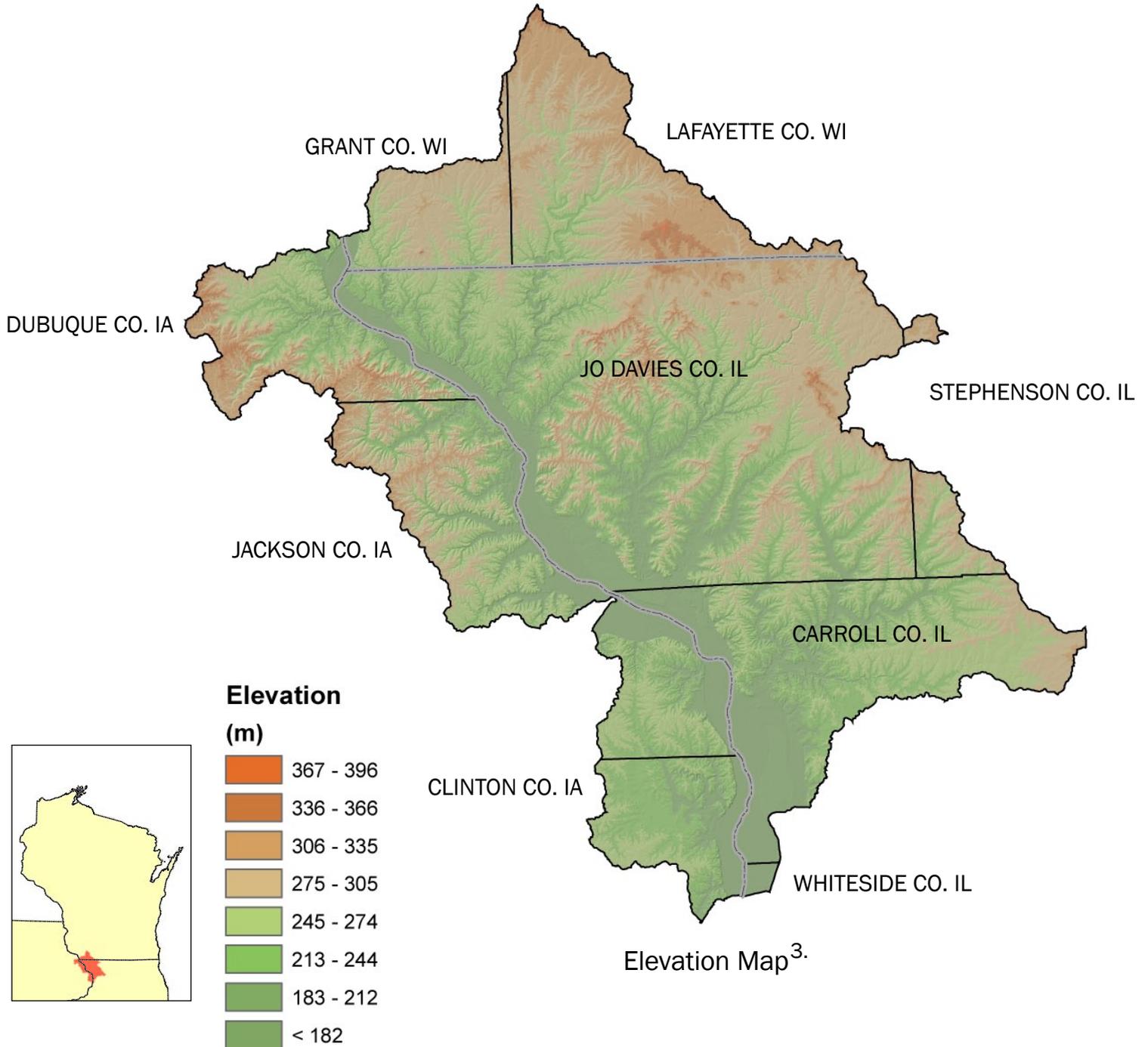


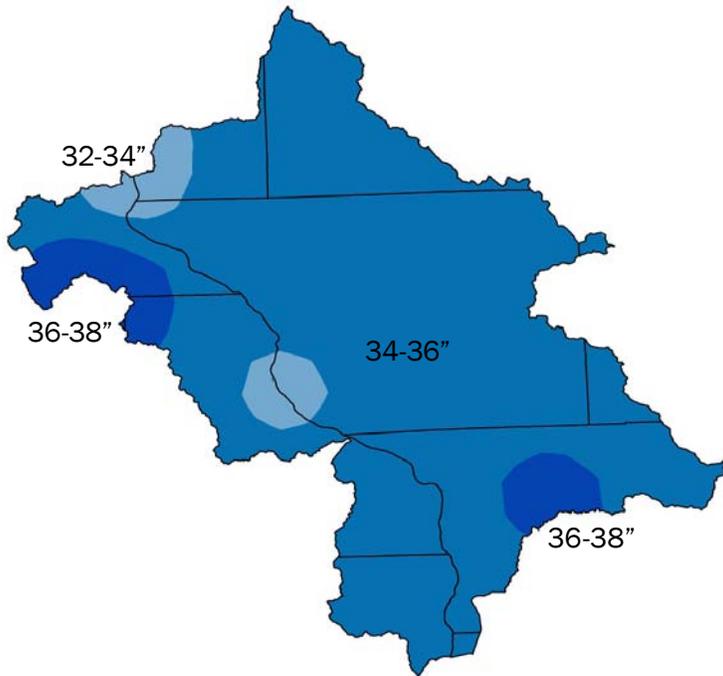
Wisconsin Watershed Map



Acreeage in the Apple Plum River Watershed

County	County Acres	Acres in HUC	% of HUC from County	% of County in HUC
Lafayette	405,691	104,012	25.6%	11.0%
Grant	755,313	44,650	5.9%	4.7%
Carroll	298,549	151,222	50.7%	15.9%
Stephenson	361,126	18,458	5.1%	1.9%
Jo Daviess	395,749	376,419	95.1%	39.6%
Dubuque	394,344	70,426	17.9%	7.4%
Jackson	415,432	133,617	32.2%	14.1%
Clinton	454,071	49,596	10.9%	5.2%
Whiteside	445,427	2,521	0.6%	0.3%





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.

105.WI1 WEST WISCONSIN DRIFTLESS LOESS HILLS

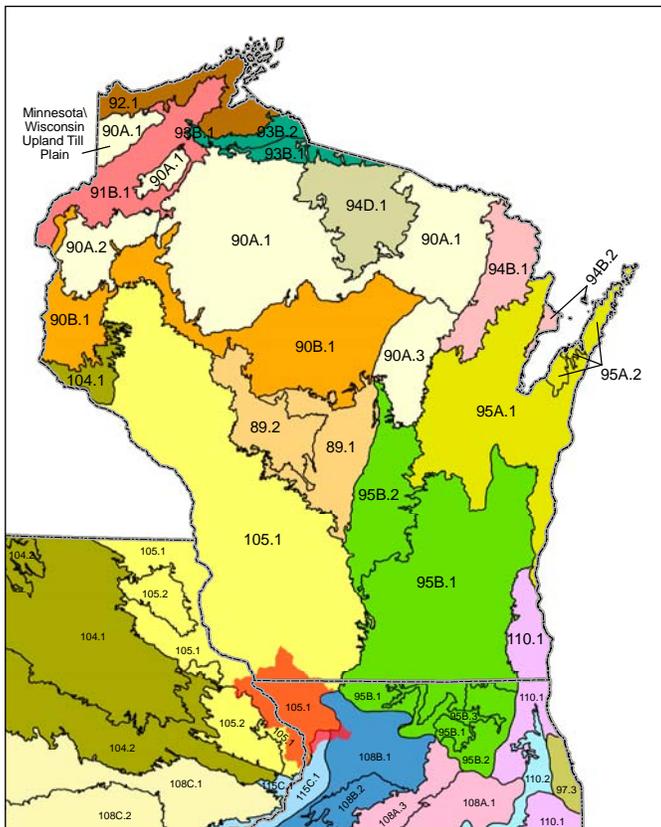
Highly dissected hills and valleys. Mississippi, Chippewa, and Wisconsin River valleys. Western Baraboo Hills. Silty soils over bedrock residuum. Mostly cropland and pasture on ridgetops, deciduous forest on steep sideslopes. Eau Claire and LaCrosse urban areas.

108B.IL1 CENTRAL CORN BELT DEEP LOESS AND DRIFT PLAINS, WESTERN PART

Nearly level and gently sloping ground moraine. The soils are dark colored, poorly drained to moderately well drained and formed in loess. The area is extensively subsurface drained and use for corn and soybean production. More diverse agriculture and the few remaining woodlands are in the more rolling areas associated with small to medium streams. The main resource concerns are cropland erosion, stormwater management, maintaining drainage, and wetland preservation and restoration.

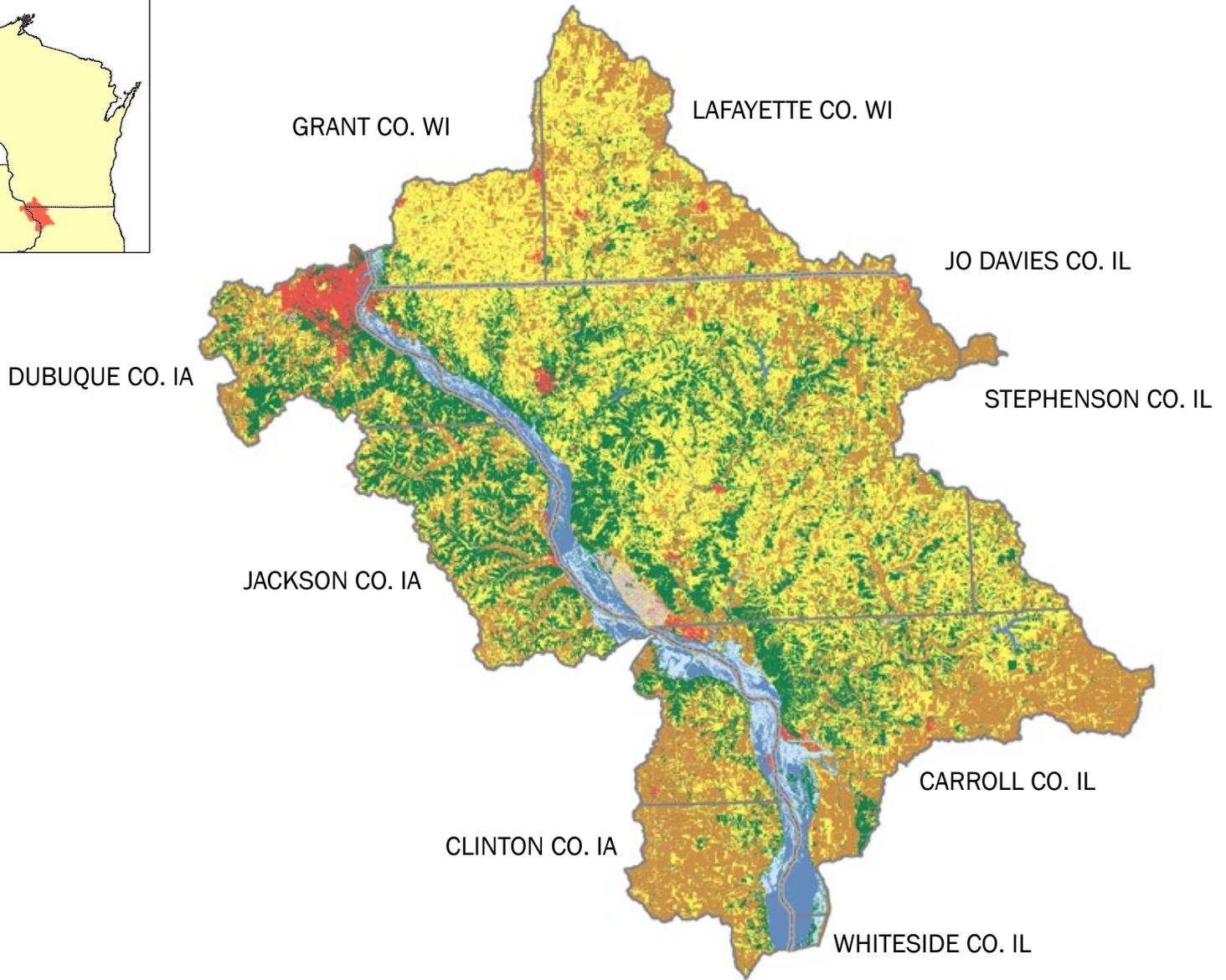
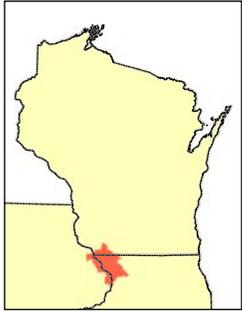
115C.IL1 CENTRAL MISSISSIPPI VALLEY WOODED SLOPES

Mississippi and lower Illinois River loess hills. Moderately steep to very steep side slopes and narrow to moderately wide gently sloping to moderately sloping ridgetops. Well drained to somewhat poorly drained light colored soils. Livestock and grain farming are dominant in the less sloping upland areas. Corn and soybeans are the major crops. Hardwood forest dominate the upland side slopes. Urban growth is evident in the area around the Quad Cities. Resource concerns are cropland erosion, woodland management, nutrient management, and wetland preservation and restoration.



Common Resource Area Map



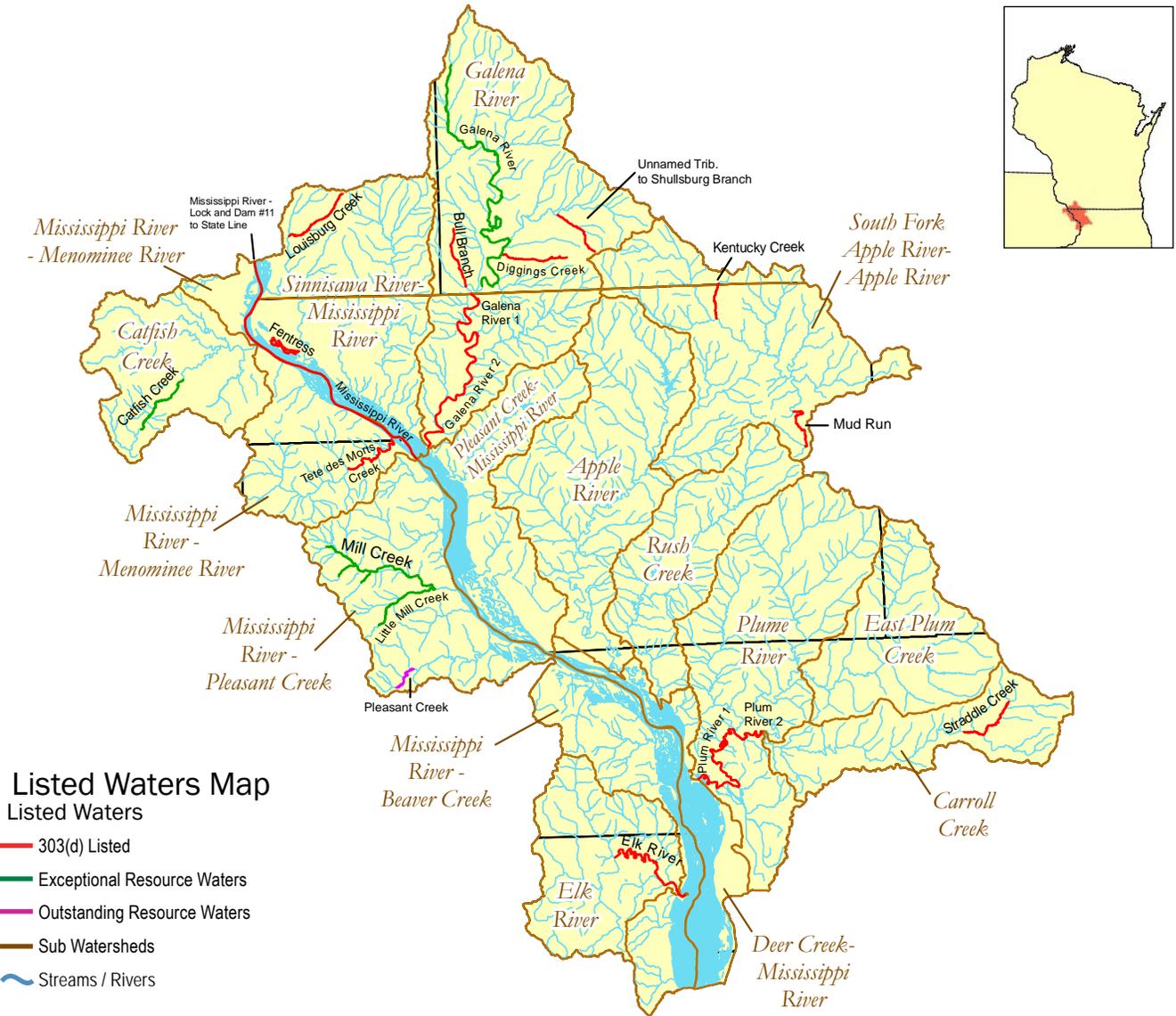


Land Cover Map ⁵.

	Pasture Hay	360,967	38.0		Low Intensity Residential	7,770	0.8
	Deciduous Forest	213,924	22.5		High Intensity Residential	4,928.5	0.5
	Row Crops	270,185	28.4		Evergreen Forest	1,010	0.1
	Open Water	42,053	4.4		Mixed Forest	2,458	0.3
	Woody Wetlands	18,268	1.9		Transitional	3,690	0.4
	Small Grains	1,724	0.2		Urban / Recreational Grasses	4,274	0.4
	Emergent Herbaceous Wetlands	5,216	0.5		Quarries / Strip Mines, Gravel Pits	466	0
	Commercial/Industrial / Transport	10,273	1.1		Bare Rock / Sand / Clay	16.5	0
	Grasslands / Herbaceous	4,205	0.4		Total Acres	951,428	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 more information on waters designated as Exceptional or Outstanding Resources waters, visit:
<http://dnr.wi.gov/org/water/wm/wqs/orwer/>

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/>



303(d) Waters	Mercury	Oxygen Depletion	Habitat Alteration	PCBs	Sediment	Metals (other than Mercury)	Total Toxicity	Unknown	Nutrients	Turbidity	Pathogens	Ammonia
Bull Branch			X		X							
Diggings Creek			X		X	X	X					
Louisburg Creek			X		X							
Mississippi River - Wisconsin Portion	X			X								
Mississippi River - Lock and Dam #11 to State Line	X			X								
Unnamed Tributary to Shullsburg Branch			X		X	X	X					
Frentress		X							X	X		
Galena River (1)				X	X	X				X		
Galena River (2)				X								
Kentucky Creek									X			
Mississippi River				X								X
Mud Run		X							X			
Plum River (1)												
Plum River (2)					X				X	X	X	
Straddle Creek					X				X	X		
Wolf Creek									X			
Tetes des Morts			X					X				

SOILS ⁷.

This watershed is dominantly characterized by an unglaciated ridge and valley landscape. The predominant bedrock type is the indurated Galena dolostone. Soils on the stable hill summits formed dominantly in loess, overlying clayey pedisidiment and residuum from the Galena dolostone. Moderately deep to very deep loess overlies the bedrock-controlled landscapes. Common surface texture is silt loam. These soils are generally well drained, have moderate to slow permeability, and moderate to very high available water capacity. Erosion is a major concern.

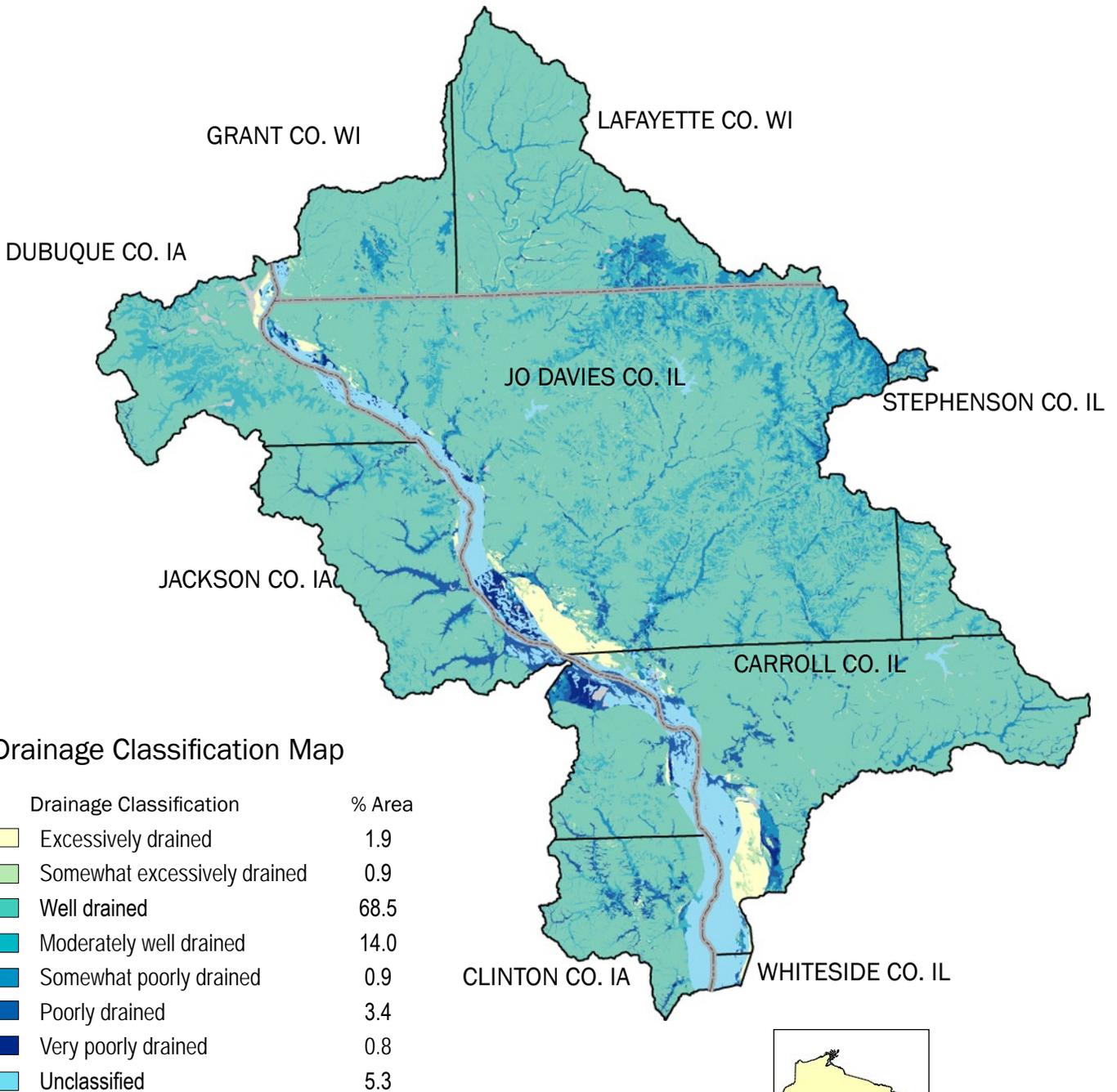
The valley parts of the landscape generally contain stream terraces and floodplains. The soils formed dominantly in silty alluvium. Drainage classes range from well to very poorly drained, permeability from moderate to slow, and available water capacity from moderate to very high. Erosion, flooding, and sedimentation are major concerns in these valleys.

This watershed is dissected by the Mississippi River which also forms the border between Wisconsin and Illinois on the east and Iowa on the west. The Mississippi flows through a wide valley containing multiple levels and ages of terraces and floodplains made up of sandy, loamy and silty alluvial soils depending upon contributing sources. The terraces are often underlain by valuable gravel and cobble deposits. Wind forces across this wide valley from the south and west, deposited eolian sands that formed dunes in many places on the eastern side and a few small areas on the western side.



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.”

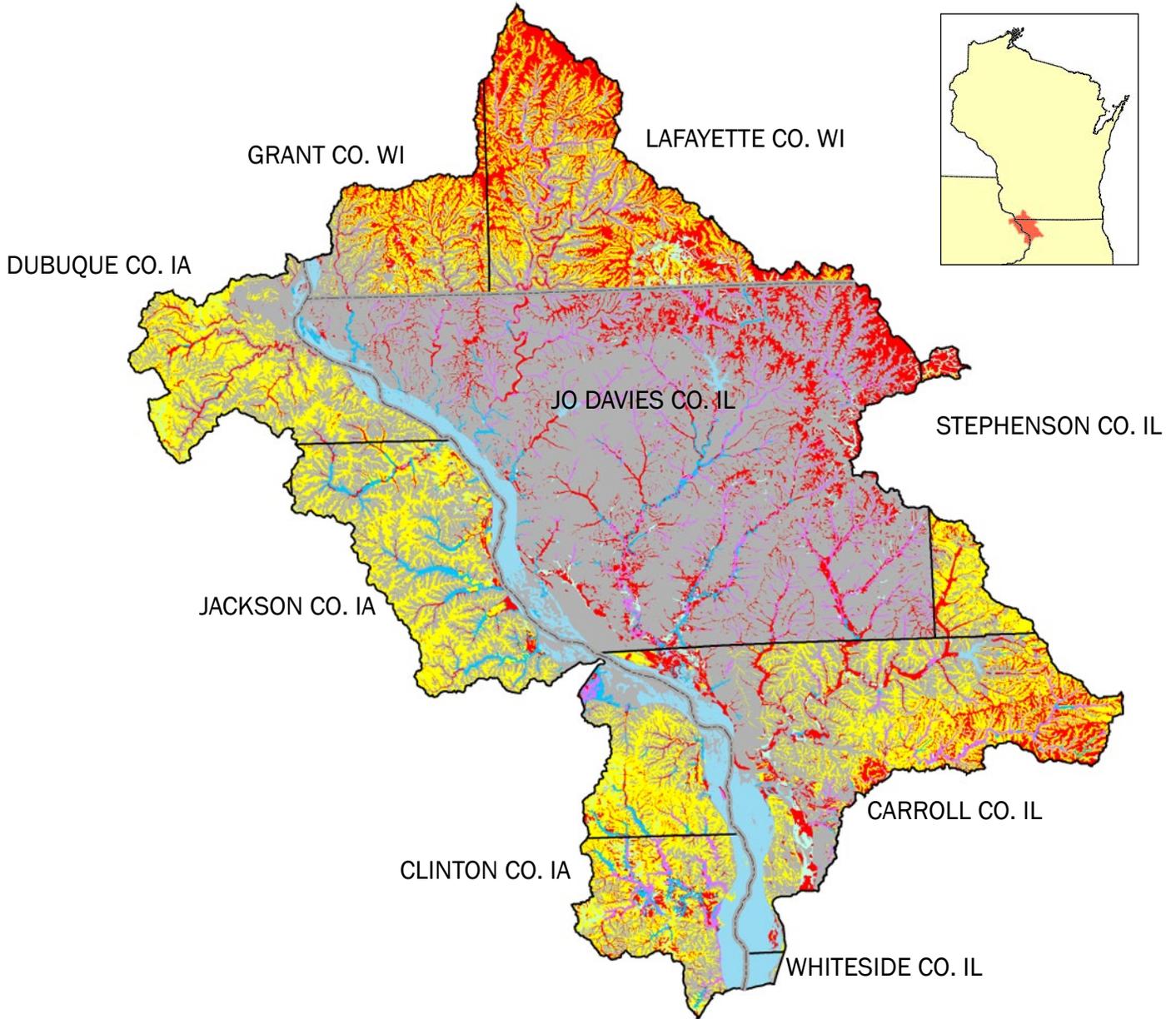


Visit the online Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables.

 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	180,174	19.0
 Farmland of statewide importance	229,554	24.2
 Prime farmland if drained	11,236	1.2
 Not Prime farmland	490,197	51.6
 Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	14,740	1.6

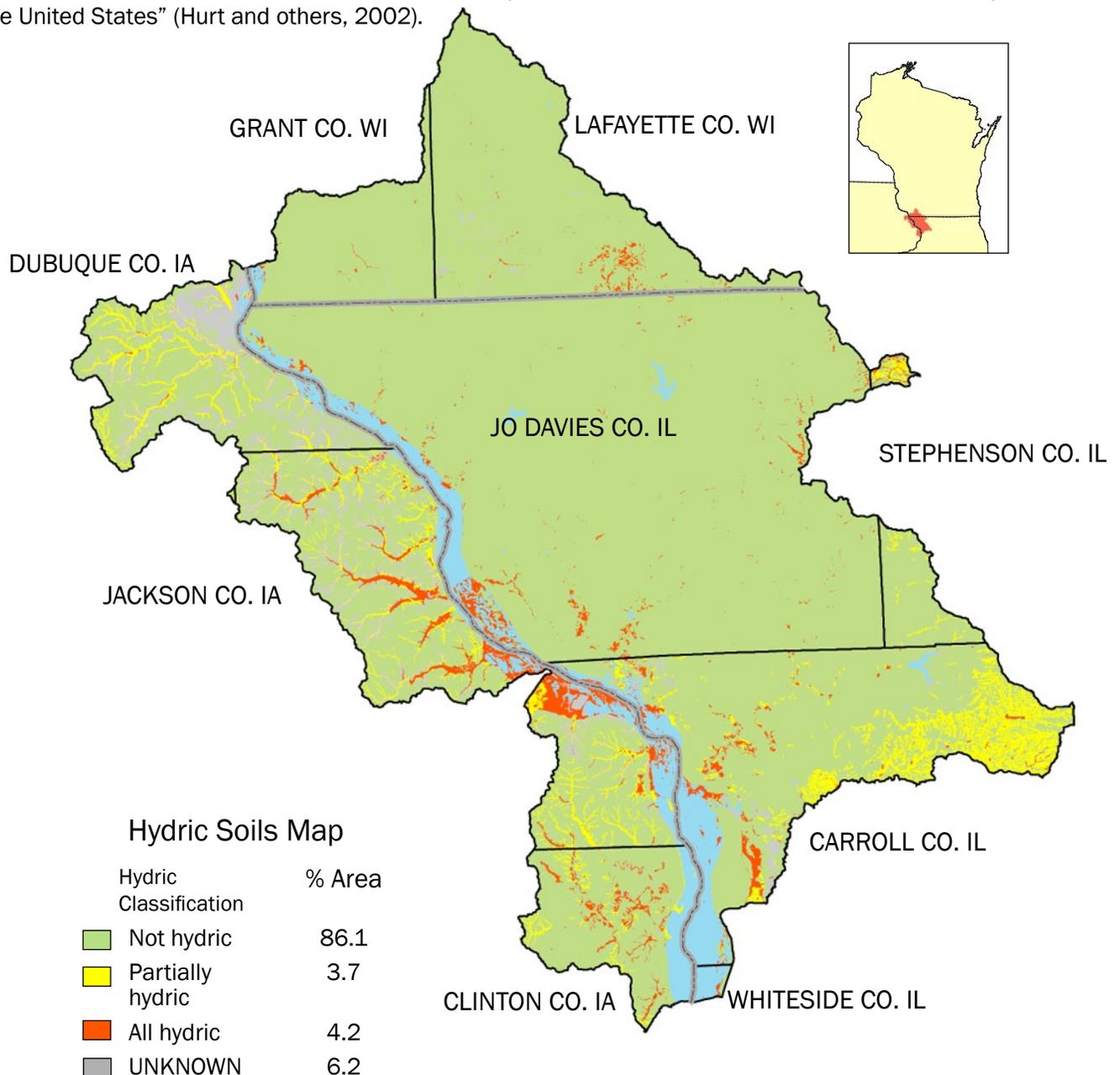
Note:
 The work to resolve inconsistencies brought on by the county based soil survey approach by implementing the Major Land Resource Area soil survey approach is currently underway. By typifying soil series and mapunit concepts across similar geographic areas instead of by political boundaries, the 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.

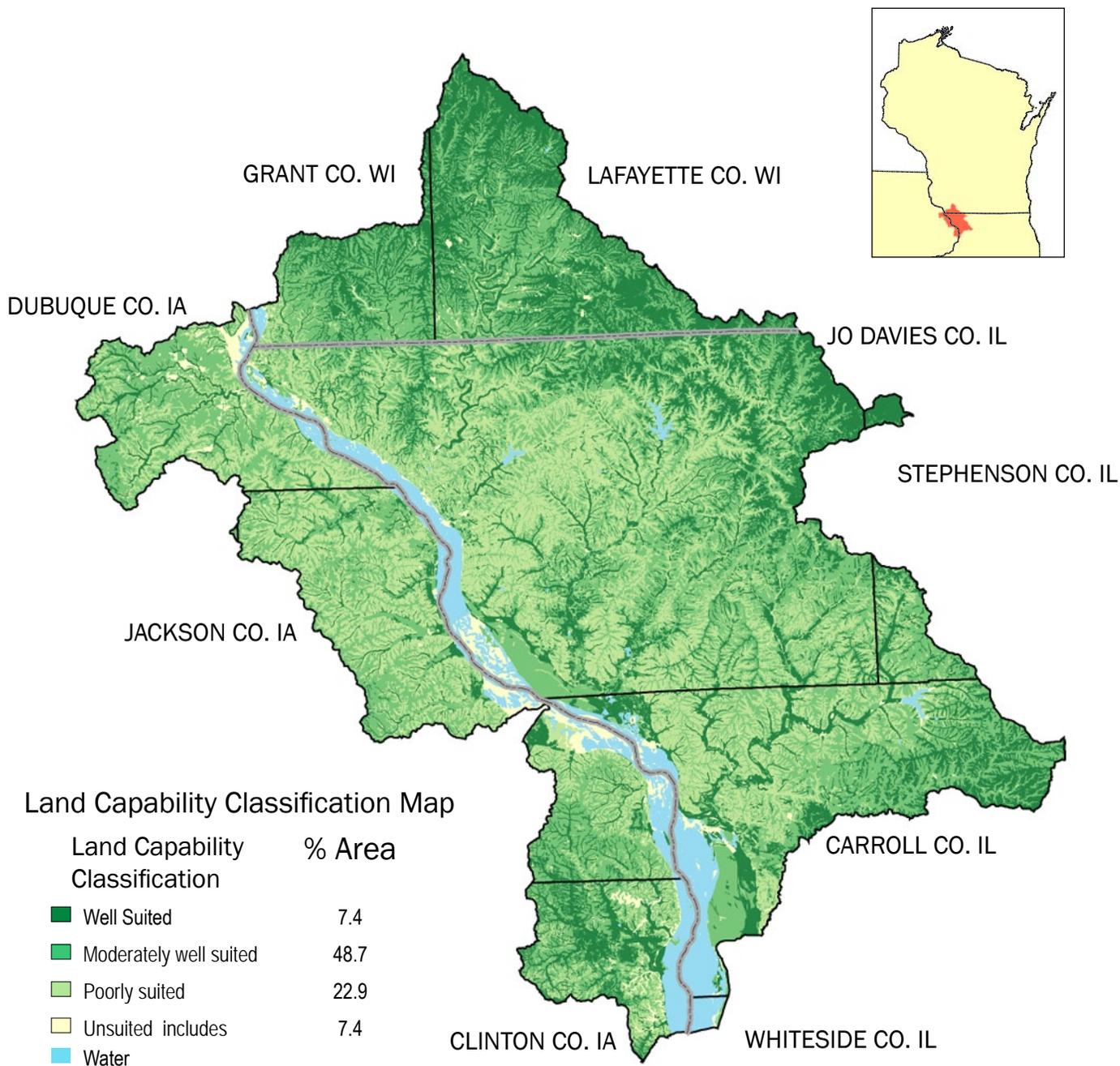
Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils, under natural conditions,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



RESOURCE CONCERNS

The major resource concerns from production lands in the watershed include sheet, rill, ephemeral gully and streambank erosion as well as excessive nutrients and organics in surface water and groundwater. Some best management practices (BMPs) well-suited to address these concerns include mulch-till and no-till planting, nutrient management, grassed waterways, streambank stabilization and cover crops. 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	FY06	TOTAL
Total Conservation Systems Planned (acres)	5,820	7,199	3,727	6,575	6,750	N/A	9,360	5,686	45,117
Total Conservation Systems Applied (acres)	2,642	4,376	4,481	5,016	4,104	N/A	7,399	5,357	33,375
Conservation Practices									
Total Waste Management (313) (numbers)	0	2	2	1	1	0	0	1	7
Riparian Forest Buffers (391) (acres)	108	29	118	1,611	87	0	0	0	1,953
Erosion Control Total Soil Saved (tons/year)	3,331	19,164	25,929	37,479	10,878	N/A	N/A	N/A	96,781
Total Nutrient Management (590) (Acres)	0	0	1,524	2,025	421	134	207	400	4,711
Pest Management Systems Applied (595A) (Acres)	0	0	634	364	41	15	56	816	1,926
Prescribed Grazing 528a (acres)	0	0	0	492	20	0	375	0	887
Tree & Shrub Establishment (612) (acres)	97	47	13	30	33	51	98	98	467
Residue Management (329A-C) (acres)	1,689	1,955	1,777	2,571	2,571	2,726	3,779	949	18,017
Total Wildlife Habitat (644 - 645) (acres)	3,678	3,076	3,310	2,142	1,084	1,263	598		16,541
Total Wetlands Created, Restored, or Enhanced (acres)	0	23	12	89	16	0	0	6	146
Acres enrolled in Farmbill Programs									
Conservation Reserve Program	2,098	2,281	3,870	907	88	N/A	2,274	1,814	13,332
Wetlands Reserve Program	0	0	0	0	0	N/A	0	0	0
Environmental Quality Incentives Program	0	0	0	0	0	N/A	1,172	786	1,958
Wildlife Habitat Incentive Program	0	0	0	0	0	N/A	0	0	0
Farmland Protection Program	0	0	0	0	0	N/A	0	0	0

CENSUS AND SOCIAL DATA (RELEVANT)⁹.

There are 5032 farms in the watershed, covering a total of 985,256 acres. Average farm size in the watershed is 196 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

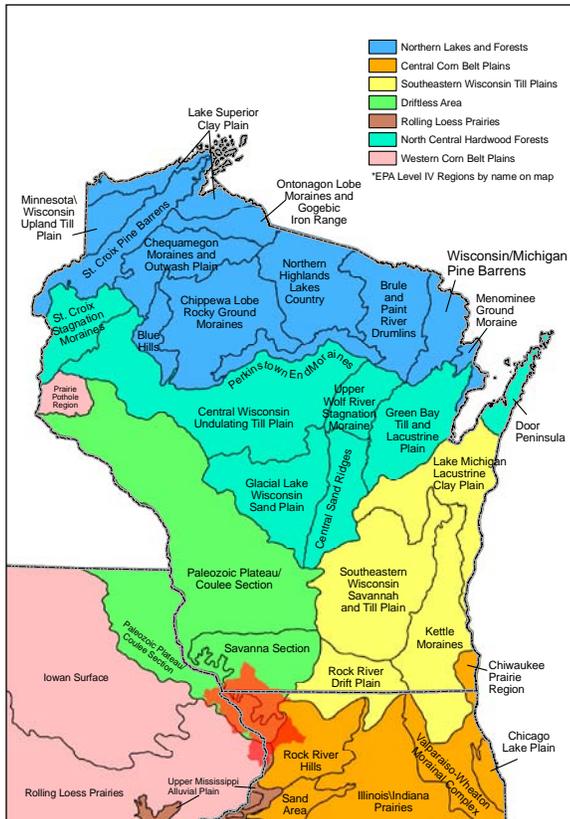
2002 Ag Census Data	Grant	Lafayette	Clinton	Dubuque	Jackson	Carroll	Jo Daviess	Stephenson	Whiteside	Total
Farms (number)	147	309	133	264	430	332	941	55	6	2,617
Land in farms (acres)	35,814	87,888	42,335	56,416	112,190	125,382	251,574	16,567	2,147	730,313
Total cropland (acres)	22,167	67,772	37,707	4	76,446	109,146	173,704	14,953	1,970	503,870
Irrigated land (acres)	17	53	3	43,188	3	6,173	0	0	236	49,673
Principal operator by primary occupation - Farming (number)	94	203	89	3	267	219	577	39	4	1,495
Farms by size - 1 to 10 acres	6	14	9	9	17	12	29	5	0	101
Farms by size - 11 to 49 acres	24	61	25	43	71	72	201	11	1	509
Farms by size - 50 to 179 acres	49	89	32	98	138	73	324	14	1	821
Farms by size - 180 to 499 acres	53	104	39	91	141	101	259	16	2	805
Farms by size - 500 to 999 acres	11	26	20	18	47	44	84	6	1	257
Farms by size - 1,000 acres or more	3	15	8	4	15	30	45	3	1	124
Livestock and poultry - Cattle and calves inventory (farms)	91	199	52	150	242	123	464	26	2	1,347
Livestock and poultry - Cattle and calves inventory - Beef cows (farms)	38	76	32	71	182	62	320	11	1	794
Livestock and poultry - Cattle and calves inventory - Milk cows (farms)	39	91	3	50	29	20	103	8	0	344
Livestock and poultry - Hogs and pigs inventory (farms)	9	19	14	36	37	23	52	4	0	194
Livestock and poultry - Sheep and lambs inventory (farms)	4	8	5	7	13	9	38	3	0	87
Livestock and poultry - Layers 20 weeks old and older inventory (farms)	5	11	4	3	10	5	23	1	0	62
Livestock and poultry - Broilers and other meat-type chickens sold (farms)	2	1	2	1	2	2	7	0	0	15
Selected crops harvested - Corn for grain (acres)	7,130	24,658	18,467	18,366	26,262	61,979	65,533	7,311	1,056	230,762
Selected crops harvested - Corn for silage or greenchop (acres)	1,026	3,265	468	1,475	1,241	1,808	4,279	351	11	13,925
Selected crops harvested - Wheat for grain, all (acres)	40	107	7	51	0	227	364	108	9	915
Selected crops harvested - Wheat for grain, all - Winter wheat for grain (acres)	40	54	7	51	0	227	364	108	9	861
Selected crops harvested - Wheat for grain, all - Spring wheat for grain (acres)	0	53	0	0	0	0	0	0	0	53
Selected crops harvested - Oats for grain (acres)	713	1,206	171	1,177	1,672	713	2,907	160	7	8,727
Selected crops harvested - Barley for grain (acres)	31	182	0	61	0	0	50	10	0	335
Selected crops harvested - Soybeans for beans (acres)	2,861	14,088	13,563	6,432	13,462	27,700	35,694	4,533	698	119,031
Selected crops harvested - Forage - land used for all hay and all hayslage, grass silage, and greenchop (see text) (acres)	6,140	15,330	1,701	9,325	13,333	6,259	34,562	1,491	42	88,184
Selected crops harvested - Vegetables harvested for sale (see text) (acres)	2	2	2	15	22	0	0	1	21	64
Selected crops harvested - Land in orchards (acres)	3	12	8	18	16	12	117	2	0	188

POPULATION ETHNICITY^{10.}

Total Population = 31902
 Urban population = 10,009
 Rural Population = 21,894
 White alone = 31,282
 Hispanic or Latino = 485
 Two or more races = 247
 Black or African American alone = 100
 Some other race alone = 184
 American Indian and Alaska Native alone = 52
 Asian Alone = 38
 Native Hawaiian and Other Pacific Islander alone = 0

URBAN POPULATION^{11.}

Name	1990	2000	2005	Median Household Income*
Andover, IA	99	87	87	\$33,750
Apple River, IL	414	379	373	\$40,250
Bellevue, IA	2,239	2,350	2,358	\$35,293
Benton, IA	898	976	979	\$30,313
Centralia, IA	123	101	100	\$43,333
Clinton, IA	29,201	27,772	27,086	\$34,159
Cuba City, WI	2,024	2,156	2,104	\$38,750
Dubuque, IA	57,546	57,711	57,798	\$45,419
Elizabeth, IL	641	684	673	\$33,587
Galena, IL	3,647	3,468	3,405	\$36,103
Hanover IL	908	836	797	\$29,236
Hazel Green, WI	1,171	1,183	1,205	\$39,643
Lanark, IL	1,382	1,584	1,483	\$35,500
Menominee, IL	187	237	234	\$45,972
Miles, IA	409	462	457	\$33,036
Mount Carroll, IL	1,726	1,832	1,704	\$34,861
Nora, IL	162	118	117	\$28,125
Peosta, IA	128	653	933	\$56,250
Sabula, IA	710	670	667	\$30,192
Saint Donatus, IA	145	140	157	\$39,750
Savanna, IL	3,819	3,542	3,288	\$27,180
Scales Mound, IL	388	401	387	\$35,294
Shannon, IL	887	854	799	\$42,500
Shullsburg, WI	1,236	1,246	1,198	\$32,333
Springbrook, IA	116	182	185	\$50,750
Stockton, IL	1,871	1,926	1,820	\$35,921
Thomson, IL	538	559	536	\$36,667
Warren, IL	1,550	1,496	1,421	\$37,083



ECOLOGICAL LANDSCAPES¹²

COULEE SECTION

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.

SAVANNA SECTION

Topography in the Savanna Section of the Driftless Area is different than the rest of the level III ecoregion because of its characteristic broad, relatively level ridge tops and narrow steep sided valley bottoms. Elsewhere in the dissected Driftless Area, the landform mosaic comprises relatively broad, flat valley bottoms with steep sharper crested ridges or a pattern of nearly equal amounts of flatter areas in the valley bottoms and interfluvies. The soils are well drained silty loess over residuum,

dolostone, limestone, or sandstone. Land use patterns in the Driftless Area also follow spatial differences in slope; hence, this Savanna Section ecoregion is predominantly agriculture on the uplands and some mixed woodland/agriculture in lowland areas. The potential natural vegetation of the region is a mosaic of oak forests and savannas, large prairie grassland areas, and some sugar maple/basswood/oak forests. The region is also known for past lead and zinc mining.

ROCK RIVER HILLS

The Rock River Hills is mostly composed of agriculturally dominated, rolling hills and undulating plains; however, more rugged, partly forested ridges, ravines, and bluffs occur in the southeast and northwest. Physiography is strongly influenced by the underlying limestone, dolomite, and sandstone; it is not significantly masked by the region's thin mantle of glacial till. Caves occur in limestone and dolomite. Most soils were derived from loess, but other soils in major valleys typically developed from glacial outwash or alluvium, and still others were derived from till or residuum (Natural Resources Conservation Service, various dates).

In the early 19th century, dry, shortgrass prairies were found on undulating to rolling uplands, and transitioned into mesic prairies dominated by big bluestem and Indian grass. Dry or mesic upland forests grew on ridge slopes and on fire-protected uplands, Canada yew–yellow birch forests grew on cool bluffs and in ravines, and floodplain forests occurred on bottomlands. Native flora is influenced by bedrock, with several species confined to areas underlain by sandstone.

Today, more than half is used as cropland; livestock farming is also important, and forest remnants are largely confined to steep slopes and riparian areas. Main crops include corn, soybeans, and wheat. Field tiles are normally used for drainage. Cropland is more common but is much less extensive than in the Illinois/Indiana Prairies.

ROLLING LOESS PRAIRIES

Loess deposits on well drained plains and open low hills characterize the Rolling Loess Prairies ecoregion. Loess deposits tend to be thinner than those found in Steeply Rolling Loess Prairie Region to the west, generally less than 25 feet in depth except along the Missouri River where deposits are thicker. Potential natural vegetation is a mosaic of mostly tallgrass prairie and areas of oak-hickory forest. Although cropland agriculture is widespread, this region has more areas of woodland and pasture than the Steeply Rolling Loess Prairie Region.

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 3.2

WATERSHED PROJECTS, STUDIES, MONITORING, ETC.

The Galena River was one of the original Wisconsin Priority Watershed projects that first began in 1979. The project provided cost-sharing and technical assistance to landowners for the implementation of BMPs was carried out through county land/soil and water conservation departments, the Soil Conservation Service (now NRCS), and other partners. The Bloody Run watershed project, also near Dubuque, focused on nutrient management in the early 1990s. Other past projects in the Iowa portion of the watershed include Big Mill and Little Mill Creeks.

There are several other sub-watershed projects currently underway in Iowa. The ongoing Upper Catfish Creek Watershed Project, near Dubuque, IA, focuses on agricultural and urban best management practices. The Elk River project is underway and is funded through Environmental Protection Agency (EPA) 319 funds. An inventory has been completed for the Tete Des Morts Creek watershed in anticipation of future EPA 319 funding.

The entire Wisconsin portion 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 contract that involves installation, practice, and annual payments with the option of a perpetual easement. The Illinois and Iowa portions of the watershed are not eligible for CREP but the similar continuous Conservation Reserve Program (CRP) is available.

The Wisconsin Agricultural Stewardship Initiative (WASI) has a large presence in the watershed, with UW-Platteville Pioneer Farm and a Discovery Farm located in southwest Lafayette County, WI. The Pioneer Farm researches the feasibility and economics of farming practices in whole-farm, applied research system. The Discovery Farms program carries out a similar role, focusing on best management practices, on private, working farms throughout Wisconsin.

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://dnrmapping.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer>) The Iowa Department of Natural Resources has a similar interactive mapping tool. http://csbweb.igsb.uiowa.edu/imsgate/help/howto_stream.asp

PARTNER GROUPS

- Departments of Agriculture
 - Illinois <http://www.agr.state.il.us/>
 - Iowa Department of Agriculture and Land Stewardship <http://www.agriculture.state.ia.us/>
 - WI Dept. of Agriculture, Trade, and Consumer Protection <http://www.datcp.state.wi.us>
- Driftless Area Initiative <http://www.driftlessareainitiative.org/index.html>
- Departments of Natural Resources
 - IL <http://dnr.state.il.us/>
 - IL Environmental Protection Agency <http://www.epa.state.il.us/>
 - IA <http://www.iowadnr.com/>
 - WI <http://dnr.wi.gov/>
- Extension
 - Iowa State University Extension <http://www.extension.iastate.edu/>
 - University of Illinois Extension <http://web.extension.uiuc.edu/state/>
 - University of Wisconsin Cooperative Extension <http://www.uwex.edu/ces/> and <http://basineducation.uwex.edu>
- Illinois Watershed Association <http://www.watershed.uiuc.edu/IllinoisWA/Why.htm>
- Iowa Rivers Revival <http://www.iowarivers.org/Home/tabid/36/Default.aspx>
- Land Conservation Committees/Soil and Water Conservation Districts
 - Conservation Districts of Iowa <http://www.cdiowa.org/>
 - Association of Illinois Soil and Water Conservation Districts <http://www.aiswcd.org/>
 - Wisconsin Land and Water Conservation Association (County Land Conservation Committee organization) www.wlwca.org
 - WI Land and Water Conservation Directory <http://datcp.state.wi.us/arm/agriculture/land-water/conservation/pdf/ar-pub-119-2007.pdf>
- Regional Planning Commissions
 - Southwestern Wisconsin Regional Planning Commission <http://www.swwrpc.org/>
- Resource Conservation and Development Councils
 - Blackhawk Hills Resource Conservation and Development Council www.blackhawkhills.com
 - Southwest Badger Resource Conservation and Development Council <http://www.swbadger.com/>
- River Alliance of Wisconsin <http://www.wisconsinrivers.org/>
- Trout Unlimited <http://www.wisconsintu.org/chapters.htm>
 - IL (nearest): Gary Borger Chapter <http://www.garyborgertu.org/index.php>
 - IA: Driftless Chapter <http://www.iadriftless.org/>
 - WI: Harry and Laura Nohr Chapter www.NohrTU.org
- US Army Corps of Engineers <http://www.usace.army.mil/>
- USDA Farm Service Agency
 - IL <http://www.fsa.usda.gov/FSA/stateoffapp?mystate=il&area=home&subject=landing&topic=landing>
 - IA <http://www.fsa.usda.gov/FSA/stateoffapp?mystate=ia&area=home&subject=landing&topic=landing>
 - WI <http://www.fsa.usda.gov/wi/news/default.asp>
- US Fish and Wildlife Service <http://www.fws.gov/midwest>
- USDA-Natural Resources Conservation Service
 - IL <http://www.il.nrcs.usda.gov/>
 - IA <http://www.ia.nrcs.usda.gov/>
 - WI <http://www.wi.nrcs.usda.gov>
- Wisconsin Agricultural Stewardship Initiative (WASI) <http://www.uwplatt.edu/pioneerfarm/wasi/index.html>
 - Discovery Farms <http://www.uwdiscoveryfarms.org/>
 - Pioneer Farm <http://www.uwplatt.edu/pioneerfarm/index.html>

FOOTNOTES/BIBLIOGRAPHY

Sources:

1. 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:

Grant Co. WI (WI043) Published 20060301
Lafayette Co., WI (WI056) Published 20061213
Jo Davies Co. IL (IL085) Published 20061229
Carroll Co., IL (IL015) Published 20060929
Stephenson Co., IL (IL177) Published 20060929
Whiteside Co., IL (IL195) Published 20070103
Clinton Co., IA (IA045) Published 20080429
Dubuque Co., IA (IA061) Published 20080428
Jackson Co., IA (IA097) Published 20080320

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

http://www.epa.gov/wed/pages/ecoregions/moia_eco.htm

http://www.epa.gov/wed/pages/ecoregions/il_eco.htm

