BLACK EARTH CREEK WATERSHED (LW17)

The Black Earth Creek watershed covers 103 square miles in western Dane County and the northeast corner of Iowa County. Although much of the watershed was not glaciated, the hydrologic characteristics were profoundly shaped by glaciation. While the majority of the watershed lies in the driftless area, the headwaters of the Black Earth Creek and its tributary, Halfway Prairie Creek lie in the smooth rolling landscape of glaciated land. The glaciated morainal landscape contains features such as depressions and kettles and encompasses the major spring areas that feed the Black Earth Creek. The forested slopes, plus some key internally drained areas, provide excellent infiltration of rainwater and subsequent groundwater recharge that are responsible for the baseflow dominated quality of Black Earth Creek and most of its tributaries. One notable area of geologic interest is in the Ice Age Reserve Cross Plains Unit where morainal rocks not present in other meltwater formations litter a deep ravine carved by glacial meltwater.

A majority of the Black Earth Creek Watershed is rural but the eastern edge of the watershed is seeing increasing residential and commercial development as people look to move to more rural settings and commute to work. This is seen as the City of Madison has experienced only a 5.27 % growth, while surrounding villages and towns, including the villages of Cross Plains, Black Earth, and Mazomanie, have grown at a faster rate.

Table 1: Growth in Municipalities in the Watershed

Municipality	*1990*	*2000*	*% Change*
Black Earth	1,248	1,320	5.8%
Cross Plains	2,362	3,084	30.6%
Mazomanie	1,377	1,485	7.8%

The basin is largely dominated by agriculture. The major agricultural practices in the watershed are dairying and cash cropping. Other major land cover in the basin is deciduous forest and grassland. There are few wetlands in the watershed and those that do exist are concentrated along streams. Most of these wetlands are emergent/wet meadow, forested, open water, scrub/shrub, aquatic bed,

Watershed At A Glance

Drainage Area (m^2): 103.0

Total Stream Miles: 75.0

Trout Stream Miles: 21.8

Sport Fishery Miles: 11.5

Lakes: Indian, Marion Lakes and Salmo Pond

Exceptional/Outstanding Resource Waters: Black Earth and Garfoot Creeks

Municipalities: Cross Plains, Black Earth and Mazomanie

Major Public Lands:
- Black Earth Creek Fishery Area
- Ice-Age Reserve
- County Parks (Festge, Halfway Prairie, Indian Lake, Salmo Pond, and Walking Iron)

Concerns and Issues:
- Development Pressure
- Nonpoint Source Pollution
- Stormwater Impacts
- Development of Infiltration Areas
- Atrazine

Initiatives and Projects:
- BECCO
- BECWA
- River Protection Grant
- Former Nonpoint Source Priority Project
- Ice Age Trail
- Purchase of development rights or conservation easements; Natural Heritage Land Trust, American Farmland Trust, Dane County
- Black Earth Creek Watershed Land Conservation Coalition
- Stormwater and development study on Brewery Creek
- Dane County Black Earth Creek Resource Area
- USGS gauging stations

and filled/drained wetlands and many of them have been modified due to agricultural drainage, channelization and construction. These areas are subject to flooding and seasonal high water tables. The Black Earth Creek Watershed actually has over 300 acres of mitigated or restored wetlands. Most of these are on private lands, although many of these are WDNR wetland easement areas. Three of the mitigation/construction sites are in cooperation with the federal Wetlands Reserve Program (WRP). Dane County administers much of the federal and state programs that distribute money for wetland restoration.

Table 2: Land Cover in the Watershed

Land Cover	*Percent of Watershed*
Agriculture	43.14%
Forest (Total)	37.41%
Broad-Leaf Deciduous	*36.51%*
Coniferous	*0.90%*
Grassland	14.66%
Wetland (Total)	2.28%
Emergent/Wet Meadow	*1.86%*
Forested	*0.33%*
Lowland Shrub	*0.09%*
Development	1.48%
Other	1.04%

The Black Earth Creek Watershed has a variety of good quality habitats and rare plant communities that are listed on the state's Natural Heritage Inventory, (NHI), kept by the Bureau of Endangered Resources. These communities include:

- Dry prairie
- Dry-mesic prairie
- Southern dry forest
- Southern dry-mesic forest
- Emergent aquatic
- Floodplain forest
- Shrub-carr
- Southern sedge meadow

In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; 1 species of beetle, 2 species of butterflies, 1 species of leafhopper, 10 species of fish, 1 species of lizard, 8 species of mussels, 31 plant species, 4 species of moths, 3 species of mammals, and 1 species of snake. These plants and animals are also listed on the state's Natural Heritage Inventory.

State and local governments own about 1,330 acres, or about 2% of the watershed, of park and natural areas land in the watershed. A majority of the publicly owned land in the watershed is owned and managed by Dane County. The following chart details the acres of public land in the Black Earth Creek Watershed.

Area	Acres
State	
Black Earth Creek Fishery	332
Ice-Age Reserve-Cross Plains	129
Total	*461*
County Parks and Natural Areas	
Festge	126
Halfway Prairie	1
Indian Lake	442
Salmo Pond	6
Walking Iron	320
Total	*895*
Local Government Parks and Natural Areas	
Village of Black Earth	0
Village of Cross Plains	26
Village of Mazomanie	8
Total	*34*
Total Acres of Parks and Natural Areas	***1,330***

Information from the Dane County Parks and Open Space Plan Report 2000

Although the watershed doesn't have any designated wildlife areas or preserves, the Black Earth Creek Fishery is being managed to support the hunting of fox, white-tailed deer, cottontails, fox and gray squirrels, blue-winged teal, mallards and pheasants, and trapping for mink, muskrats, raccoons and beaver (Black Earth Creek Fishery Area Master Plan). Otherwise, most animal populations dwell on the private lands within the watershed. Several county parks provide wildlife viewing as does the Ice Age Scientific Reserve.

Increasing development in the watershed is a major threat to water quality and natural resource health in the watershed. Development increases the percentage of land that is impervious to water. Currently, the three municipalities in the watershed direct their stormwater runoff into Black Earth Creek. This influx of warm unfiltered water often picks up pollutants and can be detrimental to the aquatic community. Development can also increase the amount of sediment that enters the creeks as a result of construction site erosion.

In addition to increasing pollution or thermal problems as a result of stormwater runoff, stormwater runoff can also change the hydrology of a stream. The rapid urban development in the headwaters of Black Earth Creek has raised concerns that groundwater flow, and therefore baseflow, to the creek may decrease, affecting water quality and habitat. In addition, stormwater runoff may change the overall volume of water in a creek, and the speed at which the water enters the creek. Fish managers in the region state that one of the most the

pressing issues facing the fish habitat in the watershed is the effect of encroaching development on ground water recharge and withdrawal.

Careful well planning throughout the watershed will protect the baseflow of the streams in the watershed. In addition, Best Management Practices (BMPs) can reduce the effects of stormwater. Some of these practices include extended detention basins, wet ponds, infiltration trenches and basins, porous pavement, water quality inlets, grassed swales, and filter strips. The Village of Cross Plains has installed infiltration basins, one of the most effective BMPs, near parking lots and streets. The water is directed to the basin where it is filtered through gravel and allowed to evaporate and soak into the ground before the excess is directed into the creek. This process not only filters out pollutants, but it gives the water a chance to cool before entering the creek. The Villages of Black Earth and Mount Horeb have also been working with the county to address this issue.

Agricultural practices are a major contributor of nonpoint source pollution and can have a major impact on water quality. Eroding agricultural lands, eroding stream banks, animal lots, and fields spread with manure are the main sources of pollution in the watershed. In addition, the delievery of pesticides and herbicides from broken tile lines is also a concern. Best Management Practices (BMP's) such as conservation crop rotations, conservation cover crops, minimum tillage, contour strip cropping and grassed waterways have been employed to combat pollution in the watershed. Other conservation techniques include enrollment in the CRP or CREP program. This program pays farmers to leave marginal land in conservation easements.

Drinking water and groundwater is also threatened by possible atrazine contamination and about half of the watershed lies in an atrazine prohibition area. These areas indicate that elevated levels of atrazine, an herbicide used on corn, has been found in some tested private water wells. Soils in these areas are permeable which has allowed atrazine to reach groundwater in some locations. See Appendix A.

Projects to Address Nonpoint Pollution in the Watershed

Development Study: Development pressures in the Village of Cross Plains have prompted the Dane County Land Conservation Department (LCD) to join with the EPA and USGS to study the water quality impacts from an 80 acre development that will surround a stretch of Brewery Creek. Study sites both up and down stream have been selected to verify runoff from the construction along the creek. Discharge and associated solids concentration and loads, as well as total and dissolved phosphorus concentrations are being measured. The collection of data is being conducted collected prior to construction, during construction, and after construction. The conclusions drawn from the study will assess the water quality impacts of construction site erosion, evaluate the hydrologic changes to the stream as a result of this development and may help local policy makers direct future developments to preserve water quality.

The Priority Watershed Project: In 1989, the watershed was the subject of a nonpoint source priority watershed study by the WDNR, in which water quality was evaluated and

steps to improve water quality were described in the Black Earth Creek Priority Watershed Plan. The 1985 plan for nonpoint pollution control identified several problems to be addressed by the installation of Best Management Practices (BMP) on about 18% of the agricultural land in the watershed. As a part of the project, approximately 300 landowners were contacted and inventoried. From the results of the inventory, pollutant sources were identified and water quality goals were set. One hundred and eight landowners signed cost-share agreements for the installation of conservation practices to address these pollutant sources. Through 1998, a total of $125 million in local assistance and cost share grants was spent. BMPs included wetland restoration, grassed waterways, grade stabilization structures, rock crossings, fencing, LUNKER structures, fencing, rip rap, and shaping and seeding. Barnyard pollution problems were reduced by the installation of diversion structures, settling basins, filter walls and vegetated filter strips. Pollutant load reduction goals have been exceeded by an average of 61% and, as shown in the table below, in some cases project goals were exceeded by as much as 89%. A detailed discussion of the nonpoint source problems and actions for this watershed can be found in *A Plan for the Control of Nonpoint Sources and Related Resource Management in the Black Earth Creek Priority Watershed* or in Appendix B of the *Dane County Water Quality Plan* prepared by the Dane County Regional Planning Commission (DCRPC).

Table 3: Black Earth Creek Priority Watershed Project *(Project date: 1989 - 2000)*

Pollutant Source	*Barnyard (Phosphorus)*	*Upland Sediment*	*Gully*	*Streambank*
Inventoried Load	3,752 lb.	426,726 tons	11,800 tons	39,010 tons
Goals (Reduce By)	1,876 lb. (50%)	213,363 tons (50%)	5,900 tons (50%)	19,505 tons (50%)
*Reduction	3,198 lb.	327,499 tons	10,555 tons	32,756
% Reduction of goal	170%	153%	179%	140%
% Reduction of total load	85%	77%	89%	70%
**Represents local, county, state, and federal funding sources.*				

Source: Dane County Land Conservation Department

Point sources of pollution also have potential to affect the natural resources in the Black Earth Creek Watershed. Currently, there are three municipalities that release surface water discharges into the Black Earth Creek. Since the publication of the last Dane County Water Quality Plan in 1995, significant changes have occurred in wastewater treatment plants (WWTP) in the Black Earth Creek watershed. The Dane/Iowa County Sewerage Commission WWTP has replaced the Black Earth and Mazomanie facilities. The facility started up in June 2000 and discharges to Black Earth Creek. Because of the additional processes at the new plant, there is a significant improvement in the water quality that is discharged into the creek. Additionally a pathogen-free, "Class A" sludge is produced and can be used in the home garden. In Cross Plains, the sludge treatment system has been improved and the sludge will be processed by the new Dane/Iowa WWTP and turned into "Class A" sludge which can be used in the home garden. The Cross Plains WWTP also has constructed chemical phosphorus removal facilities and is removing phosphorus from their effluent. Capitol Sand and Gravel

discharges to Black Earth Creek and is the only industrial point source discharge in the watershed. This company operates a large sand and gravel operation near Black Earth Creek and discharges wash water to Black Earth Creek. In the past, this discharge has led to excessive warming of the water in the creek. The company has undertaken measures to alleviate this problem. Expansion of the operation may pose a threat to maintenance of baseflow to the stream.There is one landfill in the watershed that is a Superfund cleanup site.

Note: The Dane County portion of this watershed is also discussed in the Dane County Regional Planning Commission (DCRPC) Dane County Water Quality Plan. The DCRPC plan should also be consulted for additional information, priorities and recommendations.

STREAMS AND RIVERS IN THE BLACK EARTH CREEK WATERSHED

Black Earth Creek

Black Earth Creek is a 27-mile long tributary to Blue Mounds Creek. The headwaters of the stream are heavily influenced by channelization and support only warm water forage fish. The rest of the creek, however, has a high fisheries value. The lower 11.5 miles support a warm water sport fishery that includes smallmouth bass although the section between Black Earth and Mazomanie may be able to be reclassified to cold water. Upstream from this warm water section, the stream is a cold water trout fishery and is fed by a series of spring complexes including a large cold water spring upstream from the Village of Cross Plains (Festge Springs) and numerous, other smaller springs. This stretch of Black Earth Creek is on the state's list of Outstanding and Exceptional Resource Waters (ORW/ERW) and supports a large population of naturally reproducing brown trout as well as a few native brook trout. The stream is stocked down stream with rainbow trout to increase additional opportunity for the anglers. A rare aquatic species has also been found in this stream during past stream surveys.

Overall, Black Earth Creek has high natural alkalinity, average temperatures that range from 40-65 degrees Fahrenheit, a substrate of rubble and gravel, and relatively stable flows—these qualities combine to provide a highly productive aquatic ecosystem for the naturally reproducing brown trout population that exists in Black Earth Creek. As a result, the stream has been rated as one of the best 100 trout streams in the nation by Trout Unlimited. Public access is available at many road crossings and several village owned and WDNR properties.

Despite its good quality, however, the entire stream is vulnerable to agricultural and urban runoff as well as permitted point source discharges. Agricultural sources of runoff include cropland erosion, barnyard runoff and manure spreading on fields. Although this agricultural nonpoint source pollution has in many cases been addressed through the Priority Watershed Project for Black Earth Creek which is in its final stages, the stream is still at risk when these agricultural sources are poorly managed. In addition, the increasing development in the villages and in the watershed as a whole bring with it the threat of increased stormwater runoff and groundwater withdrawal. In particular, stormwater runoff from the Village of Cross Plains and other developments threaten the future of Black Earth Creek and its tributaries.

These nonpoint sources of pollution can have significant impacts on the water quality the stream and the overall population of fish. This was evidenced by a fish kill that took place during the summer of 2001. The fish kill occurred after a heavy rain event and was likely due to low dissolved oxygen levels in the stream. This event most likely overloaded the stream with pollutants from urban streets and agricultural lands. Sampling conducted throughout the summer of 2001 found that chlorine may have been a part of the problem in the creek. There were levels of chlorine detected that were over twice the limit at which it is acutely toxic. In addition, during a major rainfall, from 75% to almost 100% of total phosphorus was soluble phosphorus. Soluble phosphorus is typically a raw source of the nutrient similar to those found either in fertilizers or manure. The conditions that caused the fish kill could reoccur on the stream if the stream remains vulnerable to sources of agricultural and urban runoff.

Due to its value as a fishery resource and its location, Black Earth Creek has been the focus of many other projects. Currently, there are three USGS gauging stations on the creek located at CTH KP at Cross Plains, on a tributary to the creek at Cross Plains, and at the Village of Black Earth. These stations provide "real-time" USGS data on the internet including flow, river stage, and water temperature.

In addition, USGS in partnership with the WDNR are doing a study "Evaluation of the Effectiveness of Low Impact Development Practices. The study looks at low-impact development practices designed to reduce the volume of runoff. These practices include the reduction of impervious areas and the development of infiltration devices. The study relies on data on water level, precipitation and water temperature. Water quality samples for runoff events will be analyzed for total and suspended solids and total phosphorus. The project is expected to run from July 1998 to September 2005.

Annual trout population counts and an annual insect survey on Black Earth Creek were conducted as a part of the Priority Watershed Program that concluded in 1999. The stream has been monitored as a part of the state's baseline monitoring initiative. Monitoring efforts are currently on-going on the stream.

Keys to the protection and maintenance of the creek rely on reducing the stream's vulnerability to runoff, protecting recharge areas, establishing buffers along the stream to filter out nonpoint pollution, controlling stormwater runoff, and enhancing streambank and in-stream habitat.

Brewery Creek

Brewery Creek is a 2.7-mile tributary to Black Earth Creek at Cross Plains. The creek provides important habitat for forage fish and for small brown trout. This habitat, however, is affected by modifications such as dredging and ditching. These activities also increase the sediment loading. As a tributary to Black Earth Creek, nutrient and organic enrichment to Brewery Creek eventually adds to Black Earth Creek's nonpoint source pollution problems.

The creek is subject to flooding and low summer flows. These problems may be exacerbated by increasing development in Cross Plains where additional stormwater runoff will contribute

a larger volume of water and pollutants to the creek and increased pumping may affect baseflow conditions.

The stormwater situation is being addressed in the development study that is being conducted by Dane County Land Conservation Department and the EPA, which focuses on the effects of urbanization and stormwater on water quality, see page 284. Brewery Creek is also designated as a "priority stream" in the Dane County Open Space Plan that prioritizes it for funding to acquire land and protect the stream bank.

In addition, monitoring has been conducted on the creek for many years as a result of the significance of the Black Earth Creek system and the watershed's status as a Priority Watershed Project. These results, when compared with results collected in 1999 through 2000 indicated improved water quality in Brewery Creek. It is suspected that this improvement is the result of the installation of agricultural best management practices along the creek as a result of the Black Earth Creek Priority Watershed project that took place from 1985 to 1996. It is important to try to minimize the potential impact that increased residential development could have on the stream. Urban stormwater runoff could potentially reverse the effect of the work completed as a result of the nonpoint priority watershed project.

Currently, there are two USGS gauging station on the creek located upstream from Cross Plains and at Cross Plains. These stations provide "real-time" USGS data on the Internet including flow, river stage, and water temperature.

The creek has also been surveyed as a part of the WDNR's baseline monitoring efforts. In addition the creek should be monitored in cooperation with Dane County to assess overall development impacts. Other keys to the protection and maintenance of the creek rely on protecting recharge areas, improving the riparian corridor, and controlling stormwater runoff, and enhancing streambank and in-stream habitat.

Garfoot Creek

This 3.8-mile tributary flows into Black Earth Creek a few miles west of Cross Plains. Although changes to the stream bed have occurred and nonpoint source pollution has affected fish habitat, this creek supports cold water aquatic communities and is listed as an exceptional resource water (ERW). Overall, Garfoot Creek is in pretty good shape and is improving due to the Priority Watershed Project.

The cold spring fed waters support brown trout and access is available from bridges and WDNR properties. Recently, wild brook trout have been stocked into this stream in an effort to establish a naturally reproducing population. The creek has been surveyed as a part of the WDNR's baseline monitoring effort. In addition, a cursory habitat evaluation was conducted during the summer of 2001. The evaluation found the creek to have good in-stream habitat. Erosion and other nonpoint sources of pollution from the surrounding watershed were noted, but not thought to be major problems.

The creek's fish population should continue to be monitored to determine the success of the wild brook trout program. In addition, the stream should be evaluated to determine if habitat work is needed.

Halfway Prairie Creek
Halfway Prairie Creek is an 11-mile tributary that originates at Indian Lake and flows to Black Earth Creek on the west side of the Village of Mazomaine. Ditching and sedimentation have caused habitat problems on the creek. Currently the creek is listed as an impaired water body (on the 303 (d) list due to sedimentation and loss of instream habitat) but with the restoration of some of the natural stream courses and a reduction in non-point source pollution, the water quality could be improved to support a cold water fishery. Access is available from Indian Lake and bridges.

Vermont Creek
Vermont Creek is 6 miles long and joins the Black Earth Creek just west of the Village of Black Earth Creek. Many of the banks of creek are lined with wetlands and wet meadows. The creek has been evaluated as a cold water stream that supports natural reproduction of brown trout. There are some ponded spring heads on the creek and sections of the creek have been channelized. Although a cursory habitat evaluation conducted on a headwater section of the creek during the summer of 2001 found the creek to have good in-stream habitat, habitat work is needed in the channelized portion of the stream. Erosion and other nonpoint sources of pollution from the surrounding watershed were noted, but not thought to be major problems.

Habitat restoration, sediment control, and reduction of nonpoint control would greatly enhance the water quality and fish habitat of this stream. Habitat improvement work should be completed in the WDNR owned section of the creek and serve as a pilot project. Access is available from road crossings and WDNR properties and easements.

Wendt Creek
Wendt Creek lies between Halfway Prairie Creek and Black Earth Creek and is 6 miles in length. It meets Halfway Prairie Creek to the east of Mazomanie. Like many of the other tributaries; pollution and loss of habitat are the concerns and are responsible for this creek being placed on the list of impaired waters (303(d)). This subwatershed has several wetland areas and some are under WDNR easements or ownership.

LAKES IN THE BLACK EARTH CREEK WATERSHED

Indian Lake
This 66-acre lake is the focus of a Dane County Park. It is an isolated water body with a mean depth of 4.6 feet and is adjacent to approximately 10 acres of wetlands and wet meadows. Halfway Prairie Creek flows from the west end of the lake and Indian Lake Park surrounds the lake. The lake is hypereutrophic and subject to summer algae blooms. Due to the installation of an aeration system that is run in the winter months, the winter fish kills that were once common in the lake have been almost entirely eliminated. Although the water is adversely affected by nonpoint pollution from agricultural practices, it is believed that

changes in activities in the watershed will not have a large affect on the water quality. Stocking in the last decade has established a naturally reproducing population of blue gill and large mouth bass. Access is provided from Indian Lake Park. The Dane County Open Space plan recommends that land be acquired around the park to buffer the lake and include the wetlands that contain the springs that form the headwaters of the lake.

Marion Lake
Marion Lake is a small lake on the southeast edge of Mazomaine, between the railroad and Highway KP. Currently the WDNR is not involved in the management of this lake although local sportsmen's clubs occasionally stock the lake to improve recreational opportunities.

Salmo Pond
Salmo Pond is located on the south side of USH 14 west of Cross Plains. The pond is a deep, abandoned gravel pit and is 6 acres with a maximum depth of 15 feet. It is stocked with rainbow trout and contains naturally reproducing populations of bass, blue gill, pumpkinseed. The pond is adjacent to a section of the Black Earth Creek Fishery Area.

RECOMMENDATIONS (LW17)

- Continue to identify potential projects that will address the significant rural and urban runoff issues in the watershed.
- Work with farmers and other partners whenever possible to address **Black Earth Creek's** vulnerability to nonpoint source issues such as the manure spreading, construction site erosion, cropland erosion, urban stormwater runoff and barnyard runoff.
- Continue the evaluation monitoring (siltation study) on **Black Earth Creek**.
- Conduct stream and watershed ranking to determine the nonpoint source pollution priorities in the watershed.
- Need to protect wetlands in the watershed, particularly those that act as recharge areas for streams.
- Survey **Garfoot Creek** to track the success of the wild brook trout program/stocking in the stream.
- Use state owned land along **Vermont Creek** as a pilot habitat restoration project.
- Monitor **Black Earth Creek** to determine if the rare aquatic species previously found in the stream is still present.
- Critical habitat sites in the watershed should be identified and targeted for habitat improvement work.
- **Garfoot Creek** should be remeandered.
- Future developments should include infiltration practices as a means of controlling stormwater impacts and ensuring groundwater recharge.

- Future developments in the watershed should assess the impact that future wells will have on the baseflow of streams in the watershed.
- Citizen groups in the watershed, such as the Black Earth Creek Watershed Association and the Black Earth Creek Conservation Organization, should continue to be supported in their efforts to protect the watershed.
- Identify critical areas needed to create and maintain a buffer along streams in the watershed, specifically along **Black Earth Creek**, and work to acquire these areas through fee title or easement as they become available.
- The permitting of large animal operations and the spreading sites needs to be updated.
- **Black Earth Creek** should be evaluated to determine if the current classifications of ERW and ORW are appropriate or need to be updated and changed.

Recommendations adapted from the Dane County Water Quality Plan (1995):

- Municipalities should improve erosion/runoff control ordinance to be consistent with Chapter 14 of Dane County Code of Ordinances, if they haven't already done so.
- Those municipalities that do not have a stormwater management plan should develop and implement one.
- Evaluate deicer use and snow storage practices for potential water quality impacts, and if necessary, adopt written salt use management policy.
- Municipalities that do not have a wellhead protection program for wells should adopt one.
- Expand coverage of village wetland zoning ordinances to be consistent with Dane County's ordinance regulating all wetlands over 2 acres.
- Review land application sites for wastewater biosolids. If located in well protection zones and potential for groundwater contamination, these sites should be relocated or groundwater monitoring and stringent design and operation requirements are recommended.
- Innovative stormwater management ideas, such as draining roof water to grassed areas, should be developed and used.
- Conduct periodic point source assessment monitoring near the Capital Sand and Gravel discharge point site to determine if the discharge is having an adverse impact on water quality of **Black Earth Creek**.

Watershed map

Streams in the Black Earth Creek Watershed (LW17) — Dane and Iowa Counties — Area: 103 sq miles

Stream Name	WBIC	Length (miles)	Existing Use	Potential Use	Supporting Potential Use	Codified Use and Trout Stream Classification	Proposed Codified Use	303(d) Status	Rare Aquatic Species	Use Impairment		NPS Rank	Monitored/ Evaluated/ Unassessed	Data Level	Trend	Ref.*
										Source	Impact					
Black Earth Creek	1248600	0-11.5	WWSF	same	Part	WWSF	same	N	Y	NPS,PSI,PSM, DEV,URB,HM	HAB,TEMP, FLOW	NA	M (2001)	B4, H2	U	10, 16, 22
		11.5-17.5	COLD II	same	Full-thr	COLD II/ORW	same	N							U	
		17.5-23.5	COLD I	same	Full-thr	ERW/2	same	N							U	
		23.5-27	WWFF		Part	DEF	same	N							U	
Brewery Creek	1250200	0-0.7	WWFF	same	Not	DEF	same	N	N	HM,NPS,DEV, URB	HAB	NA	M (2001)	B2	U	10, 12, 16, 22
		0.7-2.7	LFF	same	Not	DEF	same	N							U	
Garfoot Creek	1249900	3.8	COLD I	COLD I	Part	COLD II/ERW	same	N	N	HM,NPS,SB	HAB	NA	M (2000, 2001)	B4, H2	I	7, 10, 16, 22
Halfway Prairie Cr.	1248800	0-8	WWFF	same	Not	DEF	same	Y	N	HM,NPS	HAB	NA	E	B2	U	10, 16, 22
		8-11	WWFF	same	Part	DEF	same	N							U	
Vermont Creek	1249200	0-4	COLD III	COLD II	Part	COLD III	same	N	N	HM,NPS	HAB,TEMP	NA	M (2001)	B2, H2	U	7, 10, 16, 22
		4-6	COLD II	same	Part	COLD II	same	N							U	
Wendt Creek	1248900	0-6	WWFF	same	Not	DEF	same	Y	N	HM,NPS	HAB	NA	E		U	10, 16, 22
Unnamed streams		18.5				DEF	same	N							U	

Total Stream Miles	75
COLD I	9.8
COLD II	8
COLD III	4
WWSF	11.5
WWFF	21.2
LFF	2
U	18.5

The numbers in this column refer to the References found in the corresponding Watershed Narrative.
See Appendix J: "How to Read the Stream Tables," in Chapter 7 of the State of the Lower Wisconsin River Basin Report.

Lakes in the Black Earth Creek Watershed (LW17)

Dane and Iowa Counties

Lake Name	WBIC	County	Surface Area (Acres)	Max Depth	Lake Type	Winterkill	Access	SH	Hg	MAC	LMO	TSI	Lake Plan or Prot	P Sens	Comments
Indian Lake	1249000	Dane	66	6	SE	Y	T	C				61	PLAN	2	aeration & harvesting proj.
Stewart Lake	1252300	Dane	7	13	SP		T	X				47	PROT/ PLAN		

See Appendix K: "How to Read the Lake Tables," in Chapter 7 of the Lower Wisconsin State of the Basin Report.

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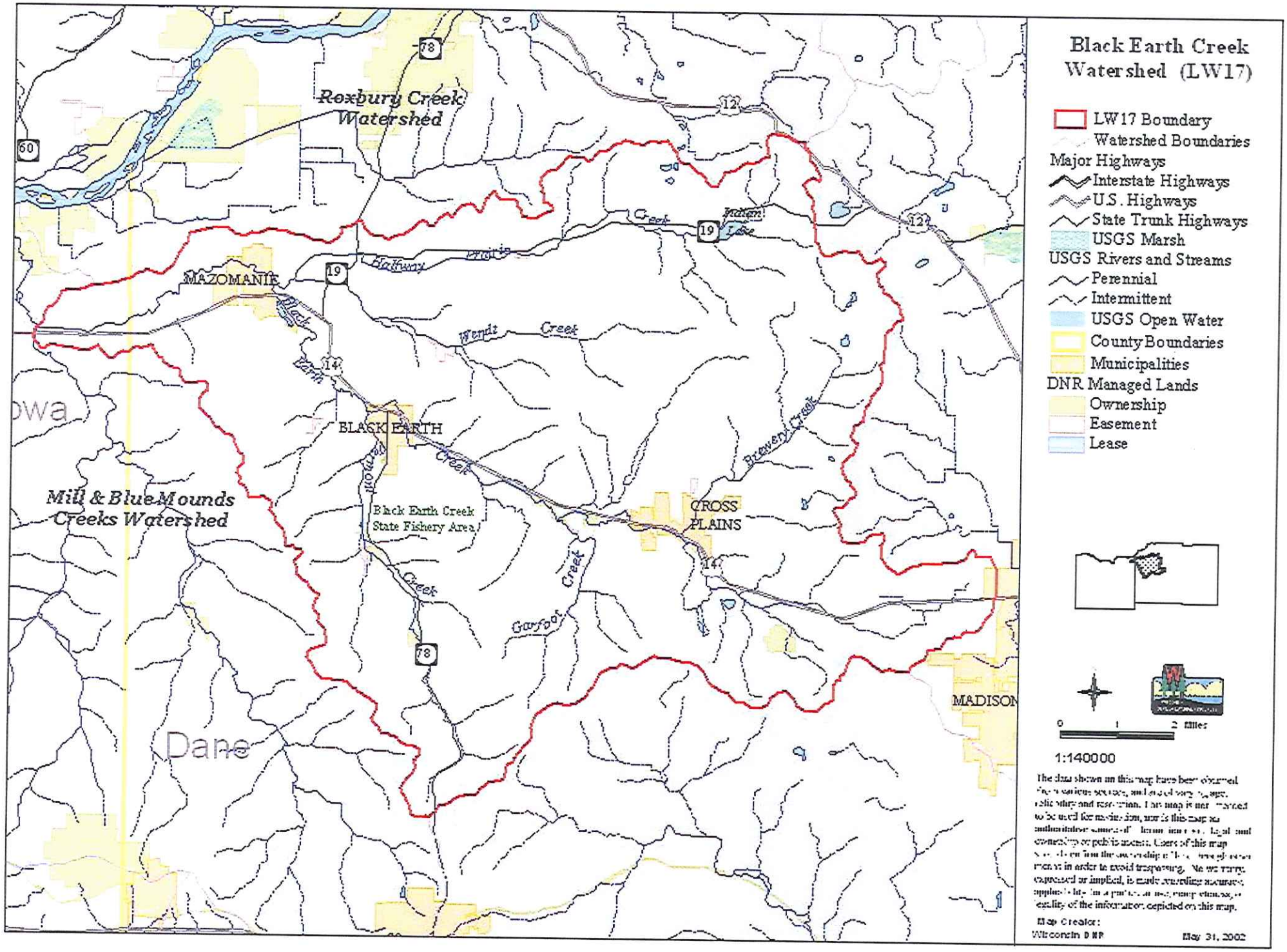
Black Earth Creek Watershed (LW17)
LW17 Boundary
Watershed Boundaries
Major Highways
Interstate Highways
U.S. Highways
State Trunk Highways
USGS Marsh
USGS Rivers and Streams
Perennial
Intermittent
USGS Open Water
County Boundaries
Municipalities
DNR Managed Lands
Ownership
Easement
Lease
Roxbury Creek Watershed
Mill & Blue Mounds Creeks Watershed
MAZOMANIE
BLACK EARTH
CROSS PLAINS
MADISON
Black Earth Creek State Fishery Area
Indian Lake
Wendt Creek
Brewery Creek
Garfoot Creek
Dane
1:140000
0 1 2 Miles
Map Creator:
Wisconsin DNR
May 31, 2002