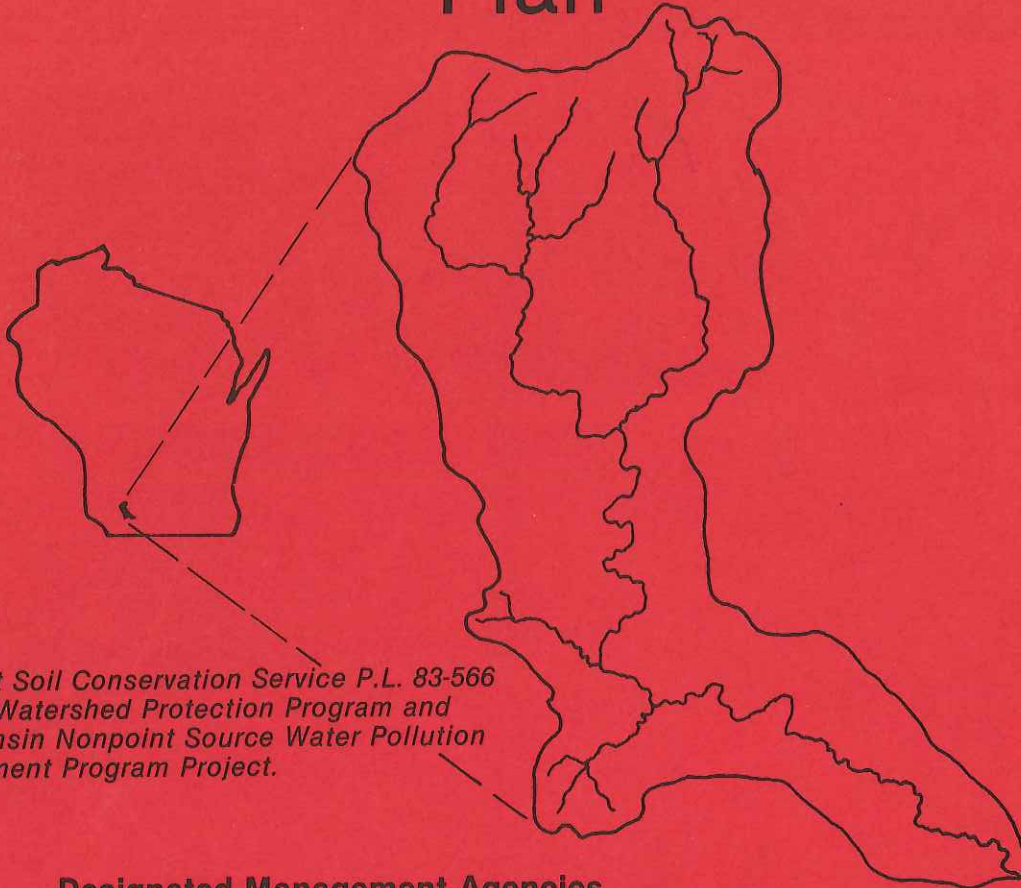


Upper West Branch Pecatonica River Priority Watershed Plan



*A Joint Soil Conservation Service P.L. 83-566
Small Watershed Protection Program and
Wisconsin Nonpoint Source Water Pollution
Abatement Program Project.*

Designated Management Agencies

Iowa County Soil and Water Conservation District
Iowa County Board
Lafayette County Soil and Water Conservation District
Lafayette County Board
Grant County Soil and Water Conservation District
Grant County Board

Cooperating Agencies

Soil Conservation Service
Wisconsin Department of Natural Resources
Agricultural Stabilization and Conservation Service
University of Wisconsin Extension
U.S. Forest Service
Economics Statistics Service

This plan was prepared with the assistance of the Wisconsin Department of Natural Resources under the provisions of the Wisconsin Nonpoint Source Water Pollution Abatement Program.

Iowa County Soil & Water Conservation District

March 12, 1982

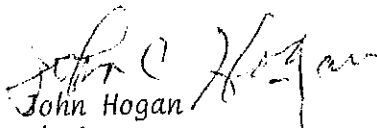
Mr. Jim Baumann
Bureau of Water Quality Management
Non-point Source Section
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

Dear Jim,

The Iowa County Soil and Water Conservation District, lead designated management agency of the Upper West Branch Watershed, would like to go on record as approving the Watershed Plan. The SWCD would like the option kept open of evaluating the non-priority area in the future, to determine if any new information obtained, changes the areas eligibility.

The Iowa County SWCD has reviewed the draft copies of both the Local Assistance Agreement and the Non-point Source Grant Agreement, and requests that you proceed to finalize these agreements.

Sincerely yours,


John Hogan
Chairman

KS

RESOLUTION TO APPROVE THE JOINT P.L.-566-
WISCONSIN FUND WORK PLAN FOR THE
UPPER WEST BRANCH OF THE PECATONICA
RIVER WATERSHED

WHEREAS, the Upper West Branch Watershed is a priority area; and

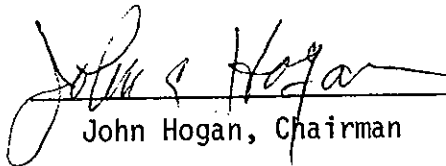
WHEREAS, the Iowa County Soil and Water Conservation District is the
lead designated management agency and a sponsor for the project; and

WHEREAS, the Watershed Plan assesses water quality and resource base
problems and identifies means to abate these problems; and

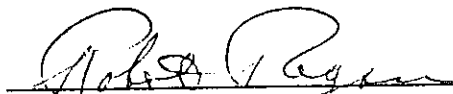
WHEREAS, the Work Plan is ready to be implemented when authorization is
given;

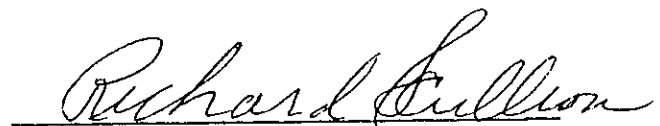
NOW, THEREFORE, BE IT RESOLVED, that the Iowa County Soil and Water
Conservation District officially approves the Joint P.L.-566-Wisconsin
Fund Work Plan;

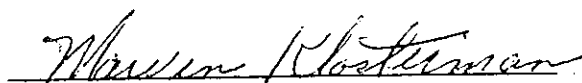
AND, BE IT FURTHER RESOLVED, that the Iowa County Soil and Water Conservation
District Chairman is authorized to sign the joint P.L.-566-Wisconsin Fund
Work Plan


John Hogan, Chairman


Curt Peterson, Vice-Chairman


Robert Regan, Member


Richard Scullion, Member


Marvin Klosterman, Member

Preface

In March 1979, Anthony Earl, Secretary of the Department of Natural Resources (DNR) requested assistance from the Soil Conservation Service (SCS) in assessing nonpoint source control needs in Wisconsin and developing plans that would lead to implementation projects. In response, SCS, using its river basin planning authority, started a pilot program in the Sugar-Pecatonica River Basin. A plan for the Upper West Branch Pecatonica River Watershed was developed under this pilot program by SCS, Economics Statistics Service, and Forest Service in cooperation with the Iowa County Soil and Water Conservation District (SWCD) and the Wisconsin Department of Natural Resources. The cropland and woodland portions of the plan were submitted for funding under the P.L. 83-566 Small Watershed Protection Program administered by SCS and subsequently have been approved. The streambank and animal waste portions were then submitted to DNR for funding. The watershed was selected as a priority watershed under the Wisconsin Nonpoint Source Water Pollution Abatement Program by DNR in November, 1981.

The plan that follows is divided into three sections: Section I - Water Quality; Section II - Resource Base; and Section III - Program for implementation. Section I deals primarily with streambank and animal waste control needs to attain specific water quality objectives within the Upper West Branch Pecatonica River Priority watershed. Section II briefly cross-references resource base protection to the Upper West Branch Pecatonica--A Plan for Quality Water prepared by the Soil Conservation Service, Economics Statistics Service, and Forest Service in cooperation with the Iowa County Soil and Water Conservation District and the Wisconsin Department of Natural Resources. Although project funding is from federal, state, and local sources, it is a joint project and will be coordinated by the Iowa County Soil and Water Conservation District acting as the lead designated management agency.

(1) Economics Statistics Service referred to in this plan has now been renamed the Economic Research Service.

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Section I-UPPER WEST BRANCH PECATONICA RIVER PRIORITY WATERSHED PLAN

Introduction

The purpose of a priority watershed plan is to assess the specific causes and critical sources of the water quality problems and identify the most practicable means of abating those pollution problems. This plan achieves the purpose through the following steps:

1. assessment of the existing water quality problems;
2. identification of the water quality improvements or objectives that can be reasonably achieved;
3. assessment of nonpoint sources of pollution along with point sources, septic systems and other sources as appropriate; and
4. identification of the priority management area and best management practices which are most practicable to abate the pollution.

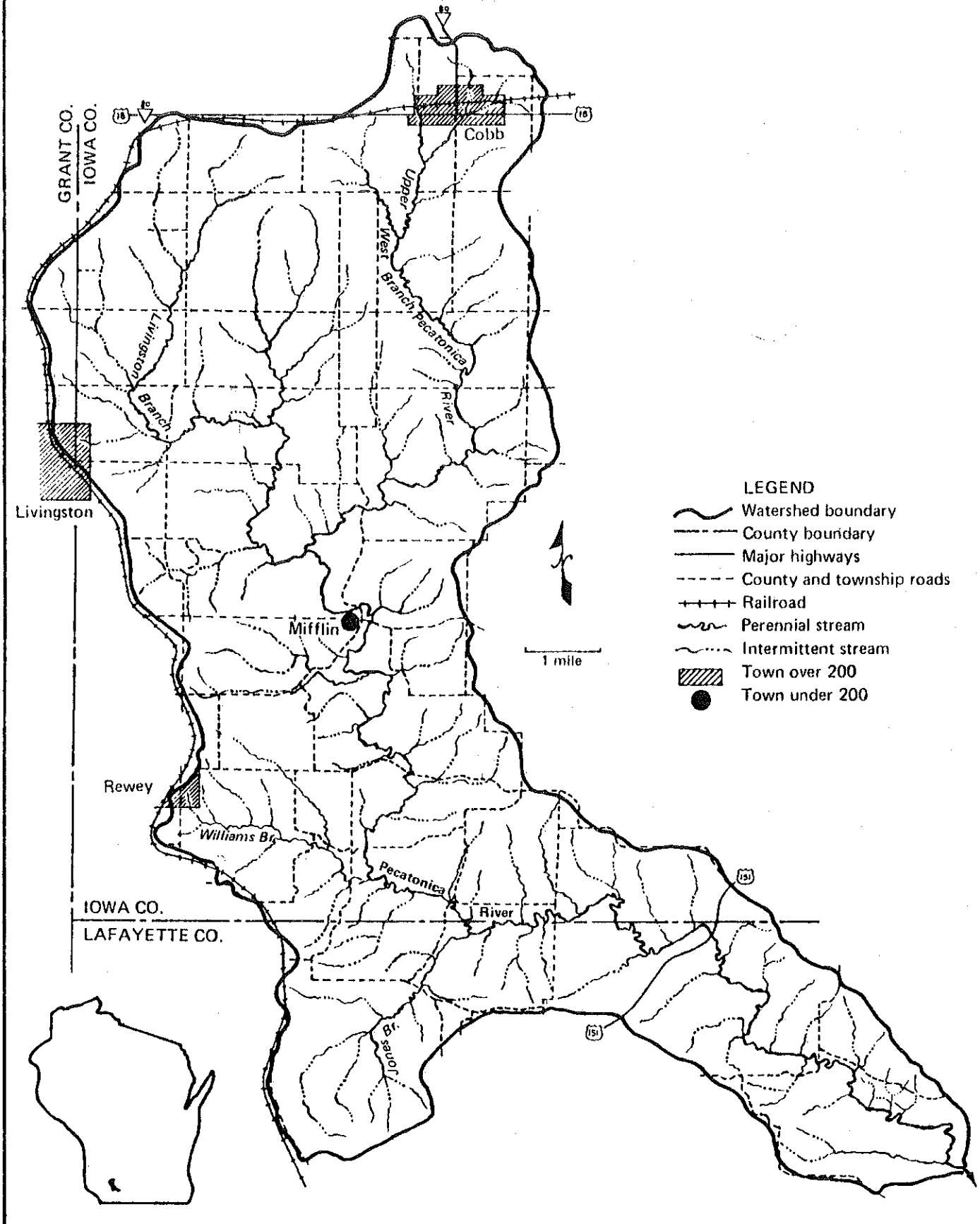
The companion report to this plan is the Program for Implementation. It identifies:

1. the tasks necessary to implement the needs identified in the plan;
2. agencies responsible for carrying out those tasks; and
3. the time frame for carrying out tasks.

Watershed Description

The Upper West Branch of the Pecatonica River Watershed is located in the southwestern corner of Iowa County, the northwestern corner of Lafayette County, and the northeastern edge of Grant County, Wisconsin. The watershed is part of the Sugar-Pecatonica River Basin and extends from Military Ridge, a geologic formation running east-west through Dane, Iowa, and Grant Counties, on the north, southerly to the confluence of the Upper West Branch of the Pecatonica River with Mineral Point Branch. (See Figure 1.) It has a drainage area of about 49,000 acres or 77 square miles. Of the total area, about 37,000 acres or 75 percent is in Iowa County; about 12,000 acres or 24 percent is in Lafayette County; and about 700 acres or one percent is in Grant County. Almost all of the watershed is rural. (Land use for different areas of the watershed is summarized in Table 5 in the section on sources of pollution.) Cobb (population 410) and portions of Livingston (population 503) and Rewey (population 232) are the only incorporated areas in the watershed. Dodgeville, Mineral Point, and Platteville are regional urban centers located within 15 miles of the watershed.

Figure 1. Upper West Branch Pecatonica Watershed
Iowa, Lafayette and Grant Counties



LEGEND

- Watershed boundary
- County boundary
- Major highways
- County and township roads
- Railroad
- Perennial stream
- Intermittent stream
- Town over 200
- Town under 200

The watershed is located in the driftless, unglaciated portion of Wisconsin. The northern part of the watershed as shown in Figure 2 consists of broad, undulating slopes dipping southward from Military Ridge at the rate of about six feet per mile. The soils of these areas are generally deep, silt loam in texture, and formed under prairie. They are conducive to cropping and among the most desirable soils for agriculture in Iowa County. Over 80 percent of this part of the watershed is cropland with most of the remainder in pasture. Most of the slopes are moderately steep less than six percent, but they are very long. Steeper slopes are found near many intermittent and perennial streams. Dairying, cash grain, and hog or beef feeders are the major farming enterprises. Many of the barnyards are located along the edge of steep slopes or near streams.

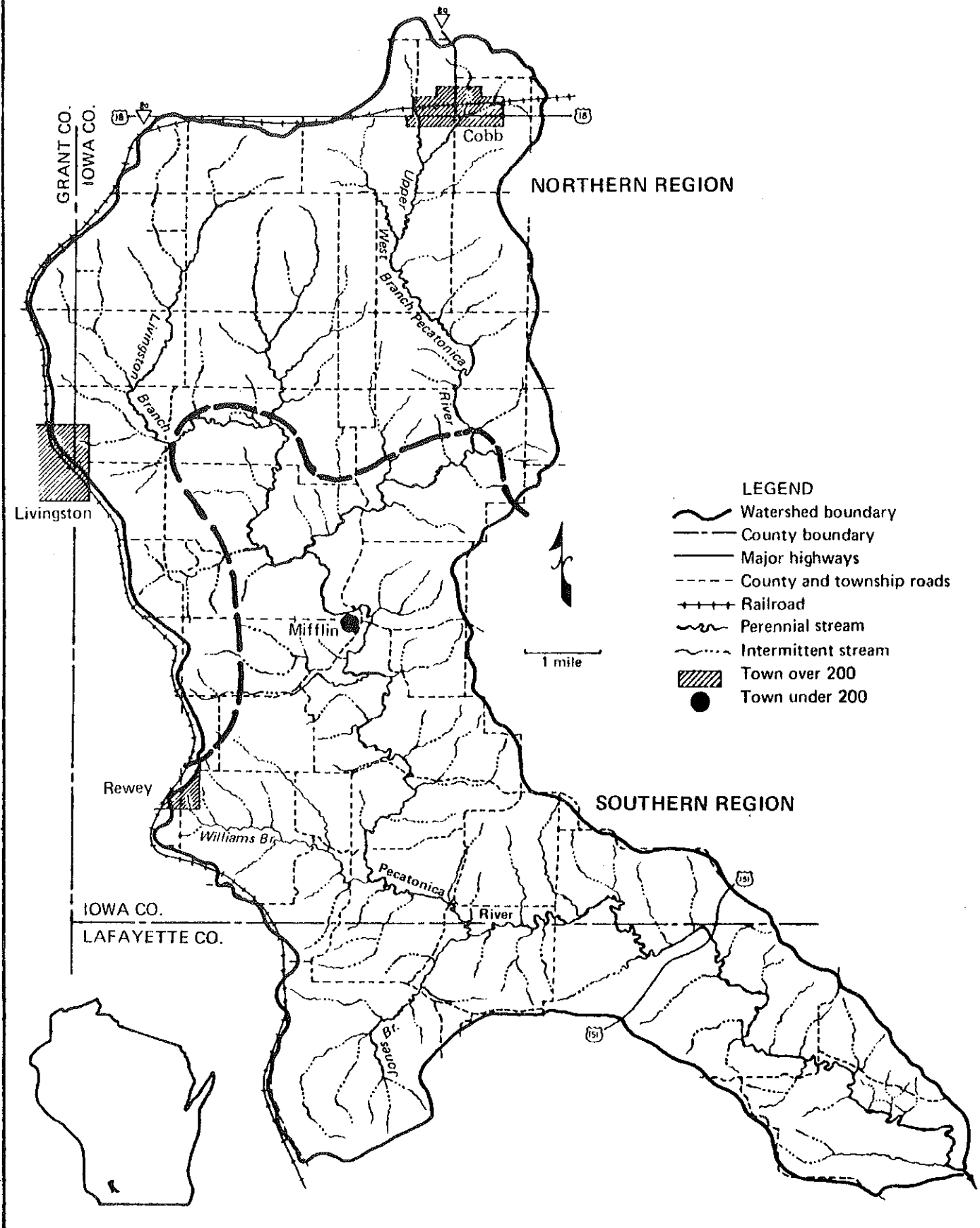
The southern part of the watershed, as shown in Figure 2, is characterized by steeper terrain and narrower ridges. The soils are again deep, generally silt loam in texture, and originally formed under a hardwood forest. Although the soils are harder to manage than those in the northern part, they are still desirable for agriculture. About 50 percent of this part of the watershed is cropland, about 30 percent is pasture, and about 20 percent is woodland. The cropland is almost equally divided among B (2-6%), C (6-12%), and D (12-20%) slopes. Beef enterprises are predominant in the southern part and most of the cropland is in a crop rotation including corn, oats, and hay.

The major stream in the watershed is the Upper West Branch of the Pecatonica River also known as the Caygill Branch. Livingston Branch, Williams Branch, and Jones Branch are major tributaries. There are no lakes. The Upper West Branch is a warmwater seepage stream with a gradient of 15 feet per mile starting in the northeastern portion of the watershed near Cobb and continuing southward for about 20 miles to where it joins the main stem. Streambank erosion is common along its entire length. The principal sport fishery in the stream is smallmouth bass. Although the entire stream is classified as a smallmouth bass fishery, the primary habitat for smallmouth bass extends from near the headwaters to about three to four miles downstream of Mifflin. Figure 3 shows those portions of the streams with high and medium potential smallmouth bass habitat based on riffles, pools, and substrata as identified by the DNR fish manager. Channel catfish, some smallmouth and a few rock bass are found in the lower reaches. There are no public lands along its banks, but the stream is accessible from eight road crossings.

Livingston Branch is the major tributary to the Upper West Branch and is also a warmwater seepage stream with a gradient of over 20 feet per mile. It starts in the northwestern portion of the watershed and joins the West Branch upstream from Mifflin. Streambank erosion is common along its eight-mile length. It is classified as a smallmouth bass stream in the 1960's, although it is small, it was considered to be one of the best smallmouth bass streams in southwestern Wisconsin from the standpoint of both reproduction and survival (Surface Water Resources of Iowa County, DNR). There are no public lands along the stream but it can be reached from five road crossings.

Upper West Branch Pecatonica Watershed Iowa, Lafayette and Grant Counties

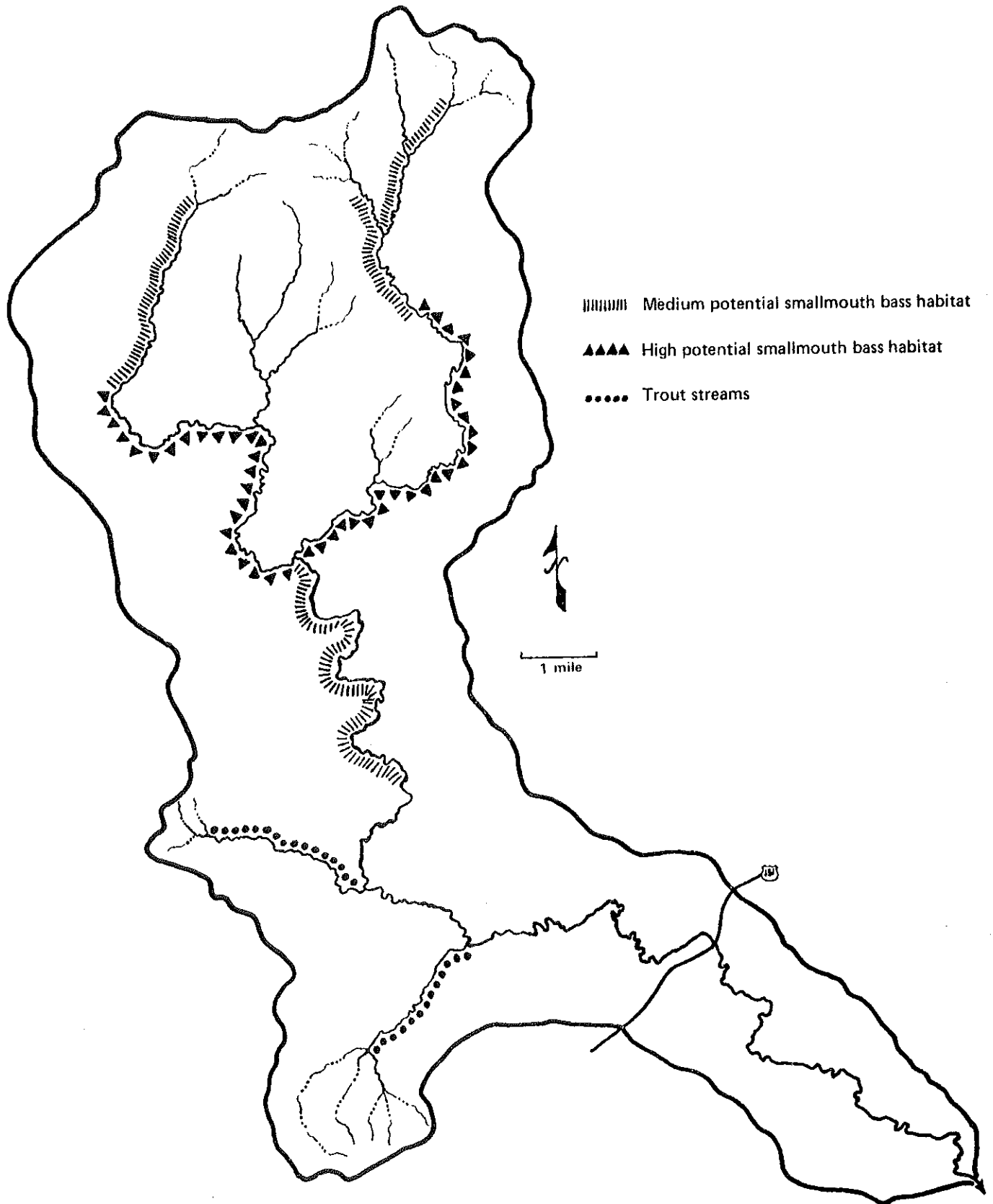
Figure 2. Soil and topography regions.



Upper West Branch Pecatonica Watershed

Iowa, Lafayette and Grant Counties

Figure 3. Location of trout and smallmouth bass fisheries in the watershed.



Williams Branch is a small, spring-fed, Class II trout stream with a high gradient of about 45 feet per mile located in the southwestern portion of the watershed. Its drainage area is primarily in agricultural land use and streambank erosion is common. The stream is accessible from two road crossings. Its length is about two miles.

Jones Branch is a small, spring-fed, Class II trout stream with a moderate gradient, 16 feet per mile, located in the Lafayette County portion of the watershed. About three-fourths of the drainage area is in agricultural land use but much of its streambank is heavily wooded or in pasture. Its length is about three miles.

The Upper West Branch and Livingston Branch also support the Slender Madtom, a threatened species. The Slender Madtom is found only in the Rock and Pecatonica River Basins in Wisconsin. Its habitat is clear, moderate to swift waters of small streams.

Water Quality and Fishery Problems

The smallmouth bass fishery particularly in the Livingston Branch has shown a decline especially in the last 10 to 15 years according to the Department of Natural Resources Fish Manager. A 1965 Wisconsin Conservation Department Report (Inventory Memorandum No. 258 by Brynildson and Truog) of a survey of Livingston Branch conducted in September of 1964 stated that, "density of total bass population of 1000/mile is one of the highest present in the seven years the stream has been studied". The report concluded Livingston Branch supported a "vigorous" smallmouth bass population with excellent hatches occurring at three year intervals. Today it supports only a remnant smallmouth bass fishery. Fish kills occurred in Livingston branch in 1980 and the Upper West Branch in 1978 and 1979 apparently due to spills from aboveground manure tanks or portable manure tanks used for spreading manure which further degraded the smallmouth bass fishery. A summary of smallmouth bass surveys is contained in Appendix A.

A smaller and partial, kill of bass occurred in the upper third of Livingston Branch in the spring of 1981. The cause is unknown but probably associated with low levels of dissolved oxygen. The stream bottom in this reach is covered with a thick layer of organic matter. In general, the population of forage fish in this reach seem to be severely depressed.

Possible causes of the decline in the smallmouth bass fisheries are low levels of dissolved oxygen or high levels of ammonia. Low levels of dissolved oxygen, high levels of ammonia, or both have been associated with manure carried in runoff from barnyards. Ammonia levels probably exceeding water quality standard were monitored during June, 1981 in a nearby watershed with similar land use and management. (See Appendix B)

Sediment may also be stressing the fishery. Generally, sediment along with manure accumulates in the upper reaches of the streams during lower intensity runoff events until it is flushed into the high potential bass habitat stream segments during higher intensity runoff events. This sediment in combination with the oxygen demanding organic matter and ammonia from manure, may have a synergistic, adverse impact on the fish. The increased turbidity may inhibit feeding by young fish but probably does not significantly affect the feeding by adult fish.

Another factor adversely impacting the bass is pasturing along stream banks. Most of the pastures are concentrated in small floodplain long perennial streams. Cattle have unrestricted access to the streams since little fencing exists along the streams. This has resulted in loss of vegetative cover, streambank erosion, and destruction of habitat.

The use of herbicides and insecticides has increased over the last 20 years. Since these pesticides readily attach to soil particles, the high soil erosion may be causing substantial amounts to reach the stream. Pesticides may be as serious of a problem as low dissolved oxygen or high ammonia levels, however, insufficient information is available to draw conclusions.

Biotic Index samples were collected at various locations as shown in Figure 4 during the spring, summer and fall of 1980 and again in the spring of 1981. The Biotic Index is a technique developed to determine the amount of stress on aquatic communities in a stream by sampling and assessing the relative abundance of tolerant and intolerant insects (macroinvertebrates). The stress is associated with the overall quality of the water but is not specific to any single factor. Although the aquatic community can be stressed by low flow conditions, proper sampling site selection can minimize this influence. The Biotic Index gives a numerical value for each site ranging from 0 to 5 and can be interpreted according to the scale in Table 1.

Table 1. Classes of Water Quality According to the Biotic Index

Biotic Index	Class of Water Quality	State of Stream
0.00-1.85	Excellent	Clean undisturbed
1.85-2.35	Good	Some enrichment or disturbance
2.35-3.10	Fair	Moderate enrichment or disturbance
3.10-3.85	Poor	Significant enrichment or disturbance
3.85-5.00	Very Poor	Gross enrichment or disturbance

The Biotic Index values by site are listed in Table 2. The values for Livingston Branch (sites L-1 to L-6) and the Upper West Branch (sites UW-1 to UW-5) in the northern part of the watershed generally indicate poor water quality. The values may, however, be affected to some degree by the manure spills which caused the fish kills. The two sites on the Upper West Branch in the southern part of the watershed, UW-6 and UW-7, indicate fair water quality.

The Biotic Index values for Williams Branch and Jones Branch, the two small class II trout streams, are also included in Table 2. The values indicate fair to good water quality.

In addition to the surface water problems, groundwater contamination problems have been identified near Rewey and are associated with failing septic systems discharging to the shallow bedrock.

Upper West Branch Pecatonica Watershed
Iowa, Lafayette and Grant Counties

Figure 4. Biotic Index sampling locations.

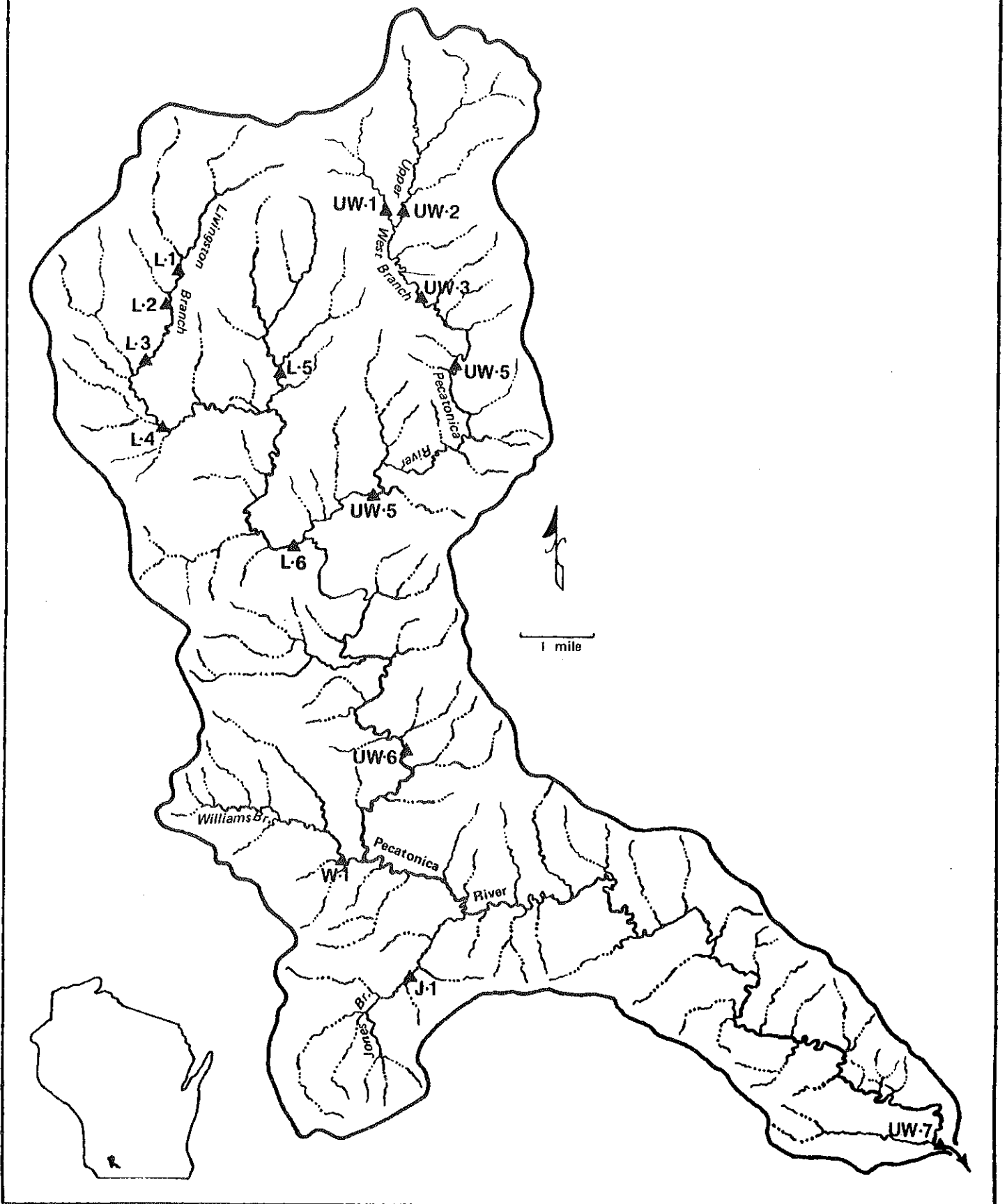


Table 2. Biotic Index Values and Ratings by Site

Site No.	Branch	Biotic Index Values				Ratings
		1980 Spring	Aug. 1980 Summer	1980 Fall	Spring '81	
UW-1	Upper West		4.32		2.95	Poor
UW-2	Upper West		4.95		3.38	Very Poor
UW-3	Upper West	3.10		3.83	3.37	Poor
UW-4	Upper West		3.95		3.15	Poor
UW-5	Upper West		3.35		2.70	Fair-Poor
L-1	Livingston		4.53		3.23	Very Poor
L-2	Livingston		3.60		3.17	Poor
L-3	Livingston		3.56		2.95	Fair-Poor
L-4	Livingston	3.02		3.69	2.78	Fair-Poor
L-5	Livingston	3.05		3.81	3.31	Poor
L-6	Livingston	2.39		3.23	2.72	Fair
UW-6	Upper West	2.39		2.35	2.67	Fair
W-1	Williams		2.13		2.67	Fair-Good
J-1	Jones		2.34		3.35	Fair
UW-7	Upper West			2.39		Fair

Water Quality Objectives

The water quality objectives for the project identify the desired water quality conditions to be achieved through implementation of this plan. The two objectives of this plan are:

1. Provide for the restoration of a viable smallmouth bass fishery in the Upper West Branch of the Pecatonica and Livingston Branch.
2. Protection of the existing trout fisheries in Williams and Jones Branches.

The objectives are to be achieved through improvement in the water quality of the streams and improvement of the vegetative cover on the streambanks to rejuvenate fish habitat. In the long run, the measure of whether the objectives are met should be the rejuvenation of the smallmouth bass fishery in the Upper West Branch and Livingston Branch and the protection of the trout fishery in Williams and Jones Branches. An interim measure of achievement of the objectives for the smallmouth bass fishery would be a change in the biotic index rating from poor or very poor to fair to good. (The Biotic Index rating for Turtle Creek, a stream in Walworth and Rock Counties with a smallmouth bass fishery having fair to good levels of reproduction, are fair to good. A Biotic Index rating of fair has been identified for stream segments in the Galena River supporting a good smallmouth bass fishery.)

Sources of Pollution

Nonpoint Sources

Streambank erosion - Personnel of the Soil Conservation Service and Iowa County Soil and Water Conservation District surveyed streambanks using a modification of phase II of the Land Inventory Monitoring process. This process rates streambank erosion according to four categories: none, slight, moderate, and severe. The rating is based on three parameters: rate of recession, length, and height of the eroding bank. Slight bank erosion is described as bare bank but lateral recession is not obvious. Moderate bank erosion would have exposed roots, fallen vegetation, and cave-ins. Severe bank erosion is generally associated with manders and is characterized by massive washouts and slumps. The number of cattle crossings were also identified.

The survey was limited to those portion of the Upper West Branch and Livingston Branch identified as high and medium potential for smallmouth bass as identified by the DNR fish manager and shown in Figure 3. About half of the 24 stream miles in these stream segments were inventoried.

The results of the inventory indicate almost all of the streambank is pastured.

About 125,000 feet or one half of the length of streambanks were identified as moderately or severely eroding. About 124 places or 10 per mile were identified where cattle cross high potential smallmouth bass habitat. A proportional amount of crossings probably exist in other sections of the streams.

Barnyard runoff. Most of the farmsteads are located in valleys of perennial or intermittent streams. In general, the barnyards are located immediately adjacent to the stream or have steep slopes between the barnyard and the stream. Thus, the potential for delivery of pollutants from manure - especially organic matter which depletes dissolved oxygen in water and ammonia which at certain concentrations is toxic to fish - must be considered high.

To determine the extent of the pollution potential from barnyard runoff, each farmstead was identified on topographic maps and surveyed on site. Practically all of the barnyards were found to be located within 1/8 mile of perennial or intermittent streams indicated on U.S.G.S. topographic maps. Table 3 below summarizes the number of operations estimated as having inadequate barnyard runoff management by subwatershed. These operations include only those with herds greater than 50 animal units except for two smaller operations immediately adjacent to perennial streams. This table does not include those livestock operations with adequate barnyard runoff control which represent about 10-15 percent of the operations.

Upper West Branch Pecatonica Watershed Iowa, Lafayette and Grant Counties

Figure 5. Subwatersheds.

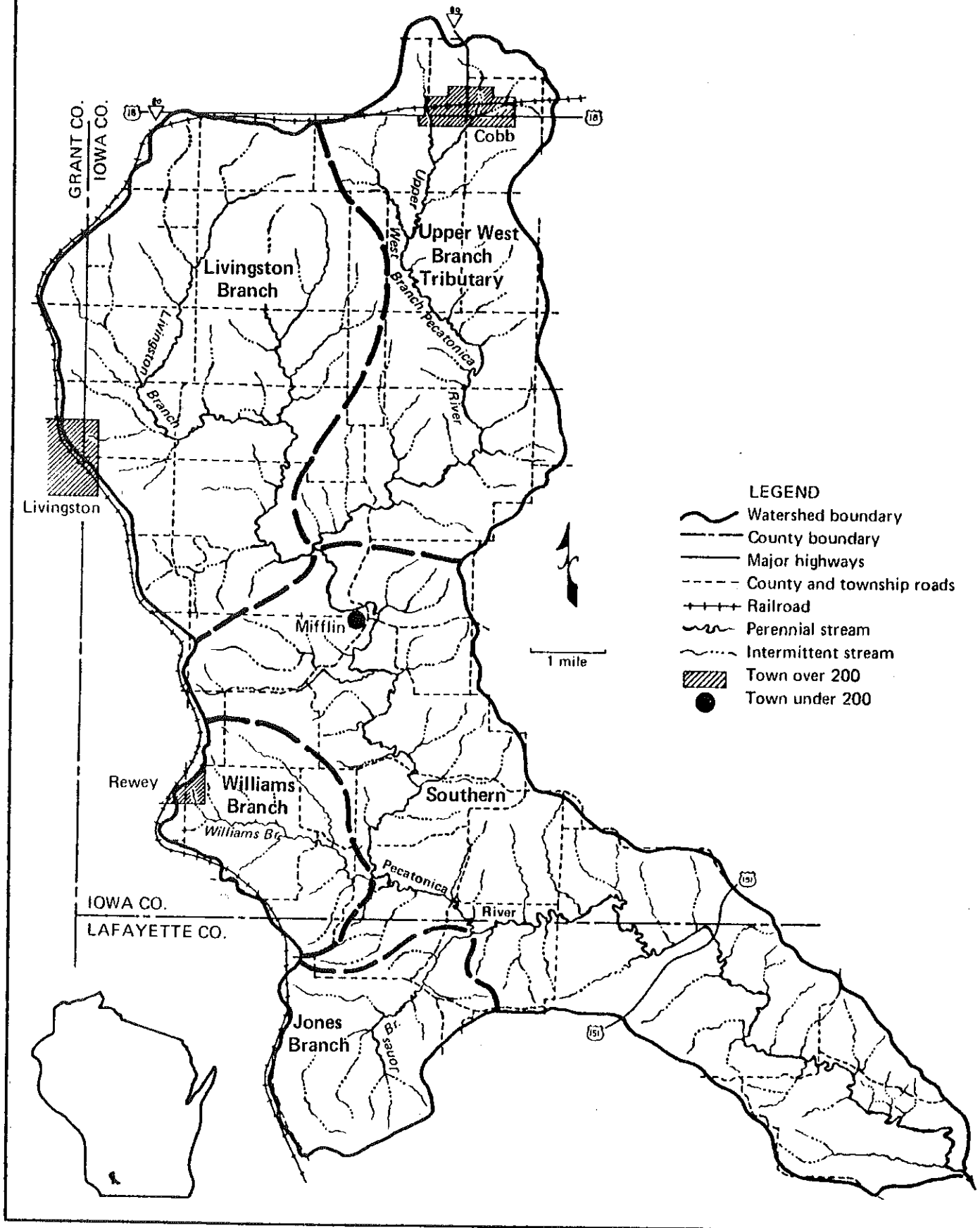


Table 3. Estimate of Number of Barnyards with Inadequate Runoff Control and Number of Animal Units by Subwatershed

	Number of Operations	Number of Animal Units
Upper West Branch (above confluence with Livingston Branch)	22	2,266
Livingston Branch	30	3,662
Williams Branch	5	553
Jones Branch	2	221
Upper West Branch (below confluent with Livingston Branch excluding Williams Branch and Jones Branch)	<u>11</u>	<u>1,216</u>
	68	7,918

Manure Spreading - Although about 90 percent of the cropland in the northern portion of the watershed has shallow to medium slopes (less than six percent) these fields become less accessible as snow cover increases. Therefore, manure spread frequently during the winter is generally spread on the steeper slopes near the barnyard or on pastures and hay fields close to the streams. Inventories conducted by the Soil Conservation Service and the Iowa and Lafayette County Soil and Water Conservation Districts to identify the number of livestock operations spreading manure on locations with significant pollution potential are summarized in Table 4.

Table 4. Estimated Number of Livestock Operations Where Manure Spreading in Winter has a Significant Pollution Potential by Subwatershed

<u>Subwatershed</u>	<u>Number of Operations</u>
Upper West Branch (Trib.)	9
Livingston	22
Williams	2
Jones	1
Southern	<u>7</u>
	41

Erosion from cropland, pastures, and woodlots is briefly summarized below. For more information on these sources the reader should read "Upper West Branch Pecatonica Watershed Plan" prepared by the Soil Conservation Service.

The data for various land uses is summarized in Table 5 by three areas: Livingston Branch, Upper West Branch (Tributary), and the Southern area including Jones Branch and Williams Branch.

Table 5 Land Use by Area
Acres (Percent)

	<u>Livingston</u>	<u>Upper West Branch</u>	<u>Southern</u>
Cropland	10,620 (82%)	8,713 (82%)	12,200 (47%)
Pasture	1,750 (14%)	1,409 (13%)	8,006 (31%)
Woodland	-	122 (1%)	4,907 (19%)
Other	516 (4%)	428 (4%)	755 (3%)
Total	12,886 (100%)	10,662 (100%)	25,888 (100%)

Cropland Erosion - As shown in Table 6, about 82% of the land in both Livingston and Upper West Branch subwatersheds is cropland. In both of these subwatersheds, about 90 percent of the cropland has A or B slopes (less than six percent) with almost all of the rest on C slopes (6 to 12 percent). About 40 to 45 percent of the cropland in both watersheds is in continuous row crop of corn or soybeans and averages about 15 tons per acre per year soil loss. The remaining 55 to 60 percent of the cropland is in a crop rotation of generally three years of corn, one year of oats, and three years of hay and averages 5 to 6 tons per acre per year soil loss.

The southern area differs greatly. About 47 percent of the land is cropland. About 40 percent of the cropland has A or B slopes, 41 percent has C slopes, and 18 percent D, E, or F slopes. About 7 percent of the cropland is in continuous row crop and averages 16 tons per acre per year soil loss. Some fields have soil losses over 40 tons per acre per year. About 83 percent is in a crop rotation of generally two years of corn, one year of oats, and three years of hay. The average soil loss for the land in crop rotation is about five tons per acre per year.

Overall, the Soil Conservation Service estimates about 15,000 of the 31,500 acres of cropland have soil losses greater than 5 tons per acre per year based on a survey of selected quarter sections and using the Universal Soil Loss Equation to calculate soil losses.

The croplands with soil losses greater than 5 tons per acre per year are primarily those in continuous corn on slopes greater than two percent and those in crop rotation on slopes greater than six percent. This information is summarized by area within the watershed in Table 6.

Table 6. Acres of Cropland by Slope
Category and Land Use.

Livingston Branch Subwatershed (acres)

Land Slope Group	Continuous Row Crop	Crop Rotation	Total
A	581	561	1,142
B	3,874	4,567	8,441
C	258	719	977
Total	4,713	5,907	10,620

Upper West Branch Tributary Subwatershed (acres)

Land Slope Group	Continuous Row Crop	Crop Rotation	Total
A	301	617	918
B	3,059	3,815	6,874
C	194	612	806
D	-	115	115
Total	3,554	5,159	8,713

Southern Areas (acres)

Land Slope Group	Continuous Row Crop	Crop Rotation	Total
A	121	-	121
B	663	4,193	4,856
C	57	4,920	4,977
D	57	2,007	2,064
E&F	-	182	182
Total	898	11,302	12,200

Total Watershed (acres)

Land Slope Group	Continuous Row Crop	Crop Rotation	Total
A	1,003	1,178	2,181
B	7,596	12,575	20,171
C	509	6,251	6,760
D	57	2,182	2,239
E&F	-	182	182
Total	9,165	22,368	31,533

Pasture Erosion - About 23 percent or 11,165 acres of the watershed is in pasture. The percent is lower (about 13%) in the Livingston and Upper West Branch Tributary Subwatershed and higher (about 31%) in the southern area. As mentioned above, most of the pastures are located immediately adjacent to stream. The SCS survey found only 112 acres or about 1 percent of the pastures have high soil loss. However, erosion does occur from livestock concentrations near springs and on streambanks.

Woodland Erosion - About 10 percent or 5,019 acres of the watershed is woodland. About 90 percent of the woodland is in the southern area especially the Williams Branch and Jones Branch subwatershed and 74 percent of the woodlands is grazed by livestock. About 46 percent of the grazed woodlands are located on slopes greater than 20 percent where soil losses can exceed an average of 20 tons per acre per year. Thus, grazed woodlands are a significant source of sediment.

Urban Areas - Urban areas comprise about three percent of the watershed. No significant erosion sites were noted and the urban density is too low to be concerned with substantial increases in the rates or volumes of stormwater runoff. Very little development is occurring.

Point Sources

Municipal Wastewater Treatment Plants - The discharge from Cobb's wastewater treatment plant has aided the degradation of the Upper West Branch but is not considered the major cause of the stream water quality problems. The village is in the process of planning for an upgraded wastewater treatment plant. A system using an aeration lagoon followed by a storage pond with spray irrigation is being considered. The proposed site has high erosion potential and additional erosion control is needed.

The Iowa-Grant Joint School has about 450 students (a population equivalent of 100). It has an aerated lagoon system and discharges treated wastes to Livingston Branch. Current effluent limits are being met or nearly met. However, wasteload allocation studies may indicate more stringent effluent limits are needed. Although the discharge may aid the degradation of Livingston Branch, this source is not considered major. In the future, a grade school may be built on the site and expansion of the treatment will be necessary.

The village of Rewey is planning to construct a wastewater treatment plant to replace the failing private septic systems. The current plans are to discharge treated wastes to an intermittent tributary to Williams Branch.

Industrial Dischargers - Oconomowoc Canning Company and Fritsch Cheese Company are located in Cobb. Oconomowoc Canning discharges its wastes to the land with a spray irrigation system. Although runoff from the spray irrigated land reached the headwaters of the Upper West Branch during the summer of 1981, the discharger currently appears to be meeting its required effluent limits. Fritsch Cheese discharges to a septic system and also appears to be meeting its required effluent limits.

Mines - There are a number of inactive mines in the west central portion of the watershed in areas draining to Livingston Branch. The waste piles are primarily rock, dirt, and sand and support vegetation including 20 foot trees. Therefore, these waste piles do not appear to be sources of pollution.

Recommended Actions

The recommendations below pertain only to management of animal waste and streambanks. Funding for cropland and woodland management has been approved under the P.L. 83-566 Small Watershed Program administered by the Soil Conservation Service. Reference to cropland and woodland management needs are included only to provide the reader with a complete overview of proposed activities in the watershed.

Priority Management Area - The priority management area is the portion of the watershed where application of best management practices will be most effective in achieving the project's water quality objectives. The two project objectives, as stated previously, are:

1. to provide for the restoration of a viable smallmouth bass fishery in Livingston Branch and the Upper West Branch and
2. to protect the existing trout fisheries in Williams Branch and Jones Branch.

The primary smallmouth bass habitat includes most of Livingston Branch and most of the Upper West Branch down to the confluence with Livingston Branch. Within the drainage area lands closest to the streams generally have the greatest impact.

The recommended priority management area is shown in Figure 6 and includes all land within 1/8 mile of perennial or intermittent stream within the following watersheds:

1. Livingston Branch
2. Upper West Branch Tributary;
3. Williams Branch; and
4. Jones Branch.

Other alternatives considered are as follows (relative to recommended priority management area):

1. delete Williams Branch and Jones Branch subwatersheds;
2. add lands draining to the four mile section of the West Branch of the Pecatonica near Mifflin which has medium potential smallmouth bass habitat; and
3. the entire watershed.

Deleting the Williams and Jones Branch subwatersheds would not provide protection for these trout streams. Adding the lands draining to the section of the West Branch near Mifflin will not add much additional protection to the smallmouth bass fishery while increasing project costs and technical assistance needs. Inclusion of the entire watershed would greatly increase project costs and technical assistance needs while providing little or no additional protection of the smallmouth bass fishery.

Best Management Practices Needed to Meet Water Quality Objectives

1. Streambank protection. The recommendation of this plan is to emphasize fencing as the primary best management practice for streambank protection. Riprap would be limited to key pools along the streams. Cattle crossings are also recommended.

The units of best management practices estimated for this recommendation are listed below. The estimates are for Livingston Branch and Upper West Branch Tributary. They do not include Jones Branch and Williams Branch since these areas were not inventoried by SCS.

Fencing	107,700 feet
Shaping and Seeding	8,000 feet
Riprap	2,640 feet
Stream Crossings	80 units*

*assuming four crossing per stream mile

Other alternatives considered were limiting streambank work to fewer sites and only using riprap. The result would be fewer stream miles protected and much higher costs.

2. Barnyard runoff. This plan recommends controlling runoff on all barnyards with more than 50 animal units within the priority management area. There are 56 operations estimated to need barnyard runoff management. The breakout by subwatershed is as follows:

Upper West Branch Tributary	20
Livingston Branch	29
Williams Branch	5
Jones Branch	2

3. Manure spreading management. This plan recommends manure spreading on suitable slopes (generally less than six percent) be strongly encouraged and spreading on steeper slopes be strongly discouraged. Where suitable sites for winter spreading are not available, this plan recommends manure be stored until it can be spread and promptly incorporated. It is estimated 34 manure storage facilities will be needed. The breakout by subwatershed is as follows:

Upper West Branch Tributary	9
Livingston Branch	22
Williams Branch	2
Jones Branch	1

Best Management Practices Needed to Meet Soil Depletion Reduction Objectives.

The estimated best management practice needs for croplands and woodlands in the watershed assuming a 75% participation level are as follows:

Contour strip cropping	6,923 acres
Diversions	7,500 feet
Terraces	342,000 feet
Waterways	62 acres
Conservation Tillage	3,500 acres
Grade stabilization structures	10 structures
Woodland fencing	1,470 acres

Upper West Branch Pecatonica Watershed Iowa, Lafayette and Grant Counties

Figure 6. Priority management areas.

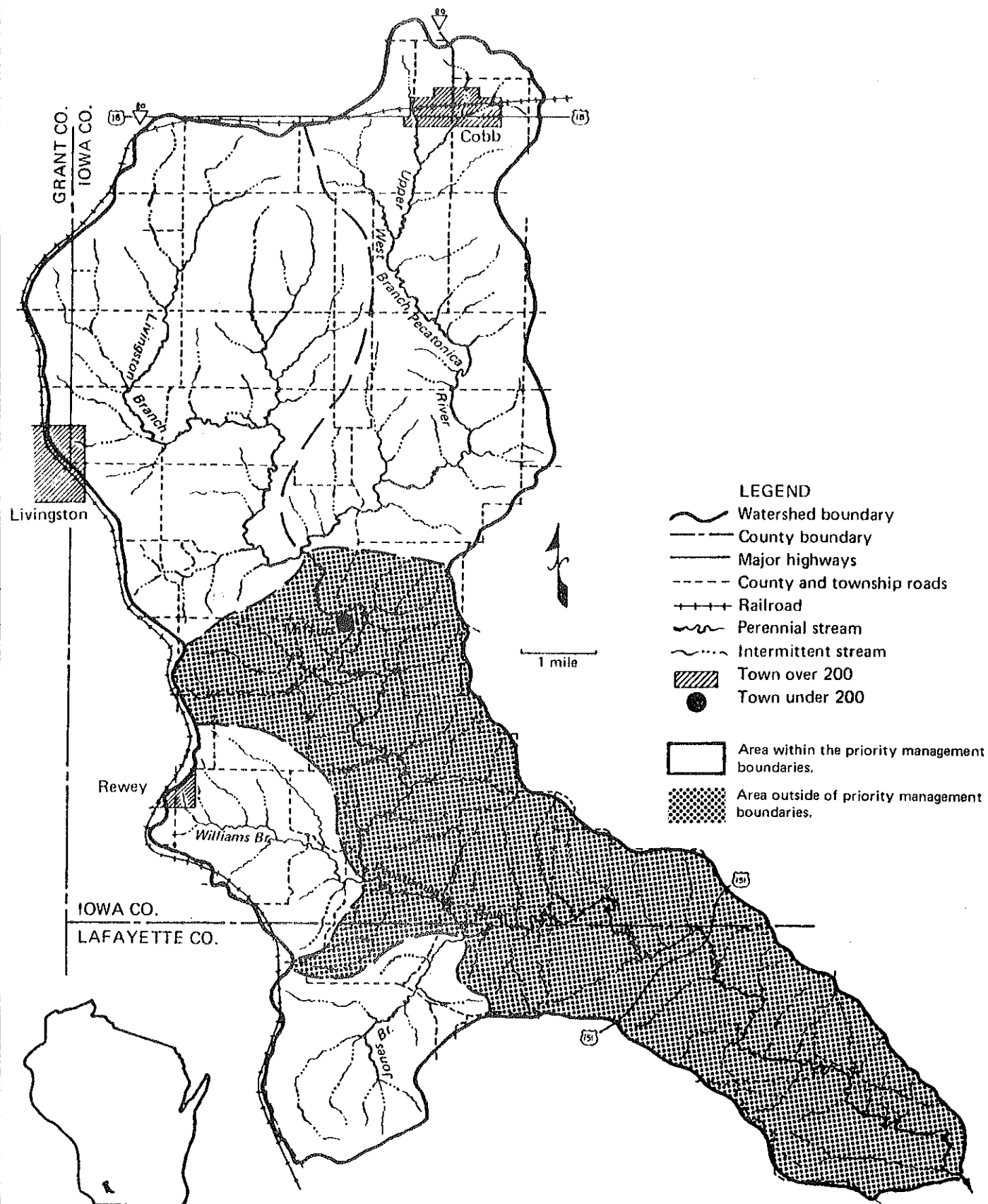


Table 7. Estimated Costs - Wisconsin Nonpoint Source Water Pollution Abatement Program

	Total Units	Total Units at 75% Participation ¹	Cost Per Unit	Total Cost at 75% Participation ¹	State Cost Sharing %	Total Cost Sharing at 75% Participation
Streambank protection ²						
Fencing	107,700 feet	80,775	\$ 1.00	\$ 80,775	80% ³	\$ 64,600
Shaping & Seeding	8,000 feet	6,000	\$ 2.00	12,000	80% ³	9,600
Riprap	2,640 feet	1,980	\$15.00	29,700	80% ³	23,800
Stream crossings	80 units	60	\$1000	60,000	80% ³	48,000
Barnyard run- off Management	56 sites	42	12,272	515,424	70%	360,800
Manure storage	34 units	26	-	-	70% up to \$6,000 ⁵	156,000
Total						\$662,800

¹ The 75% participation level is used for budgeting purposes. It is not a project objective.

² Does not include Jones Branch and Williams Branch.

³ The normal cost-sharing rate is 70%. The state may match the county on a one-to-one basis up to an additional 10%.

⁴ The unit cost is average costs based on preliminary site evaluations.

⁵ The \$6,000 cost-sharing ceiling will probably apply to all cases.

The summary for cost-sharing from federal, state, and local sources is shown in Table 8.

Expected Results

It is extremely difficult to predict the actual response of the fisheries or the changes in in-stream conditions that will result from implementation of this plan. However, it is possible to predict the reduction in the amount of manure from barnyards or sediment from croplands reaching the streams.

Table 8. ESTIMATED COSTS FOR TOTAL PROJECT

Conservation Practice	Total Units	Total Units @ 75% Participation	Average Cost/Unit *	Total Cost @ 75% Participation	Cost Share Rate	Wis. Fund Cost-Share @ 75% Participation	County Cost-Share @ 75% Participation	PL. 566 Total Cost-Share @ 75% Participation	Land-Owner Share
Streambank Protection									
Fencing	107,700 ft	80,775	1.00/ft	80,775	90%**	65,620	8,078	-	8,077
Shaping & Seeding	8,000 ft	6,000	2.00/ft	12,000	90%**	9,600	1,200	-	1,200
Riprap	2,640 ft	1,980	15.00/ft	29,700	90%**	23,760	2,970	-	2,970
Stream Crossing	80 ea	60	1,000.00/ea	60,000	90%**	48,000	6,000	-	6,000
Livestock Waste									
Runoff Control	56 ea	42	12,272.00/ea	515,424	70%	360,797	-	-	154,627
Storage	34 ea	26	-	222,857	70% up to \$6,000	156,000	-	-	66,857
Cropland Practices									
Contour Strip-*** cropping With 2,000# residue	9,230 ac	6,923	-	69,230	\$10/ac	-	-	69,230	-
Diversions	1,444 ac	1,000	-	10,000	\$10/ac	-	-	10,000	-
Terraces	10,000 ft	7,500	2.00/ft	15,000	75%	-	-	11,250	3,750
Grassed Waterways	400,000 ft	300,000	2.00/ft	600,000	75%	-	-	450,000	150,000
Conservation Tillage*** 4,000+ residue	83 ac	62 ac	1,500.00/ac	93,000	75%	-	-	69,750	23,250
2-4,000 w/cont.	2,804 ac	2,103	-	368,025	\$60/ac (34%)	-	-	126,180	241,845
	2,667 ac	2,000	-	350,000	\$45/ac (26%)	-	-	90,000	260,000
Grade Stabilization Structure	13 ac	10	10,000.00/ea	100,000	75%	-	-	75,000	25,000
Livestock Exclusion Woodland	2,050 ac	1,537	16.50/rod	65,252	75%	-	-	48,939	16,313
Technical Assistance				413,351			54,976	358,375	
Project Administration				85,717			11,400	74,317	
Total Project				3,090,331		662,777	84,624	1,383,041	959,889

*Average cost based on 1981 average figures.

**Dependent on local cost-share funding

***Based on 5 year maintenance of practice.

Generally, research in Wisconsin indicates a 75 percent reduction in the amount of manure reaching the stream is a reasonable control level if the runoff from barnyards is properly managed (F. Madison, conversation). If a participation level of 100 percent of operations greater than 50 animal units (about 90 percent of the animal units) is achieved, about a 65-70 percent reduction in manure from barnyards can be achieved on an annual basis. Similarly participation levels of 75 percent will result in a lower level of control; about 45 percent reduction.

SCS estimates a participation rate of 75 percent will result in a reduction of soil loss of 34 percent. The reduction in sediment reaching the stream will be somewhat less; about 30 percent on an annual basis.

SECTION II - RESOURCE BASE PROTECTION

The "Upper West Branch Pecatonica--A Plan for Quality Water" river basin plan prepared by the Soil Conservation Service, Economics Statistics Service and Forest Service in cooperation with the Iowa County Soil and Water Conservation District and the Wisconsin Department of Natural Resources identified animal waste, streambank erosion and sediment as major sources of nonpoint pollution and degraders of the smallmouth bass fishery. Specifically, cropland erosion and grazed woodland erosion are contributing an estimated 25,393 tons (88%) of the sediment loading to streams annually. In addition to these offsite impacts, continued excessive erosion of the 21,438 cropland and woodland acres needing treatment threaten the soil resource base.

Therefore, the river basin plan has in the "recommended plan" provided for a targeted cropland and woodland resource base protection. Documentation of the detailed inventories, problem identification, alternative plans considered, and impacts of the recommended actions are shown in the river basin plan. This plan provides the technical basis for implementation of the cropland and woodland resource base protection portions of this joint effort under PL 566.

Tables and narratives in Section III of the Priority Watershed Plan provide updated costs and other details necessary for implementation. PL 566 cost sharing will only be provided for protection of the resource base.

Section III-Program for Implementation

Introduction

The program for implementation identifies:

- (1) the tasks necessary to implement the recommendations of the Upper West Branch Pecatonica Priority Watershed Plan;
- (2) the agencies and units of government responsible for carrying out those tasks;
- (3) the time frame for completion of those tasks; and
- (4) the kind and amount of staff needed.

It guides the designated management agencies in performing their roles. Since this is a joint project, the program for implementation that follows pertains to carrying out both the Wisconsin Nonpoint Source Water Pollution Abatement Program (Wisconsin Fund) and the Soil Conservation Service P.L. 83-566 Small Watershed Protection Program (P.L. 566) funded activities.

Agencies Involved

The Iowa County Soil and Water Conservation District (Iowa Co. SWCD) will serve as the lead designated management agency (lead DMA) for Wisconsin Fund activities and as the lead sponsor for P.L. 566 activities. It is responsible for overall coordination of the project. As the lead DMA, the Iowa Co. SWCD is contractually and financially responsible to the State of Wisconsin for fiscal management of Wisconsin Fund grants. Similarly, it will be responsible for fiscal management of P.L. 566 grants. LaFayette County Soil and Water Conservation District (LaFayette Co. SWCD) is also designated management agency and sponsor. Roles of these two agencies are described in the sections that follow.

The Iowa, LaFayette, and Grant County Boards, the Grant County Soil and Water Conservation District, and Villages of Cobb, Livingston, and Rewey are also designated management agencies but specific roles have not been identified.

Both the Iowa and LaFayette County Agricultural Stabilization and Conservation County Committees have been involved in the project development and have indicated the project area will receive priority status for receiving Agricultural Conservation Program Funds. The committees will emphasize cost-sharing for contour strip cropping and critical area stabilization practices as well as cost-sharing where single practices are needed for individual farms.

Besides providing cost-sharing funds for cropland and woodland management practices, the Soil Conservation Service (SCS) will provide necessary accelerated technical assistance for the project.

The Department of Natural Resources (DNR) will provide accelerated technical assistance for woodland management and accelerated water quality monitoring in addition to cost-sharing funds for barnyard runoff management, proper manure spreading, and streambank protection practices.

The University of Wisconsin Extension (UWEX) will assist in educational efforts in the project.

Technical Assistance

Technical assistance includes: Contacting land owners and land users, assessing site needs, developing cost-sharing agreements, designing best management practices, certifying completion of practices, and inspecting operation and maintenance of the practices.

SCS will provide the majority of the technical assistance. The Iowa Co. SWCD and LaFayette Co. SWCD will assist SCS in their respective counties and be responsible for encouraging and inspecting practice operation and maintenance. The number of hours of technical assistance broken out by practice and by year are shown in Table 9. The practice needs are based on a participation level of 75 percent.

Table 9
Hours of Technical Assistance Required for Implementation
75% of Total Need

Activity	Rate/ Unit	1982	1983	1984	1985	1986	1987	1988	Total
Landowner Contacts	2 hr./ea.	300	250	200	170				920
Planning with DMA's	-	-	100	100					200
Conservation Planning	.25 hr./ac.	1,875	1,750	1,750	1,299				6,674
Cost-Share Agreements	4 hr./ea.	200	220	160	112				692
Contour w/2,000 # Residue	.25 hr./ac.	50	50	50	50	50			250
Contour Strip Cropping	.3 hr./ac.	120	120	120	600	600	480	37	2,077
Diversion	.02 hr./ft.	8	15	30	38	37	15	7	150
Terraces	.016 hr./ft.	160	160	160	688	1,360	1,360	912	4,800
Waterways	20 hr./ac.	140	80	80	220	300	220	200	1,240
Conservation Tillage	.25 hr./ac.	150	200	200	200	218	200	200	1,368
Grade Stab. Structure	55 hr./ea.	55	55	110	110	110	55	55	550
Shoreline Protection									
Fencing	.001 hr./ft.	2	2	4	15	20	20	18	81
Shaping & Seeding	.037 hr./ft.	15	15	15	44	44	44	44	221
Riprap	.037 hr./ft.	9	9	9	12	12	12	11	74
Livestock Crossing	6 hr./ea.	30	30	60	60	60	60	60	360
Animal Waste Runoff Control	70 hr./ea.	280	420	560	560	420	420	280	2,940
Animal Waste Storage	50 hr./ea.	150	200	250	250	200	150	100	1,300
Livestock Exclusion From Woodland	.3 hr./ac.	22	23	23	135	135	90	13	441
Annual Contract Review	1 hr./ea.		10	21	43	86	130	173	463
		3,566	3,709	3,902	4,606	3,652	3,256	2,110	24,801

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Table 10 ADMINISTRATIVE PROCEDURE FOR OPERATING
UPPER WEST BRANCH WATERSHED

1. Landowner Contacts
 - Application for Assistance Form
 - Farm Visit
2. Conservation Plan of Operation
 - Detailed Surveys and Cost Estimates
 - Conservation 11 Form
3. Sponsor - Land User Contract (P.L.-566 Funds)
 - SCS Form signed by Landowner
 - Signed and Application Reviewed by SWCD Supervisors
4. Wisconsin Non-Point Source Water Pollution Abatement Program Cost-Share Agreement (Wisconsin Fund)
 - Form 3400-68
 - Signed by Landowner and Application Reviewed by SWCD Supervisors
5. 2 bids are required to be obtained by the landowner for the conservation project.
 - If contractor who is not low bidder is chosen, then landowner must pay amount over low bid
 - Exception is terrace systems
 - This requirement should be added to the DNR form and the Sponsor-Land User Contract
6. Construction Checks
 - Normal SCS forms and procedure
7. Certification of Technician
 - D.C. signs SCS B & F-141 Application for payment if for P.L.-566 payment, and the SWCD Request for Reimbursement form
 - If Wisconsin Fund Program, same form
8. Landowner Requests Reimbursement from SWCD
 - Landowner must sign and assist in filling out SWCD form - Request for Reimbursement
 - Bills marked paid must be turned in
 - If requesting P.L.-566 funds landowner must sign Application For Payment B & F-141

****NOTE:** The process will be the same for both Iowa and Lafayette County SWCD's for items 1 thru 8. Lafayette County SWCD will then forward applications for payments to the Iowa County SWCD. Also Iowa County SWCD will have copies of all information and contracts on file.

9. Iowa County SWCD Monthly Meeting

- 1st Tuesday of the Month
- SWCD Supervisors approve payment to landowner by signing and approving Iowa County Expense Voucher
- Review of accounts and practices installed

10. Iowa County SWCD Office

- Ledger Book

11. Clerks Office

- Upper West Branch Watershed Cost-Sharing Program Account
- Receive County expense voucher
- Make out check to landowner and return to Iowa County SWCD to be mailed to landowner

12. Iowa County SWCD Requests P.L.-566 Funds

- Form 270(7-76) Request for Advance or Reimbursement

13. Iowa County SWCD Requests Wisconsin Fund Monies

- DNR Form 3400-70 Request for Reimbursement
- Form 4400-47 Wisconsin Fund Reimbursement Claim Worksheet
- Copy of Certification

Fiscal Management

Fiscal management involves bookkeeping, reimbursing landowners and land users, making requests for reimbursement, and determining the cost of the least-cost practical practice. Iowa Co. SWCD has primary responsibility for carrying out these activities.

All cost-sharing agreements or contracts will be between the Iowa Co. SWCD or the Lafayette Co. SWCD depending on the county and the landowner or land user. All cost-sharing agreements for the Wisconsin Fund must be entered into within three years of the date of the grant agreements. The PL-566 contracts must be entered into within four years with the third and fourth year intended primarily for lands in the southern portion of the watershed.

Iowa Co. SWCD, lead DMA, will send a copy of each signed cost-sharing agreement (Form 3400-68) (see Appendix D) to DNR for both Iowa and Lafayette Counties. DNR will reimburse the Iowa Co. SWCD for the animal waste or streambank practices after practices are installed and certified and after the landowner has been reimbursed. Requests for reimbursement must be submitted using forms 3400-70 and 4400-47 and accompanied by a copy of the practice certification, the contractor's itemized invoice, evidence of payment of the contractor by the landowner, calculation of cost-share, and evidence of DMA payment to the landowner.

Iowa Co. SWCD and Lafayette Co. SWCD will use the Sponsor-Land User Contract (see Appendix E) for cropland and woodland practices. These SWCD's will be reimbursed for the cropland and woodland practices after the technical adequacy and amount of work installed is checked and certified by a SCS representative. Requests for reimbursement must be submitted using Form SF-270, supported by Form SCS-BF-141, and invoices as required. A complete listing of forms used in the project is contained in Table 10.

The number of hours for fiscal management are shown in Table 11.

Information and Education

The information and education activities are aimed at providing general information to all landowners as well as educational and informational materials to farmers. The activities will be carried out through a joint effort of the Iowa and Lafayette Soil and Water Conservation Districts, University of Wisconsin - Extension county agents, and the Soil Conservation Service. The educational activities per year are summarized on Table 14. The rank of the activity is used in determining financial support in the event available funds cannot support all activities. Certain activities are briefly described below:

Newsletters will be used to educate and inform farmers on many parts of the project including: discussions on best management practices; announcements and reviews of meetings, tours, and demonstrations.

Table 11

Fiscal Management Needs
(hours)

		1982	1983	1984	1985	1986	1987	1988	Total
Recording of Cost Sharing Agreements, and Preparation of Files	1.05 hr./ea. agreement	60	61	61					182
Processing of Payments	2.45 hr./practice*	<u>58</u> <u>118</u>	<u>116</u> <u>177</u>	<u>175</u> <u>236</u>	<u>290</u> <u>290</u>	<u>232</u> <u>232</u>	<u>174</u> <u>174</u>	<u>115</u> <u>115</u>	<u>1,160</u> <u>1,342</u>

*Assuming about 3 practices per agreement

Table 12 Hours Needed to Implement Project

	1982	1983	1984	1985	1986	1987	1988	Total
Technical Assistance	3,566	3,709	3,902	4,606	3,652	3,256	2,110	25,618
Program Management	787	787	787	460	410	310	260	3,795
Fiscal Management	118	177	236	290	232	174	115	1,342
TOTAL	<u>4,471</u>	<u>4,673</u>	<u>4,925</u>	<u>5,356</u>	<u>4,294</u>	<u>3,740</u>	<u>2,485</u>	<u>29,944</u>

Table 13 Planned Expenditures for Accelerated Land Treatment (dollars)

Cost Item	Year							Total
	1982	1983	1984	1985	1986	1987	1988	
Administration	15,083	16,067	17,050	12,500	10,700	8,067	6,250	85,717
Technical	59,433	61,817	65,033	76,767	60,867	54,267	35,167	413,351
Total Cost	74,516	77,884	82,083	89,267	71,567	62,334	41,417	499,068

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A watershed association has been formed to provide farmers an opportunity to take a stronger role in the operation of the project. Periodic meetings and an annual banquet are anticipated.

The conservation tillage demonstration is intended to demonstrate various methods of reduced tillage. These practices are most applicable on the cash grain operations in the northern part of the watershed. The 1982 demonstration plot will be held on the Calvin James farm as part to the Iowa County corn variety plots. A field day is held in the fall. Over 250 farmers are expected to attend. The 1983 site has not been identified at this time.

The conservation tillage workshop is intended to supplement the demonstrations. The purpose is to show various type of equipment and discuss details on ground cover, fertility, pest control, and other topics associated with management of the practice. Local equipment dealers and UW-Extension specialists will assist in the workshop. The workshop is scheduled for the Iowa Grant School during the school's winter recess.

Manure management field days involving both a tour and informational presentations is proposed for the fall of 1982 and sometime in 1983. The purpose of the field day is to inform farmers of different manure handling systems and to discuss the importance of SCS specifications and DNR well codes.

A pasture and woodland management demonstration and field day is proposed to show key best management practices in the southern part of the watershed. The main emphasis will be placed on the economic benefits of improving pasture carrying capacity while removing cattle from unproductive woodlots and managing those woodlots.

Table 14 Educational Activities

Activity	Coordinating Agency	Rank	Activities by Project Year							Total
			1	2	3	4	5	6	7	
Newsletter	Iowa Co. UW-EX Support from all others	1	4	4	4	4	3	2	1	22
Watershed Association	SCS	2	2	2	2	2	2	2	2	14
Conservation Tillage Demonstration	Iowa Co. UW-EX	3	1	1						2
Manure Management Field Day	SCS/Iowa SWCD	4	1	1						2
Pasture and Woodland Management Demonstration	Lafayette SWCD DNR Forester/SCS	5		1						1
Pasture and Woodland Management Demonstration	Lafayette SWCD DNR Forester	6		1	1					2
Conservation Tillage Workshop	Iowa UW-EX/SCS	7	1							1
News Releases		8	12	6	6	6	4	4	2	40
Radio Programs		9	6	6	6	3	3	2	1	27
Farm Calls		10	24	48	48	30	30	15	15	210

Implementation Schedule

Implementation activities will be as follows:

1. The first two years of the project, technical assistance and contracting activities for water quality and resource base protection are restricted to the priority management area of the Livingston Branch and Upper West Branch subwatersheds.
2. The third year of the project, technical assistance and contracting activities for water quality will include Jones Branch and William Branch subwatersheds.
3. The third and fourth years of the project technical assistance and contracting activities for resource base protection will include the entire watershed.

Water Quality Monitoring

Three alternatives for water quality monitoring are summarized below. The base level alternative can be handled as part of ongoing DNR activities. The intensive effort in a limited area and the intensive effort in an expanded area require special funding from sources outside the Wisconsin Fund or P.L. 566 programs. Detailed monitoring proposals for both intensive monitoring efforts will be prepared and submitted by DNR to various agencies and organizations to consider for funding.

Base Level - Biotic index sampling will be repeated at selected sites each spring and fall. Bass population surveys will be conducted annually in the 0.8 mile segment in Livingston Branch where surveys were conducted in the 1960's. The primary purpose of these two activities is to document the trend in water quality and fishery improvement.

Intensive effort in limited area - The purpose of this monitoring scheme is two-fold: First, it would provide a detailed documentation of water quality and fishery improvement. Second, it would attempt to identify the pollutants most significantly affecting the smallmouth bass in Livingston Branch. Two or three water quality and flow monitoring stations would be established on Livingston Branch. The first station would be located in the headwaters where sediment and organic matter accumulate throughout much of the year. During intensive spring runoff events, these pollutants are flushed into the high potential smallmouth bass habitat segments downstream. The second station would be located in the upstream portion of the high potential smallmouth bass habitat segment. This section receives the greatest adverse impact when the pollutants are flushed out of the headwaters. The third station would be located further downstream to monitor the return of the water quality to less stressed conditions.

The stations would be operated six years out of the next ten years. The first two years monitoring would establish baseline levels of various pollutant concentrations. Monitoring during the fifth and sixth project years would be used to monitor the improvement in water quality during the peak of best management practices. Also the greatest change in the bass fishery should be seen during this period. The final two years would come at the end of the practice implementation period and measure the results of the project.

Water quality information would be collected using automated equipment during runoff events and the 12 to 48 hours afterwards when most of the fish kills have occurred. Water quality samples would be analyzed for ammonia, total suspended solids, and volatile suspended solids. Temperature and dissolved oxygen would also be monitored on a continuous basis from May 1st through September 15th. Whenever possible, pH would also be measured.

In addition, bass population studies would be conducted during the ten-year period throughout Livingston Branch. Biotic Index sampling would be conducted annually during the spring and the fall.

Intensive effort in expanded area - This monitoring scheme is similar to the scheme for monitoring in the limited area. It includes all the activities on Livingston Branch, but adds efforts on a similar stream outside of the priority watershed to serve as a control. Two stations would be added and bass population surveying and biotic index sampling would be conducted in the "control" stream.

Progress Evaluation

Project progress will be evaluated quarterly and reported using the form shown in Figure 7. Annually more detailed evaluations will be conducted by DNR and SCS.

Plan Review

At the end of the first and second project years, the practice needs and cost per practice identified in the plan will be reviewed and adjusted as needed.

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Figure 7 UPPER WEST BRANCH PECATONICA: QUARTERLY PROGRESS REPORT

	Needs Estimated In Plan No. and Unit ¹	Included in Cost Sharing Agreements												Total
		1982				1983				1984				
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Barnyard Runoff	56 Operations ²													
Management	6702 Animal Units ³													
Manure Storage	34 Operations ²													
Streambank Protection	118,340 ft. Fencing, shaping and seeding rip-rap ³													
	80 units Crossings ²													
Cropland Erosion Control	8,000 Acres Continuous ³ Row Crop													
	7,000 Acres Crop Rotation ³													

- ¹ 100% of need identified in plan
² Indicator of participation
³ Indicator of accomplishment

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Appendix A

SMALLMOUTH BASS STREAM SURVEYS
(See accompanying map for station locations)

Iowa Co. - W Br. Pecatonica (Caygill Br)

<u>Stream</u>	<u>Date</u>	<u>Dist. Sampled (mi.)</u>	<u>Avg. width (ft.)</u>	<u>Other habitat or W.Q.?</u>	<u>No. SMB</u>	<u>SMB/mi</u>	<u>Length (in.) x (range)</u>	<u>Additional Data</u>	<u>Length - frequency histogram?</u>
WBR Pecatonica T5N-R1E-S11&12	9/1/54	0.75	20	Y	27	36	7.6(4.7-9.4)	Cobb Canning Co Fish Kill Investigation	N
" S2	9/1/54	0.3	9	Y	10	33	6.6(5.5-10.0)	Area where more dead fish found	N
T5N-R1E-S34	9/12/69	1.0			22	22	9.4(6.5-15.0)		N
T4N-R1E-S10,11	7/15/81				18	13	(5.0-15.4)	Station 1	Y
T4N-R1E-S2,3 & T5N-R1E-S35	"				19	8	(4.5-16.9)	Station 2	Y
T5N-R1E-S34, 35, 27	"				37	20	(5.0-16.4)	Station 3, Run 1	Y
	& 9/16/81				80	44	(2.5-15.4)	" Run 2 13 Age 0	
T5N-R1E-S27	9/16/81				40	31	(2.5-13.4)	Station 4 16 Age 0	Y
T5N-R1E-S27, 22	"				4	4	(3.5-7.4)	Station 5 1 or 2 Age 0	Y

SMALLMOUTH BASS STREAM SURVEYS

Iowa Co - Livingston Br, p. 1 of 2

Stream	Date	Dist. Sampled (mi.)	Avg. width (ft.)	Other habitat or W.Q.?	Avg. depth (ft)	No. SMB	SMB/mi	Length (in.) x (range)	Additional Data	Length - frequency histogram?
Livingston Br T5N-R1E-S21	8/13/58	0.5?	10-30	Y	1.5	0-52 I-10 II-6 II-7 T-75	0-104* I-20 II-12 III-14 T-150	0-2.2(1.8-3.3) I-7.2(6.3-8.0) II-10.1(9.0-10.9) III-12.1(10.9-13.0) T-4.7(1.8-13.0)	Single run, AC shocker	Y
T5N-R1E-S21	9-1-59	0.8	12	Y	1.5	0-4 I-33 II-3 III-0 40	0-5* I-41 II-4 23	0-3.8(3.7-3.9) I-7.9(6.6*-9.9) II-10.9(10.5-11.4) T-7.6(3-7-11.4)	"	N
T5N-R1E-S21	8-23-60	0.8	12	Y	1.5	0-1 I-3 II-14 18	0-1* I-4 II-18 23	0-2.4 (-) I-6.9(6.0-8.0) II-10.3(8.7-11.3) 9.2(2.4-11.6)	"	N
T5N-R1E-S21	8-30-61	0.5		N		0-280 I-3 II-3 III-5 291	0-560* I-6 II-6 III-10 582	0-4.2(2.9-5.1) I-7.6(7.0-8.1) II-1.3(9.7-12.6) III-13.4(11.7-14.8) 5.4(2.9-14.8)	"	N
T5N-R1E-S21	8-31-62	0.8		N		0-0 I-210 II-15 225	0-* I-263 II-19 282	0- I-6.5(4.2-9.0) II-10.2(9.2-12.1) 6.8(4.2-12.1)	"	N
T5N-R1E-S21	8-29-63	0.8		N		0-64 I-1 II-97 162	0-80* I-1 II-121 202	0-3.4(2.6-4.6) I-5.6(-) II-8.8(6.9-11.3) 6.6(2.6-11.3)	"	N
T5N-R1E-S21	9-_-64	0.8		N		0-610 I-150 II-17 III-70 999*	0-762** I-150 II-17 III-70 999*	0-3.4(2.0-5.4) I-7.6(6.2-9.2) II-10.3(8.9-11.3) III-11.3(9.5-13.3) 4.7(2.0-13.3)	Population estimate Age & growth of sample Weight & condition of sample Pounds/ac; Pounds/mi Double Run DC shocker	N
T5N-R1E-S21	10-7 & 8-65	0.8		N		0-367 I-70 II-42 III-9 IV-7 585	0-457** I-70 II-42 III-9 IV-7 585	0-3.9(2.2-5.0) I-7.8(5.2-9.6) II-10.5(7.8-12.3) III-12.4(10.6-14.0) IV-13.2(12.3-13.8) 5.7 (2.3-13.8)	Population estimate Age & growth of sample Weight & condition of sample Pounds/ac; Pounds/mi Double Run DC shocker	(resp rate from '64)
T5N-R1E-S21	5-20 & 26-66	0.8		N		0- I-249 II-121 III-22 IV - 3 395	0- I-249 II-121 III-22 IV - 3 395	0-spring sample I-4.1(2.2-5.4) II-8.3(7.3-10.2) III-10.3(8.6-11.7) IV- 13.8(13.4-14.2) 5.8(2.2-14.2)	Population estimate Age & growth of sample Weight & condition of sample Pounds/ac; pounds/mi Double Run DC shocker	(from 10/65)

SMALLMOUTH BASS STREAM SURVEYS

Iowa Co - Livingston Br, p. 2 of 2

Stream	Date	Dist. Sampled (mi.)	Avg. width (ft.)	Other habitat or W.Q.?	Avg. depth (ft)	No. SMB	SMB/mi	Length (in.) x (range)	Additional Data	Length - frequency histogram?
TSN-R1E-S21	7-15-76	0.8				0- 0 I-11 II-15 <u>26</u>	32**	(5.0-6.4) (11.0-17.4)	Run 1	Y
"	9-29-76	0.8				0-106 I- 6 II- 1 <u>113</u>	141**	(2.0-6.4) (7.0-8.4) (13.0-13.4)	Run 2, Data for Pop Est	Y
	-80								Invest. for fish kill?	
"	7-14-81	0.8				4	5**	(5.5-6.9)		Y
"	9-16-81	"				0	0**			

* number per mile

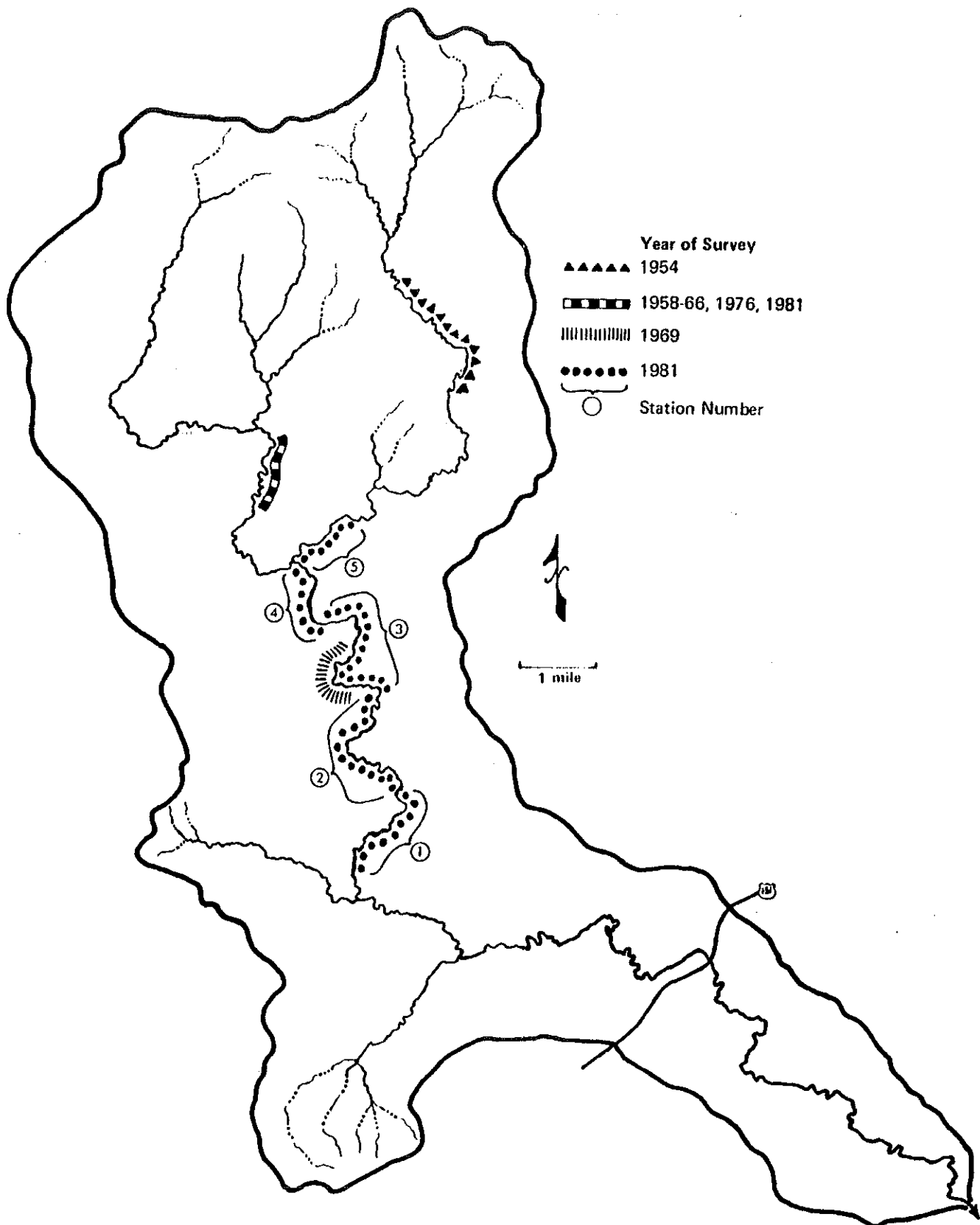
** population estimate per mile

Compiled by Fish Research staff, DNR, from Truog and Brynildson, Fish Management Investment Memorandum No. 256 (1962); Brynildson and Truog, Fish Management Investment Memorandum No. 258 (1965); and from unpublished Fish Management Survey reports.

Upper West Branch Pecatonica Watershed

Iowa, Lafayette and Grant Counties

Figure . Fish management smallmouth bass surveys.



Appendix B

Ammonia Levels Possibly Exceeding Water Quality Standards in Galena River Watershed

Date	Station	Time	(Col. 1) Total Ammonia mg/l	Temp. ¹ C°	(Col. 2) Measured pH Range ² June 1981 Standard Units	*
6/15/81	Pat's Cr.	13:30	1.4	21	7.7-8.0	2.0-1.0
	Madden Br.	15:37	3.0	22	8.0-8.1	1.0-0.8
		15:45	2.2	22	8.0-8.1	1.0-0.8
		16:45	2.2	22	8.0-8.1	1.0-0.8
		19:15	1.2	22	8.0-8.1	1.0-0.8
6/22/81	Madden Br.	00:15	1.5	19	8.0-8.1	1.3-0.9
		03:15	1.3	19	8.0-8.1	1.3-0.9
6/24/81	Madden Br.	09:45	1.2	20	8.0-8.1	1.1-0.9

1 Measured during runoff event at stated time.

2 Range of measured pH during both runoff events and baseflow periods.

* Range of total ammonia concentrations corresponding to water quality standards for pH range measured during June 1981 (Col. 2) at temperatures measured at time of sampling (Col. 1).

Appendix C

Cost-sharing Conditions

L1 Barnyard Runoff Management

Definition: Using structural practices such as gutters, downspouts and diversions to intercept and redirect surface runoff around the barnyard, feeding area or farmstead, and/or to collect, convey and temporarily store runoff from the barnyard, feeding area or farmstead.

Conditions:

1. Cost-sharing is authorized for:
 - a) Diversions, gutters, downspouts, collection basins, infiltration areas, waterway outlet structures, piping and land shaping needed to manage runoff from areas where livestock manure accumulates.
 - b) Measures needed for the establishment of perennial grasses, including fertilizers and other minerals.
 - c) Permanent fencing.
2. The practice must be maintained for a minimum of 15 years following the year of installation.

L2 Manure Storage Facilities

Definition: A structure for temporary storage of manure.

Conditions:

1. Cost-sharing is authorized for:
 - a. Aerobic or anaerobic lagoons, liquid manure tanks and solid manure stacking facilities and equipment necessary for transporting manure to the storage facility required as part of a manure management plan.
2. Cost-sharing is not authorized for:
 - a. Operations where manure can be spread on location which are nearly flat land or which do not drain to surface waters.
 - b. Portable pumps and other portable equipment;
 - c. Buildings or modifications to buildings;
 - d. Equipment for spreading or incorporating manure; and
 - e. That portion of the facility installed under or attached to buildings serving as part of the building or its foundation.
3. Storage facility must have a minimum of 180-day storage capacity.
4. Runoff from solid manure stacking facilities must be controlled.
5. Manure must not be spread when the ground is frozen or saturated.
6. Manure must be incorporated into the soil as soon as practicable after spreading.
7. Lagoons must be constructed to assure sealing of the bottom and sides in order to prevent contamination of wells and groundwater.
8. The practice must be maintained for a minimum of 20 years following the year of installation.

M3 Shoreline Protection (Streambank Protection)

Definition: Stabilizing and protecting banks of streams and lakes against erosion.

Conditions:

1. Cost-sharing is authorized:
 - a) For permanent fencing to protect banks from damage by domestic livestock.
 - b) For planting trees, shrubs, perennial grass cover as filter strips or buffer zones along banks.
 - c) To limit livestock access to water.
 - d) To install livestock and machinery crossings that will minimize disturbance of the stream channel and banks.
 - e) For placement of riprap and other materials on the bank when other practices are not practical.
 - f) For shaping and smoothing banks prior to the installation of protective structures or plantings.
2. Livestock must be excluded from the sloped and planted area.
3. The practice shall be maintained for a minimum of 10 years following the calendar year of installation.

Appendix D

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

**WISCONSIN NONPOINT SOURCE WATER POLLUTION ABATEMENT
PROGRAM COST-SHARE AGREEMENT**
FORM 3400-68
REV. 4-80

Cost-Share Agreement Number		Total Est. Grant Amount	
		\$	
Name of Grant Recipient			Telephone Number
Street or Route			
City, State, Zip Code			
Legal Description of Property			
Name of Landowner (if other than Grant Recipient)			Telephone Number
Name of Designated Mgt. Agency		Telephone Number	
Street or Route		City, State, Zip Code	
City, State, Zip Code		Installation Period	
		From	To

SECTION 1. AGREEMENT PROVISIONS

1. The grant recipient agrees:
 - A. To install the best management practice(s) listed in section 2 consistent with the specifications listed in section 3 during the installation period identified above.
 - B. To operate and maintain each best management practice for the life span identified in section 2.
 - C. To certify, on forms provided by the designated management agency, best management practices installed under this agreement are being maintained.
 - D. To repay the full amount of the cost-share payments made and forfeit all rights to future cost-share payments if:
 - (1) Any best management practice is rendered ineffective during its life span due to improper maintenance, operation or neglect;
 - (2) The applicable conditions identified in section 3 are not met; ~~and~~ ~~or~~
 - (3) The grant recipient adopts any land use or practice which defeats the purposes of the best management practices.
 - E. To retain responsibility for this agreement if a change in ownership occurs unless the new owner assumes, in writing, the operation and maintenance of the best management practices and other provisions of this agreement pertaining to the grant recipient.
 - F. Not to discriminate against contractors because of age, race, religion, color, handicap, sex, physical condition, developmental disability, or national origin, in the performance of responsibilities under this agreement.
2. The designated management agency agrees:
 - A. To provide technical assistance for best management practices identified in section 2.
 - B. To make cost-share payment after receipt of a payment request and evidence of completion status.
3. Satisfactory evidence of completion status will consist of a technical performance report signed by a technician assigned by the designated management agency.
4. The total state cost-share payment for each practice identified in section 2 shall be based on the cost-share rate for the practice as applied to the eligible costs actually incurred, as substantiated to the designated management agency. If the total cost-share payment for a practice identified in section 2 exceeds the estimated grant amount for that practice, payment of the overrun will be made only if there are funds available.
5. The agreement may be amended, by mutual agreement, during the installation period as long as the changes will provide equal or greater pollution control.

SECTION 2. BEST MANAGEMENT PRACTICES, COSTS, INSTALLATION SCHEDULE, LIFE SPANS

This section contains all best management practices, both those eligible for cost-sharing and those not eligible, needed to control significant nonpoint sources in eligible areas owned or operated by the grant recipient.

1. Cost-shared best management practices

Location (Field Number)	Practice Code	Practice Title	Quantity	Units	Estimated Total Cost	Cost- Share Rate	Estimated Grant- Amount	Cost-Sharing From Other Programs	Year of Instal- lation	Practice Life-span

2. Noncost-shared best management practices

Location (Field Number)	Practice Code	Practice Title	Quantity	Units	Year of Installation	Practice Life-span	

SECTION 3. BEST MANAGEMENT PRACTICE CONDITIONS

Attached are the conditions for each best management practice listed in section 2.

Grant Recipient or Authorized Representative's Signature	Date Signed	Authorized Representative of Des. Mgt. Agency - Signature	Date Signed
Title		Title	

Appendix E

STATE WisconsinWATERSHED Upper West Branch
Pecatonica River

CONTRACT NO. _____

SCS AGREEMENT NO. _____

SPONSOR-LAND USER CONTRACT

THIS CONTRACT, made this _____ day of _____, by and between the Iowa County Soil and Water Conservation District, called the Sponsor, and _____, called the Land User. The contract period is from _____ to _____.

The Land User agrees to participate in a land treatment program in the Upper West Branch of the Pecatonica River Watershed and to all of the provisions in this contract, and further agrees to the following terms and conditions set out below and in Attachment A which is made a part of this contract.

A. The Land User will:

(1) Carry out land use adjustment and conservation treatment measures in conformity with and as shown in the enclosed plan/schedule of operations, which is hereby made a part of this contract, according to the time schedule of land use and treatment and in accordance with specifications obtained from the Sponsor or Soil Conservation Service (SCS).

(2) Submit to the Sponsor an application for payment and itemized statements of cost of materials and copies of contractor's invoices whenever practices are cost-shared on an actual cost basis.

(3) Permit free access by Sponsor and SCS representatives to provide technical assistance and inspect the work at any reasonable time during the contract period.

(4) Forfeit all rights to further payments under this contract and refund to the Sponsor all payments received upon violation of this contract at any stage during the time of his control of the land unit if the Sponsor determines that the violation is of such a nature as to warrant termination of this contract, or to make refunds or accept such payment adjustments as the Sponsor may deem appropriate if they determine that the Land User's violation does not warrant termination of this contract.

(5) Upon transfer of his or her right and interest in the land unit during the contract period to forfeit all rights to further payments under this contract and refund to the Sponsor all payments received unless the transferee of the land unit agrees to assume all obligations of this contract and not to adopt any practice or treatment which would tend to defeat the purpose of this contract; and hereby certifies that every Land User having control of the land unit during the period of this contract is shown herein.

(6) Maintain the conservation measures and practices installed on the land unit as provided in the plan/schedule of operations.

Page 2 of 2 pages for Contract No.

B. The Sponsor will:

(1) Provide the percentage of the average cost for each component or practice or the percentage of the actual cost not to exceed such percentages of the average cost as set forth in the plan/schedule of operations.

(2) In cooperation with SCS provide authorized technical assistance including but not limited to obtaining basic information; preparation of drawings, designs, and specifications; performance of layout, inspection during installation, and certification on completion of installation.

(3) Made payment to the Land User when:

- a. The technical adequacy and amount of work installed is checked and certified by an SCS or Sponsor Representative.
- b. The Land User has furnished required certifications and itemized statements of cost of materials and copies of contractor's invoices when practices are cost-shared on an actual cost basis.

(Land User)

Social Security No. _____

Signature: _____

Address: _____

Date: _____

IOWA COUNTY SOIL & WATER CONSERVATION DISTRICT
(Sponsor)

By: _____

Title: _____

Date: _____

Appendix F

Summary of Public Hearing

December 30, 1981, Dodgeville, County Courthouse

The following is a summary of comments and questions raised at the public hearing. A response to each question or comment was made by a DNR representative during a question and answer period following the hearing. Some questions pertained to PL-566 activities only. The response to those questions was made by an SCS representative. A response similar to those presented at the hearing is provided following the comment.

Comment by Don Speth: The \$6,000 ceiling for cost-sharing on manure storage facilities is too low.

DNR Response: The cost-sharing rates are set in the Wisconsin Administrative Code. The \$6,000 ceiling for cost-sharing manure storage facilities was set based on the installation cost as well as the convenience and economic benefits to the farmer. Any change in the cost-sharing rates would require a change in the administrative rules and approval by the legislature.

Comment by Don Speth: The draft of the plan indicates the farmer must pay the complete cost of the practice and then receive reimbursement for the cost-shared portion. Why can't the farmer be reimbursed at the time the bills are presented by the contractor?

DNR Response: The fiscal management requirements were set by DNR based on experiences in other programs and two years of the nonpoint source program. Landowner payment first is required to maintain accountable bookkeeping.

Comment by Kristi Popp: She does not favor a priority management area.

DNR Response: The priority management area concept pertains to practices cost-shared under the state program only. It does not apply to the cropland and woodland practices cost-shared under the PL-566 program. The Wisconsin Fund is aimed specifically at those watersheds and areas within those watersheds which contribute to critical water quality problems. Those areas within a watershed which contribute most significantly to the specific water quality problems are termed the priority management area. Since the most critical water quality problems are in the northern half of the watershed, to include all of the watershed would not be meeting the intent of the program.

Comment by Kristi Popp: How much of the money for the project will go to technical assistance, clerical support, etc?

DNR and SCS Response: The estimates for practice cost-sharing include cost-sharing only. Technical assistance costs are over and above those estimates for cost-sharing.

Comment by Kristi Popp: Point sources should be cleaned-up first.

DNR Response: Both the Villages of Cobb and Rewey are well along in the planning process for new wastewater treatment plants. The other point sources are meeting their effluent limits.

Comment by Kristi Popp: There should be an annual update of the plan.

DNR Response: There will be an annual review and the plan will be updated if necessary.

Comment by Kristi Popp: What is DNR's involvement in the project?

DNR Response: DNR provides funds for cost-sharing barnyard runoff controls, manure storage facilities and streambank protection practices. Also DNR will be doing some water quality monitoring. Technical assistance will be provided by SCS and the Iowa County and Lafayette County Soil and Water Conservation Districts. The SCS Technical Guide standards and specifications will be used.

Comment by Kristi Popp: How were manure storage facility needs identified?

SCS Response: Almost all of the livestock operations were surveyed. The estimates were based on slopes of fields where manure would normally be spread and location relative to the stream.

Comment by Kristi Popp: There isn't enough cost-sharing for manure storage.

(Addressed above.)

Comment by Kristi Popp: There are no details on woodland management in the plan.

SCS Response: Woodland management practices are covered under the PL-566 program. Cost-sharing for woodland fencing is available. Many of the woodlands support walnut and are more valuable for timber production than anything else.

Comment by Kristi Popp: In the Galena Watershed, a 33 to 150 foot easement is required as a condition for receiving cost-sharing streambank protection. Does this condition apply in this watershed?

DNR Response: There is no such condition in either the Galena River Watershed or the Upper West Branch Pecos Watershed.

Comment by Kristi Popp: There isn't much information on no-till.

SCS Response: The cost-sharing for conservation tillage is still being firmed-up. Currently, the cost-sharing is \$60 spread over a three-year period. A high level of residue will be required.

Comment by Kristi Popp: Are cost-sharing percentages determined prior to the project?

DNR Response: Maximum cost-sharing percentages are set by the Legislature in Section 144.25 of the Wisconsin Statutes.

Comment by Dick McKnight on behalf of the Lafayette County Soil and Water Conservation District: Through experience in the Galena River Watershed project, it is difficult to say to some people they are eligible and to others they are not. It hurts efforts to sell soil conservation.

(See response on priority management area above.)

Comment by Dick McKnight: More money is needed for cost-sharing manure storage facilities.

(See response above)

Comment by Robert Marr: People thought they may be eligible, then they turn out being outside the priority management area.

DNR Response: Two years ago, when SCS started to develop a plan for this watershed, there was no assurance of funding from any program. Six months ago, funding was approved under the PL-566 program for cropland and woodland erosion controls. This watershed was selected as a priority watershed under the Wisconsin Fund program in October, 1981.

Comment by Robert Marr: Are the needs in the rest of the county going to be neglected?

DNR Response: The project was requested and supported by the counties involved. It was selected with the understanding that the counties would direct a substantial amount of their technical staff time into the watershed. The effort throughout the rest of the county will probably be decreased somewhat during the next three years.

Comment by Don Cunningham: Were the studies conducted, sufficiently complete in the southern half of the watershed?

SCS Response: The land inventories were aimed primarily in the northern half, although almost all barnyards of livestock operations throughout the watershed were surveyed.

DNR Response: Biotic index water quality monitoring was focused in the northern half where the smallmouth bass fishery has been degraded. However, samples were taken at two locations on the West Branch of the Pecatonica in the southern half and indicated fair to good water quality. Fish surveys in 1981 were conducted in areas where the bass fishery is concentrated. Most of the portion of the stream surveyed was in the southern half although it did not include the downstream-most sections since the habitat for bass is not as good as further upstream.

Comment by Clarence Keleher: The surveys show only 12 livestock operations in the southern area outside of the priority management area. Information and education activities would be simpler if all landowners in the watershed were eligible.

(See response on priority management areas above.)

Comment by Clarence Keleher: Bills must be paid by landowners prior to reimbursement. If this requirement was waived, it would be easier on cash-flow for farmers.

(See response on similar comment above.)

Comment by Pete Finley: The little bit of extra cost would be well worth it if eligibility is extended throughout watershed.

DNR Response: The estimated cost to include those operations is not small. The cost-sharing for barnyard runoff control and manure storage would exceed \$200,000. Streambank protection would be over and above that.

Comment by Pete Finley: Why are there two cost-sharing forms?

DNR Response: Each program requires a specific cost-sharing form to be used. All other forms such as certification of practices can use the same forms.

Appendix G

MEMORANDUM OF UNDERSTANDING BETWEEN THE
IOWA COUNTY SOIL AND WATER CONSERVATION DISTRICT
AND THE
LAFAYETTE COUNTY SOIL AND WATER CONSERVATION DISTRICT

This agreement is made and entered into this 3rd day of March, 1982, by and between the Iowa County and Lafayette County Soil and Water Conservation Districts.

PURPOSE: The purpose of this agreement is to delineate cost-sharing responsibilities of the Iowa and Lafayette County Soil and Water Conservation Districts for implementation of Best Management Practices in the Upper West Branch Watershed Management Plan authorized under the Wisconsin Non-point Source Water Pollution Abatement Program and P.L.-566 Watershed Program. Both Soil and Water Conservation Districts have a common objective of helping to bring about conservation development and the wise use of land, water, and related resources in the Upper West Branch Watershed. Therefore, both Soil and Water Conservation Districts deem it mutually advantageous to cooperate in this undertaking and agree as follows:

- I. The Iowa County Soil and Water Conservation District Agrees:
 - A. To administrate and implement the Upper West Branch Watershed Plan as written and approved, or as amended and approved.
 - B. To accept Wisconsin Fund Revenues from the Wisconsin Department of Natural Resources and P.L.-566 Funds from U.S.D.A Soil Conservation Service, and to process in a speedy and efficient manner all cost-shared vouchers from the Lafayette County SWCD relating to the Upper West Branch Watershed.
- II. The Lafayette County Soil and Water Conservation District Agrees:
 - A. To provide manpower for technical assistance in planning, design, and layout of Best Management Practices within the Upper West Branch Watershed in Lafayette County according to the guidelines outlined in the Watershed Plan.
 - B. To be responsible for proper installation, completion, and maintenance by landowner of Best Management Practices in the Upper West Branch Watershed which are within the jurisdiction of Lafayette County SWCD.

II. Continued

- C. To forward all applications for payment to the Iowa County SWCD for processing and payment drafting. Proper certification that projects are completed and meet specifications as outlined in the technical guide, must be included. Also proper documentation that bills pertaining to the conservation practices have been paid by the landowner.
- D. To send payment drafts to Lafayette County participants in the watershed.
- E. To maintain records of cost estimates, receipts, encumbrances, expenditures and fund balances for Lafayette County and to provide Iowa County with such information.
- F. To secure written concurrence of the Soil Conservation Service and Department of Natural Resources before approving modifications or changes in the Sponsor-Land User contract or the DNR Cost-share Agreement. Also to inform the Iowa County SWCD of such modifications.

III. It is mutually Understood and Agreed:

- A. _____ meetings will be scheduled and attended by both SWCD's assess and evaluate the Upper West Branch Watershed plan.

This Agreement Shall:

- A. Be modified at anytime by mutual consent of all parties to it.

IOWA COUNTY SOIL AND WATER CONSERVATION DISTRICT

John C. Hogan
Chairman, Iowa County SWCD

3/2-82
Date

Richard McLaughlin
Chairman, Lafayette County SWCD

1/9/82
Date

WATERSHED PLAN AGREEMENT
BETWEEN THE
IOWA AND LAFAYETTE COUNTY
SOIL AND WATER CONSERVATION DISTRICTS
(hereinafter referred to as Sponsors)
STATE OF WISCONSIN
AND THE
SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
(hereinafter referred to as SCS)

WHEREAS, application has heretofore been made to the Secretary of Agriculture by the Sponsors for assistance in preparing a plan for works of improvement for the Upper West Branch of the Pecatonica River Watershed, State of Wisconsin, under the authority of the Watershed Protection and Flood Prevention Act (16 U.S.C. 1001-1008); and

WHEREAS, the responsibility for administration of the Watershed Protection and Flood Prevention Act, as amended, has been assigned by the Secretary of Agriculture to the Soil Conservation Service (SCS); and

WHEREAS, there has been developed through the cooperative efforts of the Sponsors, State of Wisconsin, Department of Natural Resources, and SCS a plan for works of improvement in water quality and resource base protection for the Upper West Branch of the Pecatonica River Watershed, State of Wisconsin, hereinafter referred to as the watershed plan-Environmental Impact Statement, which plan is annexed to and made a part of this agreement;

Now, therefore, in view of the foregoing considerations, the Secretary of Agriculture, through SCS, and the Sponsors hereby agree on this plan and that the works of improvement for this project will be installed, operated, and maintained in accordance with the terms, conditions, and stipulations, provided for in this watershed plan and including the following:

1. The Sponsors will acquire, with other than P.L. 566 funds, such landrights as will be needed in connection with the works of improvement.
2. The Sponsors will acquire or provide assurance that landowners or water users have acquired such water rights pursuant to State law as may be needed in the installation and operation of the works of improvement.
3. The Sponsors will obtain all necessary Federal, state, and local permits as may be required for installation of the works of improvement.
4. The construction cost for installation of Best Management Practices (BMP's) will be derived from four sources; ACP, Wisconsin Fund, P.L. 566, and other (Sponsor) costs ^{1/}. Estimated installation cost to be paid by source are: Wisconsin Fund, \$662,777; P.L. 566, \$950,349; and other (Sponsor) \$409,435. A complete breakdown by practice is listed in table 7A.

^{1/} Sponsor's share to be paid by landowners or operators who enter into watershed long-term contracts and by a county cost-share program.

The percentages of construction costs to be paid by the Sponsors, the state and the SCS are as follows:

<u>Works of Improvement</u>	<u>Sponsors (Percent)</u>	<u>State (Percent)</u>	<u>SCS (Percent)</u>	<u>Estimated Construction Costs (dollars)</u>
Streambank Fencing	20	80	0	80,775
Streambank Shaping & Seeding	20	80	0	12,000
Streambank Riprap	20	80	0	29,700
Stream Crossing	20	80	0	60,000
Livestock Waste Runoff Control	30	70	0	515,424
Livestock Waste Storage Facility	30	70	0	222,857
Contour Stripcropping	0	0	100	69,230
Contour Stripcropping with 2,000# residue	0	0	100	10,000
Diversion	25	0	75	15,000
Terraces	25	0	75	600,000
Grassed Waterways	25	0	75	93,000
Conservation Tillage 4,000# residue	66	0	34	368,025
Conservation Tillage 2-4,000# residue	74	0	26	350,000
Grade Stabilization Structure	25	0	75	100,000
Livestock Exclusion from woodland	25	0	75	65,252

5. The percentages of the technical assistance costs to be borne by the Sponsors and SCS are as follows:

<u>Works of Improvement</u>	<u>Sponsors (%)</u>	<u>SCS (5%)</u>	<u>Estimated Construction Costs (dollars)</u>
All	13.3	86.7	\$ 499,068

6. The Sponsors and SCS will each bear the costs of project administration that each incurs, estimated to be \$11,400 and \$74,317 , respectively.
7. The Sponsors will provide assistance to landowners and operators to ensure the installation of the land- treatment measures shown in the watershed plan.
8. The Sponsors will encourage landowners and operators to operate and maintain the land-treatment measures for the protection and improvement of the watershed.
9. The costs shown in this plan are preliminary estimates. Final costs to be borne by the parties hereto, will be the actual costs incurred in the installation of works of improvement.

10. This agreement is not a fund-obligating document. Financial and other assistance to be furnished by SCS in carrying out the plan is contingent upon the fulfillment of applicable laws and regulations and the availability of appropriations for this purpose.
11. A separate agreement will be entered into between SCS and the Sponsors before either party initiates work involving funds of the other party. Such agreements will set forth in detail the financial and working arrangements and other conditions that are applicable to the specific works of improvement.
12. This plan may be amended or revised only by mutual agreement of the parties hereto.
13. No member of or delegate to congress, or resident commissioner, shall be admitted to any share or part of this plan, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.
14. The program conducted will be in compliance with all requirements respecting nondiscrimination as contained in the Civil Rights Act of 1964, as amended, and the regulation of the Secretary of Agriculture (7CFR 15.1-1t.12), which provide that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any activity receiving Federal financial assistance.

Iowa County Soil and Water
Conservation District
Agricultural Center Building
Dodgeville, Wisconsin 53533

By John Hogan
Title Chairman, Iowa County SWCD
Date April 29, 1982

The signing of this agreement was authorized by a resolution of the governing body of the Iowa County Soil and Water Conservation District adopted at a meeting held on the 6th day of April.

John C. Hogan
Chairman, Iowa County Soil and Water
Conservation District

Arena, Wisconsin 53503
Address Zip Code

Date April 29, 1982

Lafayette County Soil and Water
Conservation District
Courthouse
Darlington, Wisconsin 53530

By William McKeon
Title Chairman, Lafayette County SWCD
Date April 27, 1982

The signing of this agreement was authorized by a resolution of the governing body of the Lafayette County Soil and Water Conservation District adopted at a meeting held on the 27 day of April.

William G. McKeon
Chairman, Lafayette County Soil and
Water Conservation District

R.R. 1, Darlington, WI 53530
Address Zip Code

Date April 27, 1982

Grant County Soil and Water
Conservation District
Youth and Agriculture Building
P.O. Box 329
Lancaster, Wisconsin 53813

By Francis Busch
Title Chairman, Grant County SWCD
Date April 26, 1982

The signing of this agreement was authorized by a resolution of the governing body of the Grant County Soil and Water Conservation District adopted at a meeting held on the 26th day of April.

Francis Busch
Chairman, Grant County Soil and Water
Conservation District

Dickensville, WI 53808
Address Zip Code

Date 4-26-82

The environmental assessment of this federally assisted action indicates that the project will not cause significant local, regional, or national impacts on the environment. As a result of these findings the state conservationist has determined that the preparation and review of an environmental impact statement are not needed for this project.

Soil Conservation Service
United States Department of Agriculture

Approved By:


Clifford A. Maguire
State Conservationist

4/30/82
Date