WINNESHIEK COUNTY
SOIL AND WATER RESOURCE CONSERVATION PLAN
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I. INTRODUCTION

Winneshiek County's Soil and Water Resource Conservation Plan is a comprehensive long-range assessment of soil and water resources within the Conservation District, and is a plan of action consistent with recent changes in Iowa law. The plan was developed by the Winneshiek Soil and Water Conservation District (SWCD) Commissioners, with technical assistance provided by the USDA Soil Conservation Service (SCS), the Iowa Department of Agriculture and Land Stewardship (IDALS) Division of Soil Conservation, and various other local, state and federal agencies. Local public input was used to develop the plan.

The systematic planning process we have used, was designed to insure the highest probability of desired accomplishments, with the fewest undesirable side effects.

The plan you are holding: 1.) provides a basic inventory of soil, water and related natural resources within Winneshiek County; 2.) discusses the condition of these resources; 3.) explains some factors which limit conservation practices, and explains how each might be addressed; 4.) identifies Winneshiek SWCD objectives, goals and priorities; and, 5.) sets out a course of action to achieve the desired results.

The Winneshiek SWCD Commissioners have been designated to carry out a vital conservation policy established by the State Legislature. This policy is "to integrate the conservation of soil and water resources into production of agricultural commodities to insure the long-term protection of the soil and water resources of the State of Iowa..." In addition, the Winneshiek SWCD has signed a Basic Memorandum of Understanding with the United States Department of Agriculture, and with the USDA Soil Conservation Service. Both of these memorandums require the Winneshiek SWCD to have a Long Range Plan to provide guidance and program direction for USDA and Soil Conservation Service employees.

Winneshiek County's Soil and Water Resource Conservation Plan is aimed at successfully achieving these important state and federal obligations, and securing a future of strong agricultural production and environmental protection.

II. PURPOSE

The major purpose of the Winneshiek Soil and Water Resource Conservation Plan is to assure proper direction and guidance for the future efforts of the Winneshiek SWCD program. Secondly, completion of the planning process, and finalization of our plan, also allows the Winneshiek SWCD Commissioners to apply for Resource Enhancement And Protection (REAP) grants and other sources of funding. With this plan, we also meet requirements and guidelines of various federal and state agencies as they apply to Soil and Water Conservation Districts.

A third purpose of our plan is to meet requirements of the Iowa Code, which pertain to the operation of Soil and Water Conservation Districts. Fourthly, the Winneshiek SWCD plan focuses on long-range conservation priorities and provides the basis for future budgeting and staffing decisions.

This plan is to be periodically updated and/or amended to match changing natural resource conditions; and the changing needs and priorities of local citizens.

III. PREFACE AND CREDITS

Planning for the long-term conservation of Winneshiek County's soil, water, and related natural resources is not a simple task; but it is a necessary process when orderly development and utilization of these precious resources is expected.

This long-range plan reflects our current objectives and priorities as we set out to meet the future land and water needs of local citizens. We SWCD Commissioners recognize that with constant economic and environmental change, the operating strategies for our total SWCD program need to be regularly re-evaluated, and periodically revised.

The present planning process is being undertaken by the Commissioners of the Winneshiek Soil and Water Conservation District for all local individuals, groups, and units of government. It is an organized effort to develop and protect our soil and water resources for the benefit of all. Every governmental agency; civic, environmental, or community group; and each citizen can and is encouraged to make a meaningful contribution toward implementing this conservation program. Only with the cooperation of everyone, can we hope to complete this most important task before some of our natural resources are irretrievably destroyed.

The Winneshiek Soil and Water Conservation District Commissioners appreciate the inter-agency cooperation needed to develop this long-range plan. First the Commissioners would like to thank the staff of the: U.S. Soil Conservation Service; U. S. Agricultural Stabilization and Conservation Service; Iowa Department of Natural Resources; Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation; Iowa State University Cooperative Extension Service; Winneshiek County Board of Supervisors; Iowa Department of Transportation; U.S. Geological Survey; the Iowa Department of Economic Development and Winneshiek County Conservation Board.

Secondly, credit should go to those who contributed the public input which produced the objectives, goals, and priorities of our plan. These in Winneshiek County include: the Winneshiek Board of Supervisors, Upper Explorerland Regional Planning Council, Winneshiek County Sanitarian, Winneshiek County Pheasants Forever, Groundwater Policy Education Project, Izaak Walton League, Security Bank & Trust Co., Farmers Home Administration, Winneshiek County Extension Service, Iowa Department of Natural Resources, Winneshiek County Conservation Board, Iowa Natural Heritage Foundation, Interested landowners and farmers.

IV. ORGANIZATION AND AUTHORITY

The Winneshiek Soil and Water Conservation District was organized at the request of local people interested in soil and water conservation. A charter was issued under the provisions of the Soil Conservation Districts' Law, Code of Iowa, Chapter 467A, on January 12, 1952. The boundaries of the District and the county are the same.

The District is a subdivision of state government governed by five locally elected Commissioners, who are elected on the general ballot and serve six year terms. The Commissioners can appoint as many Assistant Commissioners as they deem necessary. SWCD Commissioners are charged by the Iowa General Assembly with the restoration and conservation of the soil, water, and the related natural resources of the county. The District receives support services from the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation.

Additional authorities have been given the Soil and Water Conservation District since it was founded. Some of these additional authorities are:

1. Sub-districts (Chapter 467A, Sec. 13-41) of a soil and water conservation district may be formed for the purpose of carrying out watershed protection and flood prevention programs with the sub-district, but may not be formed solely for the purpose of establishing or taking over the operation an existing drainage district.

2. The Commissioners of the Soil and Water Conservation District shall adopt reasonable regulations (Chapter 467A, Sec. 42-53) to establish a soil loss limit or limits for the District and provide for the implementation of the limit or limits, and may subsequently amend or repeal their regulations as they deem necessary. Chapter 467A also provides for mandatory erosion control after due process.

3. The Soil and Water Conservation District (Chapter 467B) advises and consults with counties and sub-districts upon the request of any of them or any affected landowners, and is authorized to cooperate with other state subdivisions and affected landowners, as well as with the federal government or any department or agency thereof, to construct, operate, and maintain suitable projects for flood contorl or soil erosion.

4. Under Chapter 467C, the County Board of Supervisors can establish districts having for their purpose soil conservation and the control of flood waters. The establishment of these districts requires the approval of the Soil and Water Conservation District along with the Department of Natural Resources. This section includes the role of the District in representing the rural as well as urban interests in the administration of the Erosion Control Law and other programs in which the District is involved. The basic urban concern is to help urban areas with erosion control. Consultative assistance is provided to both the cities and the county upon request. Also, these authorities are within the Code of Iowa, Chapter 467E - Agricultural Energy Management and Chapter 467F - Water Protection Projects and Practices. However, the ultimate responsibility for soil erosion control rests with the District.

The District is authorized to request assistance from, and enter into Memorandums of Understanding between themselves and other federal, state, and local entities to carry out their assignments and unique leadership role in the implementation of this long-range plan.

Active Memorandums of Understanding have been signed with:

U.S. Department of Agriculture	1967
U.S. Soil Conservation Service	1988
Winneshiek County Board of Supervisors	1990
U.S. Army Corp. of Engineers	1976
Iowa Cooperative Extension Service	1942
Northeast Iowa Conservancy District	1976
Winneshiek County ASCS	1989

The SWCD Commissioners also provide sponsorship and direction to programs administered by other agencies which directly affect the operations, objectives and priorities of the District. There are a number of such agencies which have programs available that can assist the Winneshiek SWCD in carrying out this Soil and Water Resource Conservation Plan.

V. GENERAL DESCRIPTION OF THE WINNESHIEK DISTRICT

The total area within the District is approximately 440,320 acres or 688 square miles.

The major industrial developments of the county are located in the Decorah area. Camcar-Textron, a metal fastener manufacturer; Deco Products, a zinc casting and hose clamp manufacturer; and Rockwell-Collins, manufacturer of communications equipment. Other large employers in the area are Luther College in Decorah, and Northeast Iowa Technical Institute located at Calmar. The total population of the county in 1980 was 21,863.

The demographics of the Winneshiek District can be divided into three distinctive groups. The first group is the percentages of urban and rural people living within the District. Approximately 37 percent of the residents of the District live in urban areas, based upon the fact that any town over 2500 population is an urban settlement. This leaves 63 percent of the District's population in a rural setting. The second grouping of our population is by percent male and percent female. The population by gender in the District is 49 percent male and 51 percent female. The portion of the District's farms that are operated by males is 87.9%, and female are 12.1%. The percentages show 98.93% White (Caucasian), .27% Black, and .80% other. The District's operating units are 99.5% White, 0.5% Black.

The average, or per capita income (in 1982 dollars) for the Winneshiek District rose gradually from $6,992 in 1970, to $9,115 in 1984; and was projected to reach $9,935 for 1990. Compared to per capita income for the entire state, Winneshiek County was 23% lower in 1970, 18% lower in 1984, and was projected to be 18% lower in 1990. These data are from 1987, the latest provided by Iowa State University for producing this plan.

The number of acres within the District that are specifically used for row crops based on 1989 data is 149,000 acres or approximately 34 *percent of all land. Also, 77 percent of these acres are designated Highly Erodible Land under the Food Security Act.

Agricultural tendencies of Winneshiek District have seen major changes over the past 30 years. Total rowcrop acres are up 31.5 % from 1960-1989, with soybeans acres showing the most dramatic increases (up 528%). Corn acres are up 19%; total hay acres are up 25%, with a 61% increasing alfalfa acres. The only downward trend has been oats (down 55%). See Table 1.

As a percentage of cropland acres, rowcrops have increased 31.5 % from 1960-1989. Total cropland acres in in Winneshiek County have also increased over 30 years-from 281,000 total cropland acres in 1960 to 336,000 acres in 1989. These increases, both in total cropland acres and % in rowcrops, could be the result of two factors: conversion over the years, of pasture and woodlands to croplands; and more intensive farming or lengthening out rotations to include more rowcrops (Example- from a COMM rotation to a CCCOMMM rotation).

Significant changes in livestock numbers have occurred during the past 30 years. The total number of milk cows is down 11%, while beef cow numbers are up 79%, fed beef cattle are up 235%, and sheep numbers are up over 1000%. Number of sows farrowed each year has stayed relatively the same. See Table 2.

Overall, the total Animal Unit numbers for Winneshiek County has increased 17%, with an increase of 14,985 A.U.'s. This increase in numbers is most significant in beef cows and feeder cattle. With more cattle in production and on feed, this places a demand on land for more crop acres, or higher production levels per acre of cropland. Additionally, with an increase in livestock numbers being confined to areas (around feedlots and farmsteads), an increase in animal waste will negatively impact both surface and ground water sources downstream or adjacent to these livestock operations.

TABLE: 1 CROP ACRES IN PRODUCTION

	1960	1989
CORN	109,848	131,000
SOYBEANS	3,407	18,000
OATS	55,108	30,100
HAY (all hay)	64,597	80,900
ALFALFA	47,138	76,000

TABLE: 2 LIVESTOCK PRODUCTION NUMBERS

	1960	1989	Change in A.U. from 1960-1989
SOWS FARROWED/YR	41,262	41,400	Same
MILK COWS	29,913	27,000	- 4,078
BEEF COWS	9,486	17,000	+ 10,520
BEEF-GRAIN FED/SOLD	5,964	14,000	+ 8,036
SHEEP & LAMBS	530	5,600	+ 507

*Based on Animal Unit Equivalency Factors, which is a measurement used to determine animal capacity of an animal-feeding operation.

Urban usage of land within the District is roughly 2.4% or 10,370 acres. This is the portion of land area designated as part of a town or city.

The area in the District with contracts in the Conservation Reserve Program (CRP) is approximately 15 percent of the total agricultural acres, or 44,222 acres. Currently 574 or 35 percent of the total farms in the District have all or parts of their farms enrolled in the CRP program.

The major water bodies within the District include the Upper Iowa River, which drains all of the county but the southwestern corner. The Upper Iowa River is narrow and winding, exposed rock cliffs provide many scenic vistas along its course. This river was once considered for inclusion in the National Wild and Scenic Rivers Program due to its exceptional qualities, and is heavily used by recreationists. Other major rivers and streams which also provide many hours of public recreation annually, include: the Turkey River, Little Turkey River, Yellow River, Trout River, North Bear Creek, Pine Creek, Coldwater Creek, Trout Creek, South Bear Creek, Bohemian Creek, Dry Run Creek and Canoe Creek.

Ownership/operator status of the land within the District is one of two types. The first is where the land is owned by the person who uses or lives upon it, about 69% of the farms are in this category. The second category is where the land is rented or leased to another party, about 31% of the farm operations are of this type.

VI. INVENTORY OF SOIL, WATER AND RELATED NATURAL RESOURCES

1. SOIL RESOURCES

In this section, frequent reference will be made to the existing Winneshiek County Soil Survey, completed in June 1968. There are nine major soil association areas in Winneshiek County. The soil types can be divided into two general categories: 1) The loess soils found in the northeast 75% of the county, and 2) the glacial soils found in the southwest 25% of the county.

The major loess soils in the county include Fayette, Downs and Tama, and Dubuque silt loams. Soil depth of these soils range from the deep Downs soils to the very shallow Dubuque soils.

The principal management problems with these soils is that they occur on steep slopes and are very erodible when intensively row cropped. Past cropping systems have removed up to one-half or more of the original surface layer. In some of the steeper areas, the surface layer has been completely eroded away.

The Dubuque soils are shallow to bedrock. This can cause problems when installing conservation practices such as terraces or other erosion control practices.

The major glacial soils in the county include Bassett, Floyd, Marlean, Racine, and Winneshiek. These soils are generally on less steep slopes than the loess soils. Most of these soils are well drained except for the Floyd soils which are somewhat poorly drained. Past cropping systems have removed approximately 2 or more inches of the original 15 inches of topsoil.

In addition to the drainage problems associated with the Floyd soils, other management problems include the presence of stones or fragmented limestone in these thin soils.

The soil resources used for agriculture purposes in Winneshiek County cover 429,954 acres. This total acreage is broken down as follows:

Cropland	245,000 acres
CRP	45,000 acres
Pasture & Hayland	71,000 acres
Woodland	40,000 acres
Wildlife(private)	16,796 acres
Recreation (public)	2,000 acres
Urban land,roads	17,524 acres
Federal land	0 acres
State land	6,100 acres

Loss of potential productivity caused by soil loss is a concern on land used for commodity crops. Excessive soil losses will limit production in the future. The following explains the soil loss rates and time limits on reducing soil loss for each agriculture use.

A. CROPLAND

Corn continues to be king in Winneshiek County, as it is in the rest of the Iowa. About 85% of the row crop acreage in Winneshiek County is planted to corn, and about 15% of this acreage is being cut for ensilage. Approximately 131,000 acres of corn are harvested annually. Soybeans are a distant second with around 18,000 acres grown annually.

Oat production in Winneshiek totals around 30,000 acres with the major part of the acreage being planted as a nurse crop for new alfalfa seedings. Yields of over 100 bushels of oats per acre are not uncommon.

Because of the diversity of soils and topography, crop rotations range from little or no row crop to continuous row crop. By far the major portion of the crop rotations contain some hay in the rotation. Sheet and rill erosion on cropland in Winneshiek County has been, and continues to be a major problem.

The soil association areas containing the loess soils are currently experiencing the highest rates of soil loss. Rates from 10-25 tons per acre per year are common in unprotected areas. These high soil loss rates will begin to seriously affect crop production in 40 to 60 years if the areas are not treated. Water quality of rivers and streams in this area due to sedimentation will deteriorate if these conditions are allowed to continue.

We can only loose an additional two inches of topsoil in Winneshiek-Rockton-Marlean association before production capabilities of the soil are markedly affected. At the current average annual soil loss of approximately 10 tons per acre, the land will need to be adequately treated within the next 30 years.

The cropland on the Bassett-Floyd soil associations have an average soil loss of 8-10 tons per acre per year. The soils in these associations could loose approximately four more inches of topsoil before their productivity is markedly affected. A more intensive cropping system than the one presently used will drastically increase the average soil loss.

Highly erodible land is practically all planned to levels acceptable for FSA requirements and about 60% is planned to the tolerable soil loss level that will sustain a constant level of production. It remains to be determined if staff and financial resources to control soil erosion on the remaining 40% will be available before it's too late.

B. PASTURE AND HAYLAND

Currently 71,000 acres of the Winneshiek District are used for pasture and hayland. Pastureland consists of mainly bluegrass. Some owners and operators confuse timber for pastureland. Well managed pasture resources will produce livestock, woodland is best left to producing timber as a crop. Local hayland is mainly alfalfa. There are some alfalfa-grass mixtures where pasturing of the hayland occurs.

Over-grazing is a problem in most bluegrass pastures, and coupled with the fact that these areas are usually on steeper slopes, serious soil erosion commonly results. Slopes averaging 14% in overgrazed pastures will have shallow topsoil of about 7 inches and have an annual soil loss of approximately 8 tons per acre.

C. WOODLAND

More than 10% or 45,000 acres of Winneshiek County is forested. Originally, trees covered nearly all of the eastern, and a large portion of the western part of the District. There has been a 22% decrease in woodland acres in the county in just the last 30 years. Most of the loss has been because woodland has been used for pasture, or converted to row crops. This trend seems to have slowed, but is expected to continue through the rest of the century.

Nearly all of the woodland is classified as commercial, meaning it is capable of producing a cash crop. About 87% of our woodland acres are in private hands, with only the remaining 13% being publicly owned. Approximately 12,000 acres of privately owned woodland are managed under the Iowa Forest Reserve Law. The state owns about 4,100 acres of woodland in the county, which are managed by the Department of Natural Resources. These state owned areas serve recreational and aesthetic needs, and protect large large blocks of natural landscape as it appeared prior to white settlement. (See map in Appendix)

The present pattern of tree cover is directly related to the soils and topography within the county. The two predominant forest types within the District are: Oak-Hickory, on rolling hills and steep uplands; and Maple-Elm, on stream benches and bottomlands.

It is estimated that 75-80% of privately owned woodlands are grazed by livestock. This serious and widespread landuse problem has both short-term and long-term negative consequences. Woodland grazing damages the forest floor, destroys or harms trees of all ages, reduces water quality, eliminates or reduces wildlife populations and fails to provide adequate forage for the livestock animals themselves. As the soil is compacted and understory plants and ground cover are eliminated, annual growth in board feet of forest products is significantly reduced, and increased runoff occurs. Enormous amounts of sediment are needlessly washed into important streams and ponds, where little or no sedimentation would occur, if the woodland were managed for timber - and livestock were grazed on real pastureland. Alternatives to grazing woodlands need to be encouraged and made available to landowners and operators.

Another negative trend in woodland use is the common practice of harvesting the good quality timber, and not replanting new trees; or, not managing woodland for high quality timber at all. The prevailing attitude of "taking the best - and leaving the rest" has been followed for several decades. The result is a degraded forest resource for today and for years into the future. Greater emphasis needs to be placed on planting hardwoods to replace what has been cut, and on effectively managing timber stands for maximum tree growth. Education programs on the value of forest cover, timber management, and forest conservation are totally inadequate in N.E. Iowa.

D. GULLY EROSION

Gully erosion is found wherever there is concentrated water runoff, and is the most visible form of soil erosion. It is not limited to steeply sloping fields, even nearly level fields where sheet erosion is not a problem can have severe gully erosion. Soil losses of over 100 tons/acre/year are common with gully erosion. Farm operators often are not overly concerned until soil loss rates reach these extreme levels or greater.

Gully erosion causes damage to cropland and it often damages existing tile systems. Many tile lines are becoming shallow and are breaking down and blowing out because gully erosion has uncovered them. Approximately 3,000 acres of cropland in Winneshiek County are affected by gully erosion. To date 5,900 acres of gullies in the Winneshiek District have been seeded to waterways or are controlled by sediment and water control structures.

E. STREAMBANK EROSION

Streambank erosion continues to be a problem in Winneshiek County because of the wide spread practice of pasturing along streams. There are severe cases with bare, unstable banks in many instances. It is estimated that 95% of the streams in the county are accessible to livestock and are experiencing streambank erosion to some degree. If water quality is to be improved and protected, treatment is necessary. Treatment can be provided by several means, including streambank fencing, reshaping and revegetating eroded areas, providing livestock accesses through streams and alternate livestock systems.

F. URBAN EROSION

Due to the increasing population and urban expansion in and near Decorah over recent years, there may be a significant increase in the demand for SWCD technical assistance in these areas. In the past the workload in urban erosion has not been great. However, soil and water conservation problems associated with urban development will become important in the future and several serious problems exist in Decorah in May of 1991.

2. WATER RESOURCES

A. WATER QUANTITY

Water resources within the Winneshiek SWCD have contributed greatly to the development of the District. In the past, small streams served as generators of power for lumber and grain mills, and as transportation routes. Today these same streams are very important for fish and wildlife habitat, recreational areas, and as sources of water for livestock.

There are 155 miles of perennial streams in the District. Five percent of the miles are located in urban areas and the remaining 95% are located in rural settings (see the appendix for a map of these streams). Our rivers and streams are very important to the quality of life enjoyed here by county residents, and tourists. Please see the appendix for a listing and data on each of the major rivers and streams in the Winneshiek District.

Currently Winneshiek County has designated five priority watersheds and/or Special Water Quality Projects. Please see the appendix for a map of these areas.

Underground water supplies beneath the county seem to be abundant. Sources range from natural flowing wells to drilled wells 700 feet or more in depth. A major concern is the immediate quality of water in shallow aquifers and the potential for irreversible contamination of the water in deep aquifers. Water samples taken in recent years from 300 Winneshiek County wells showed that 15-20% of the wells tested are unsafe for human use due to nitrates or coliform bacteria counts.

B. WATER QUALITY

The Winneshiek SWCD is located in the "karst" topography of the Northeast Iowa driftless area. A critically important characteristic of this region is that we have only a thin layer of topsoil available to filter contaminants before water infiltrates to, or flows directly into underground aquifers. The underlying carbonate rock formations in karst areas are often heavily fractured and easily dissolved by water. In addition, abundant karst phenomena such as springs, disappearing streams and sinkholes set the stage for continuous interaction between ground and surface water.

Since groundwater provides drinking water for nearly all residents of the District, it is a resource which deserves careful monitoring and strong protective measures. Pollution has already occurred and groundwater continues to be degraded on a day-by-day basis from a wide number of human activities. With economic development and agriculture pressures intensifying in the District, the danger of further contaminating underground aquifers is growing. When polluted, groundwater may be extremely difficult, if not impossible, to clean up. The costs associated with any serious underground clean up effort in the future would probably be beyond our present comprehension.

The quality of the county's groundwater has already been degraded with nitrates and pesticides. The threat of additional impacts come from: livestock wastes; various agricultural chemicals; fertilizers and pesticides from non-farm uses; industrial, commercial and residential wastes; and de-icing products used on roads. Contaminants enter underground water supplies through: poorly constructed and abandoned wells; underground storage tanks; sinkholes; septic systems; landfill sites and infiltration through shallow soils across our widespread agricultural land.

Intensive rowcropping, especially over fractured bedrock, can lead to severe health problems. Samples taken from 300 wells in recent years in Winneshiek County showed that 15-20% of the samples tested were unsafe for human consumption due to nitrates or coliform bacterial counts. Nitrate concentrations are most often mentioned in relation to infants and methemoglobinemia. Drinking water with high levels of nitrate may also contribute to other long-term health problems as well.

Over 100,000 acres of karst topography containing more than 1,000 sinkholes are found within the Winneshiek District. The major concentration of sinkholes is shown on the Sinkhole Concentration Map in the appendix. In past years sinkholes were frequently used as rural dump sites, and received wastes of all descriptions. One can still commonly find household bottles and cans; oil containers; chemical containers; farm equipment and tools; and even dead animals in, or adjacent to, sinkholes.

3. RECREATION AND WILDLIFE

The Winneshiek County Conservation Board has designated 635 acres to roadside parks, multi-use areas, and wildlife preserves. Uses of these lands include fishing, boating, picnicing, camping, roadside rest, environmental education, snowmobiling, hiking, bicycling, and cross-country skiing. In addition, the Iowa Department of Natural Resources manages approximately 6,500 acres for the same natural and human benefits. All D.N.R. land is managed primarily for wildlife and fisheries habitat. Most communities within the county also try to provide parks and other "open space" areas for both recreation and wildlife purposes.

Even with the land holdings of city, county, and state government, the vast majority of wildlife habitat and property used for outdoor recreation, still remains in private ownership. The woodlands, streambank areas, pasture and haylands, and large areas of cultivated cropland in Winneshiek County offer a considerable amount of outdoor recreational opportunities and habitat for native vegetation, fish and wildlife.

At this time the County Conservation Board and Iowa D.N.R. are not planning to purchase any additional land because of budget constraints. However, the need for protecting fish and wildlife habitat, and for public outdoor recreation areas will grow as human numbers increase, social stresses expand and our collective impacts on all other natural resources continue. To meet future natural area needs, these agencies are willing to negotiate with willing sellers of appropriate land, on a case-by-case basis.

Some land within the Winneshiek District which has better soil types, is still being converted from primarily wildlife habitat to cropland. However, at present this seems to be more than offset by conversion of marginal cropland and marginal pastureland back to idle land under the Conservation Reserve Program (CRP). These CRP acres can directly benefit wildlife populations, soil resources, water quality, fish populations and the various members of the public who enjoy outdoor recreation. Populations of several species of upland game appear to have increased, at least in part due to CRP. Non-hunted species have probably benefited equally, but their numbers are less carefully observed.

Hunters and fishermen have long made it known that they support efforts to increase wildlife and fish numbers. But recently there has been a significant increase in overall public awareness and concern for protecting natural environments and providing for the needs of all plant and animal species. This important and widespread change of attitude, along with legislation which has decreased incentives for converting valuable wetlands and woodlands to cropland, may help expand the quantity and improve the quality of acres managed as natural areas.

All of these trends point to even greater long-term support for initiatives and programs which conserve land in its natural state for recreational and environmental purposes. Non-consumptive users of natural areas, as well as hunters and fishermen appreciate their expanded opportunities in nature-related activities - and are likely to demand more of the same in the years ahead.

4. MINING AND MINERAL RESOURCES

Mineral resources in Winneshiek County consist of both limestone quarries and sand and gravel open pits. There are three major road construction companies who operate quarries. Carlson and Bruening companies are headquartered in Decorah, and Roverud company is headquartered at Spring Grove, MN. A map in the appendix shows the locations of local quarries.

Limestone occurs near the surface in many places in the more hilly portions of Winneshiek County. It is crushed in quarries and used commercially for roadbuilding, concrete and agricultural lime. A few small sand and gravel pits have been opened adjacent to some of the county's rivers and streams. Most of this material is used by individual landowners. The commercial value of sand and gravel is quite limited at this time.

5. PUBLIC PARTICIPATION PROCESS

The Winneshiek SWCD sponsored a public meeting on January 8, 1991. Fifteen different groups were represented. This meeting was used to explain the District's Long Range Plan; identify resource concerns and to generate ideas and solutions. A list of the results from small group "brain storming" and the participants attending is located in the Index.

A written survey questionnaire consisting of five multiple-choice questions was used to obtain direct public input for this Soil and Water Resource Conservation Plan. Twenty two individuals representing agricultural interests within the Winneshiek District completed the survey. A sample questionnaire is in index.

Participants in this survey rated 14 land-use situations according to the perceived impact of each. Using 1 point for "no problem," 10 points for "some concern," and 20 points for "serious concern;" the relative importance for each of the 14 choices is shown below. More points mean a greater problem, few points mean little concern.

380 sinkhole contamination
330 cropland erosion
321 pesticides on ag land
300 fertilizer use on ag land
281 loss of wildlife habitat
261 animal manure runoff from lots
261 land conversion (woods and pasture)
232 woodland management
223 urban land disturbing activities
205 streambank erosion
203 pasture overgrazing
187 livestock along streams
187 erosion from road construction
103 mining operations

For a question of what the Winneshiek SWCD could do to improve its educational and technical assistance to land users in the County, the 22 participants gave the following 26 answers. Eleven would like to see more information and education activities (radio programs, tours, newspaper articles); eight wanted more field demonstrations; five would like to see different cost share practices established; and one wanted more newsletters.

The question of what would be the proper land-use and management of Conservation Reserve Program (CRP) land after the 10- year contract ends, brought the following responses. A total of 16 people wanted the government to require strict soil conservation practices, 7 wanted to see the contracts extended, and 3 wanted to see the CRP land brought back into production.

VII. LAND MANAGEMENT IN THE WINNESHIEK SWCD

Conservation of the land, and the water which helps make it productive, is the primary concern of the Winneshiek SWCD. Current conservation practices include: erosion control structures, terraces, conservation tillage, strip cropping, grassed waterways, contour farming, field borders, tree planting, waste management, nutrient management, and pesticide management. Quantities of these soil and water management practices are shown in the following matrix.

Conservation Practice	Total Needs	Accomplished To Date	Remain To Be Done	FSA Needs by 1995
Conservation Tillage (ac.)	100,000	59,800	40,200	7,000
Contour Strip Cropping (ac.)	70,000	50,000	20,000	2,708
Terraces (ft.)	4,183,000	350,000	3,833,000	135,000
Field Borders (ft.)	16,000,000	11,000,000	5,000,000	3,217,000
Contouring (ac.)	200,000	110,000	90,000	20,000
Grassed Waterways (ac.)	10,300	5,800	4,500	4,500
Erosion Control Struc. (no.)	1,500	200	1,300	-
Pasture & Hayland Plant. (ac.)	72,000	40,000	32,000	240
Tree Planting 9ac.)	20,000	3,500	16,500	-
Woodland Improvement (ac.)	20,000	2,200	17,800	-
Farmstead & Feedlot Windbreak	1,200	985	215	-
Wildlife Upland Habitat (ac.)	12,000	9,500	2,500	-
Animal Waste Systems (no.)	1,800	-	1,800	-
Pesticide & Nutrient Mgt.(ac)	245,000	-	245,000	-

1. FACTORS LIMITING CONSERVATION PRACTICES APPLICATION

A number of factors are limiting soil and water conservation accomplishments within Winneshiek County. We wish to see the following serious limiting factors eliminated, or greatly reduced. When considered in various combinations of three or four, or more, at one time, these factors are having a very significant negative impact on vital resources which support the quality of life in Winneshiek County.

A. Inadequate financial incentives - -
   This has been a major hindrance to structural practices such as terraces, grade stabilization structures, and waste management facilities.

B. Inadequate staffing when there is staff turnover - -
This limits the amount of all structural practices which can be designed, and the amount of contouring, strip cropping, etc. which can be laid out.

C. Landowner acceptance of management practices - -
This factor, taken alone, limits the application of conservation tillage, pasture management, woodland management, and nutrient/pesticide management. In conjunction with other limiting factors it has an even greater negative impact.

D. Training needs of staff as newer technology and methods are developed - -
This limiting factor hinders assistance to land-users who need help with nutrient, pesticide, pasture, and woodland management; and the development of waste management systems.

E. Inability of landowners to pay for conservation - -
Expensive practices such as terraces and waste management structures are not constructed when the farmer has limited financial resources.

F. Length of construction season - -
Completion of structural practices is limited to early spring and late fall due to crop production and frozen soil.

G. Obligations other than conservation practices - -
Fewer conservation practices are applied when field office staff are pulled away from traditional duties to take care of assignments not directly related to erosion control.

2. ACTIONS NEEDED TO OVERCOME LIMITING FACTORS

A. Inadequate financial incentives - -
If state and federal incentives for conservation are not increased to 75% or higher, the necessary funds will have to be sought through competitive grant proposals to new funding sources.

B. Inadequate staffing during periods of staff turnover - - If staffing levels are not increased, existing staff will have to become more highly motivated, more efficient, and better trained in order to achieve additional conservation objectives. Landowners and contractors will have to assist in layout and checkout, but we are not convinced of the wisdom of this.

C. Landowner acceptance of management practices - - New and innovative information and education efforts are needed to convince landowners and operators of the value of various resource management systems and conservation practices.

D. Inadequate training of staff - - Mechanisms will have to be put in place to insure improved staff training without reducing production levels of existing staff.

E. Inability of landowners to pay for conservation - - Improved agricultural profitability, increased state and federal incentives, SWCD grant proposals to new funding sources, or some combination of these may be needed to change this limiting factor.

F. Length of construction season - - Additional incentives could be used to increase the amount of summer terrace construction, thereby lengthening the construction season.

G. Obligations other than conservation practices - - To "get more conservation on the land" any time-consuming task which takes staff away from soil and water conservation practices will need to be either reduced or eliminated.

VIII. Winneshiek SWCD Policies

It will be the policy of the Winneshiek Soil & Water Conservation District to:

1. Provide technical assistance without regard to race, color, national origin, religion, gender, age, handicap, or marital status.

2. Insure that membership of SWCD Board and assistant commissioners be maintained without regard to race, color, national origin, religion, gender, age, handicap, or marital status.

3. Work cooperatively with all federal, state, and local agencies, organizations, and individuals to advance natural resource conservation within Winneshiek District, and to avoid duplication of effort wherever possible.

4. Enter into agreements with units of government, organizations, and individual landowner/operators, who request help in developing Inventories and Evaluations, and Resource Conservation Plans.

5. Provide technical assistance in planning, design, and layout of soil and water conservation practices according to the SCS Technical Guide, and other Standards to all interested individuals and groups with land in Winneshiek County, in-so-far as the District's facilities, staffing and resources allow. Priority will be placed on most effective practices for the least cost to reduce soil losses, and to treat critical areas and needs. Therefore, priority will be given to:

    a) No-Till, Ridge Till and other reduced tillage methods
    b) contour stripcropping and contouring
    c) terracing
    d) erosion control structures
    e) grassed waterways

    Woodland, pasture, streambank protection and animal waste management practices will be given special consideration for funding from the REAP program and other designated Water Quality Projects based on critical needs and ranking within the project area, if funds become limited.

Cost sharing for terraces will be restricted to land that is predominantly D slope or less and where intensive row crops are planned. Cost sharing for grass waterways and structures will be provided only if soil loss in 75% or more of the watershed meets tolerable limits.

6. Conduct a continuing comprehensive conservation education program that will insure awareness and concern for natural resources in Winneshiek County. Up-to-date conservation education materials will be provided to all people in Winneshiek County. Emphasis will be placed on providing the area public and parochial schools with material that will also be provided to Northeast Iowa Technical Institute at Calmar and Luther College in Decorah. Cooperate with Winneshiek County Conservation Board and the County Nature Center.

7. Provide information to all forms of public mass media to insure that local citizens are kept well informed and up-to-date on new conservation programs, concepts and accomplishments.

8. Provide assistance in the interpretation of the Winneshiek County Soil Survey to all people involved in land use decisions.

9. Provide resource inventory and evaluation data to units of government that have resource planning responsibilities in Winneshiek County.

10. Actively support and cooperate as sponsors to Upper Explorerland RC&D. We will continue to seek out opportunities that support the objectives of the RC&D area plan.

11. The Iowa 2000 folders will be prepared each year as staffing permits. Watersheds with surface water quality concerns will receive priority for folder distribution.

12. Review the Long Range Plan each November, with major revisions every five to seven years, or as needed. The district will prepare an Annual Plan of Work each year in December for the upcoming fiscal year. This work plan will include specific action items and goals that will move us closer to meeting our long range objectives.

13. Hold regular monthly meetings of the District governing body. Special meetings will be called as necessary. All meetings are open to the public.

IX. Winneshiek SWCD Objectives, Goals and Priorities

The Winneshiek SWCD Commissioners have established the following objectives to achieve their conservation priorities from 1991 to 1996. The objectives are shown in order of priority.

OBJECTIVE 1. ASSIST LANDOWNERS IN PLANNING AND IMPLEMENTING EROSION CONTROL MEASURES TO PROTECT ALL LAND IN WINNESHIEK COUNTY FROM SOIL EROSION.

Goal A. Provide technical assistance to landowners to help them implement their conservation plans on HEL cropland by Jan. 1, 1995.

Goal B. Help landowners solve erosion problems on pasturelands and on woodlands by cooperating with DNR and Extension to use demonstrations and education to encourage better management.

Goal C. Minimize soil deposition into county road ditches, and erosion from non-agricultural and urban landuse activities; through education, use of county owned no-till drills, and by coordination with other county departments.

Goal D. Assist landowners in treating soil erosion on non-HEL cropland to reduce soil losses to acceptable levels.

Goal E. Promote stripcropping and residue management practices as cost effective means of reducing erosion on cropland.

Goal F. Work with landowners using demonstrations and educational programming to reduce streambank erosion.

OBJECTIVE 2. IMPROVE AND PROTECT THE QUALITY OF BOTH SURFACE WATER AND GROUNDWATER IN WINNESHIEK COUNTY BY ASSISTING LANDOWNERS IN PLANNING AND IMPLEMENTING WATER QUALITY PRACTICES.

Goal A. Target technical assistance and cost share funds to high priority water quality project areas selected by SWCD Commissioners.

Goal B. Provide planning and implementation assistance to help landowners comply with state water quality legislation, and local water quality health standards.

Goal C. Encourage proper use of animal wastes, purchased fertilizers and other chemicals by coordinating with Extension and farm coops to provide demonstrations, information/ education and technical assistance on nutrient management practices.

Goal D. Provide individuals , organizations and agencies with soils interpretations, water quality information, and technical assistance related to: sinkholes, landuse near abandoned wells, landfill sites, streambank erosion and livestock in streams.

Goal E. Encourage application of Best Management Practices (BMPs) such as crop rotations, grassed buffer strips, nutrient management, streambank protection, animal waste management, grassed waterways and others - to improve water quality.

Goal F. Encourage conservation practices around limestone quarries to protect groundwater.

Goal G. Obtain cooperation and assistance from technical agencies to develop technical standards and practices to treat and/or prevent sinkhole contamination, and provide this assistance to landowners.

OBJECTIVE 3. WORK CLOSELY WITH OTHER RESOURCE MANAGEMENT AGENCIES AND GROUPS TO CREATE STRONG EDUCATION AND INFORMATION PROGRAMS WHICH ENCOURAGE PROPER LANDUSE AND MANAGEMENT.

Goal A. Inform landusers about proper management of fragile soil types within the county and provide technical assistance for alternative landuses which protect these resources.

Goal B. Identify, and maintain a record of prime farmland acres, for maximum potential cropland production.

Goal C. Cooperate with land resource managers and other community decision-makers to use up-to-date soil survey information in making land-use decisions related to economic development, tourism and other resource uses.

Goal D. Work with local groups and landuse decision-makers to identify and promote protection of environmentally sensitive areas.

Goal E. Provide area schools with conservation education materials which can be effectively used in the classroom; by coordinating efforts with the County Conservation Board, school administrators and teachers.

Goal F. Write news columns and newsletters, and provide other information to all forms of news media to insure that local citizens are kept well informed of FSA program information, conservation programs and activities, and District accomplishments.

Goal G. Conduct educational and demonstration events to promote newer conservation practices and concepts using publicity and coordination with other groups for maximum effectiveness; examples are: animal waste management, woodland management, sustainable agriculture practices, and alternative livestock water systems with streambank fencing.

Goal H. To expand and promote membership to Winneshiek County SWCD Supporter Club.

OBJECTIVE 4. PROVIDE ASSISTANCE TO LANDUSERS AND CITIZENS IN THE PROTECTION AND ENHANCEMENT OF PLANT AND WILDLIFE RESOURCES IN THE COUNTY.

Goal A. Encourage sound forest management practices; including timber stand improvement, proper harvesting methods, tree planting on marginal land and elimination of grazing in woodland.

Goal B. Promote the many benefits and values of woodland other than forest products.

Goal C. Assist other groups and organizations such as the REAP Committee and County Conservation Board and local environmental groups in inventorying environmentally sensitive natural areas in our county, including native prairie, wetlands and woodlands; and encourage the protection of these areas.

Goal D. Promote the use of cost share funds or other incentives for controlling grazing along streams and to help landowners establish buffer strips along critical areas adjacent to streams.

Goal E. Coordinate with the County Conservation Board, County Board of Supervisors and County Engineer to generate support and promote native grass seedings and roadside management along county roads.

Goal F. Utilize cost share funds and other available funds from sportsmans clubs and environmental organizations to develop and restore wetlands and other wildlife habitats in the county.

X. STATEMENT OF ADOPTION

We, the Commissioners of the Winneshiek Soil and Water Conservation District, adopt our new Soil and Water Resource Conservation Plan on the 21st day of May, 1991.

Chairman

Commissioners

XI. STATEMENT OF APPROVAL

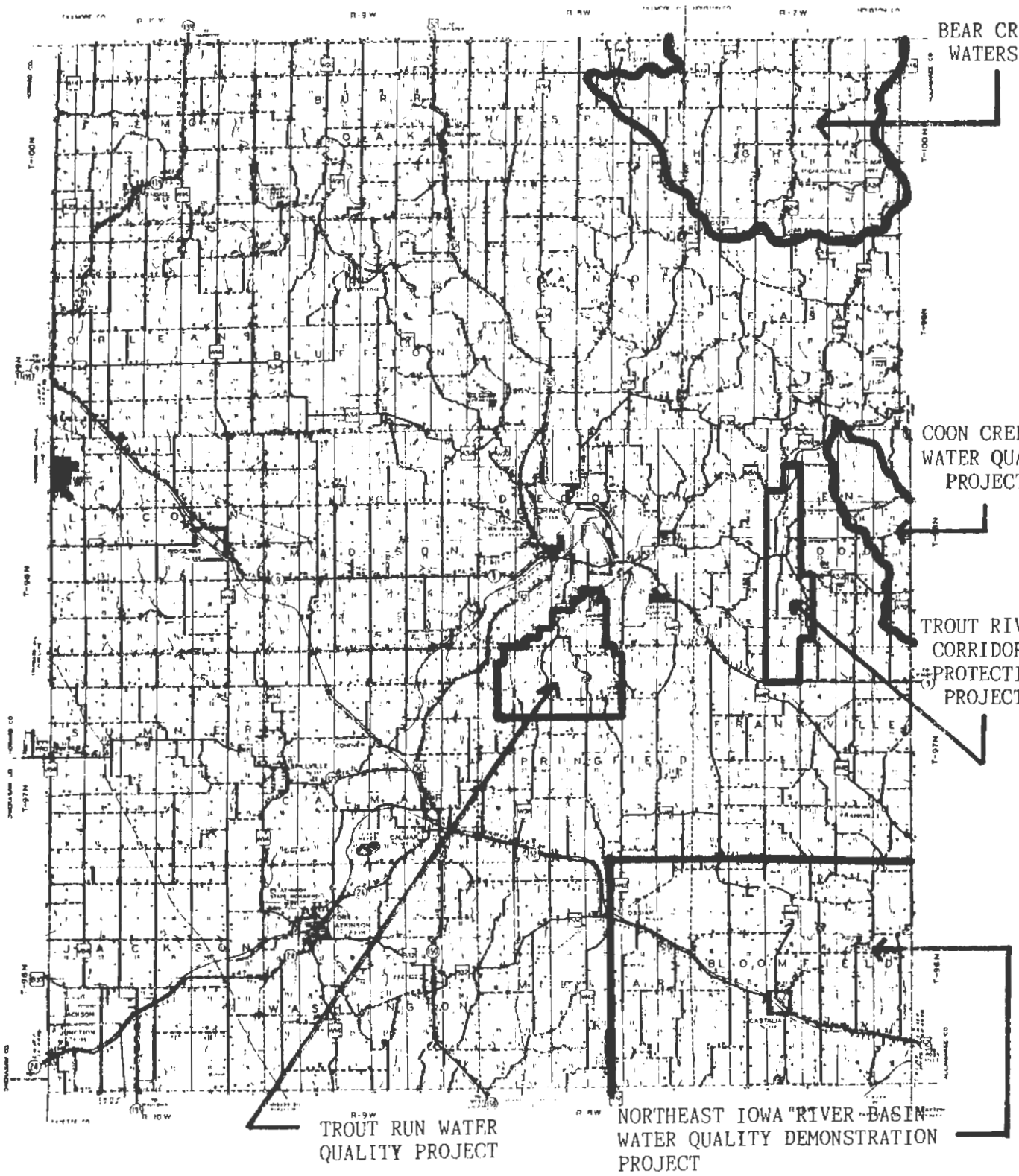
This Soil and Water Resource Conservation Plan of the Winneshiek Soil and Water Conservation District was reviewed and approved by the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation on June 25, 1991.

Director

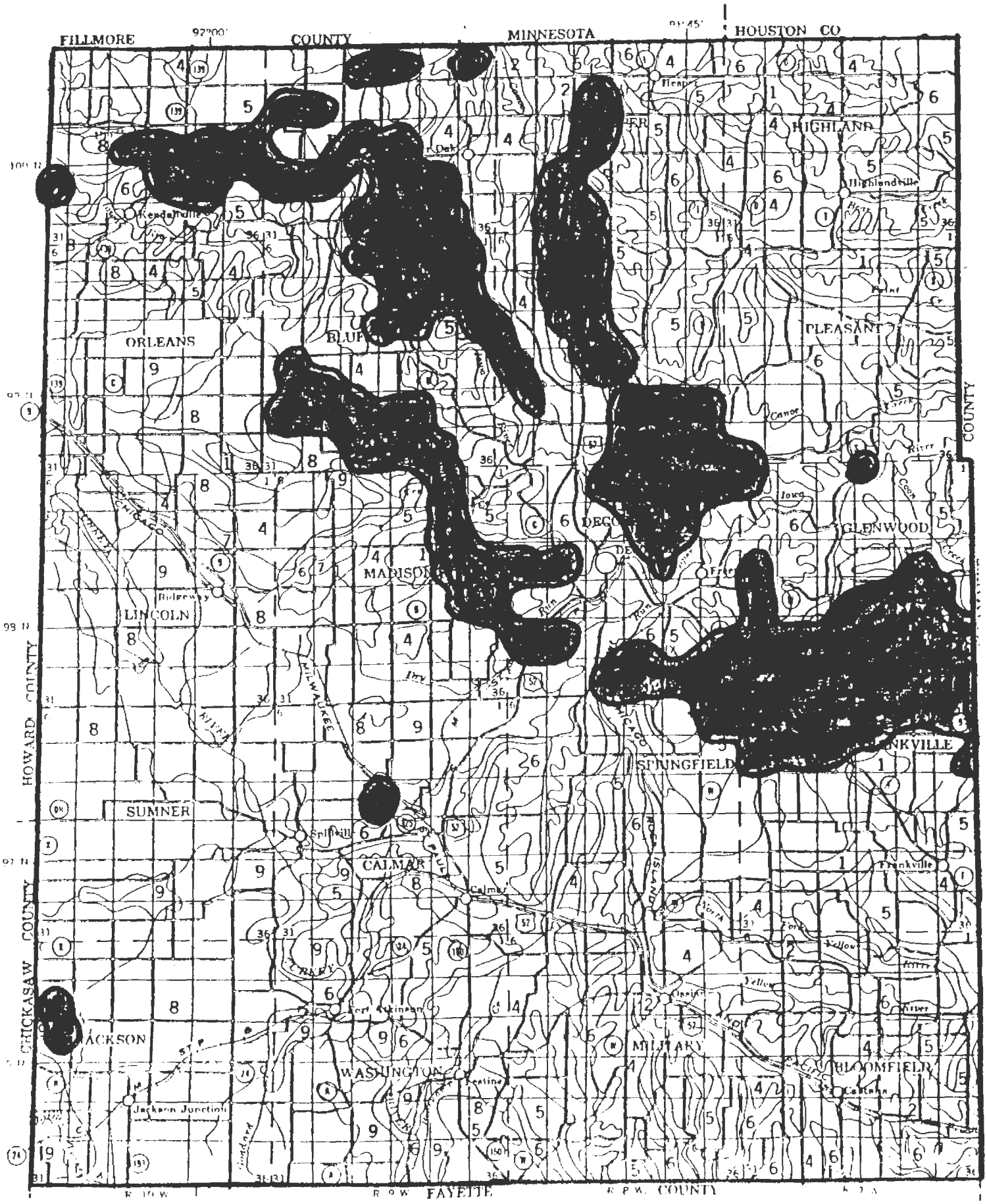
Division of Soil Conservation
Iowa Department of Agriculture
and Land Stewardship

XII. Appendix

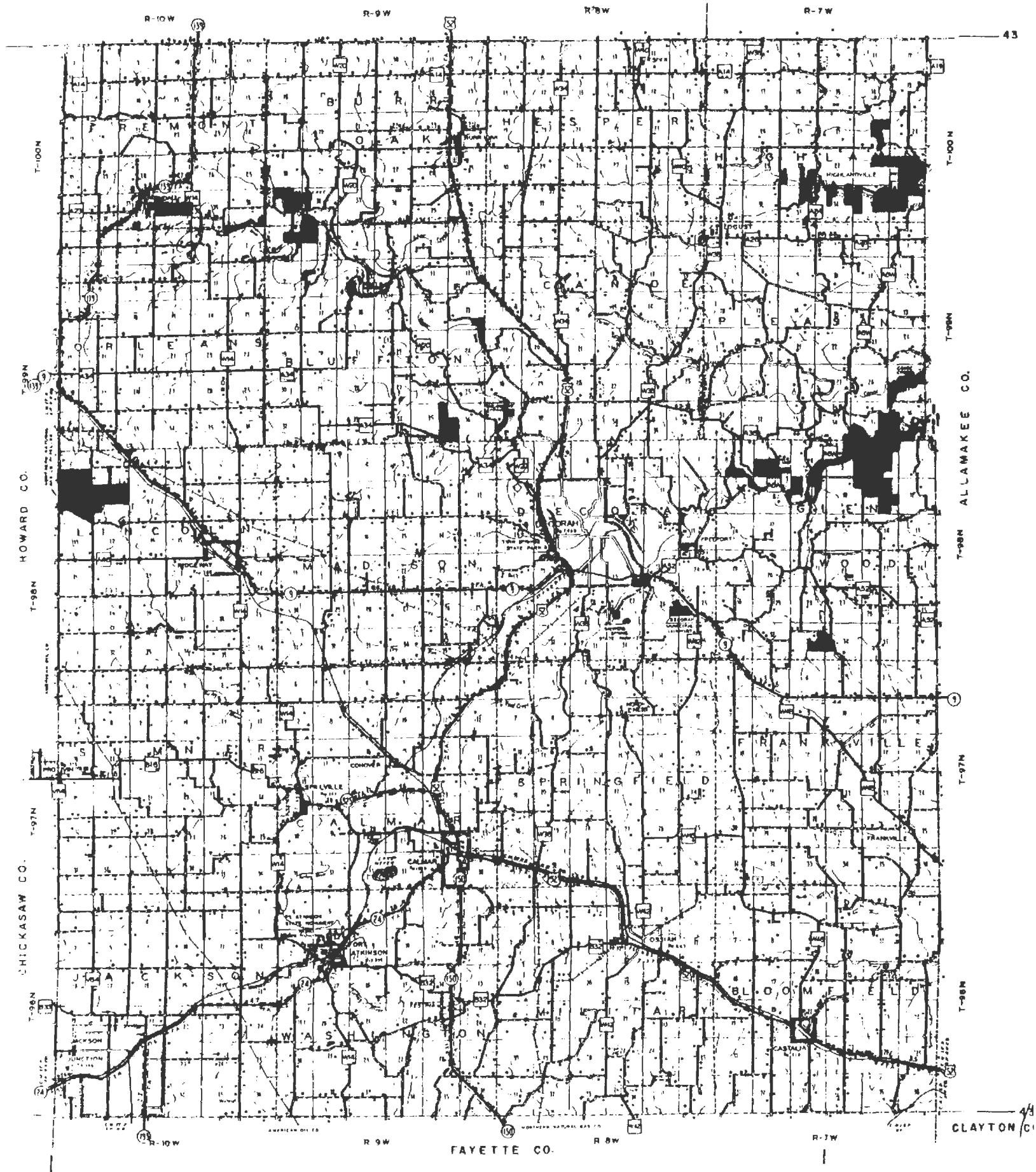
PRIORITY WATERSHEDS and SPECIAL WATER QUALITY PROJECT AREAS



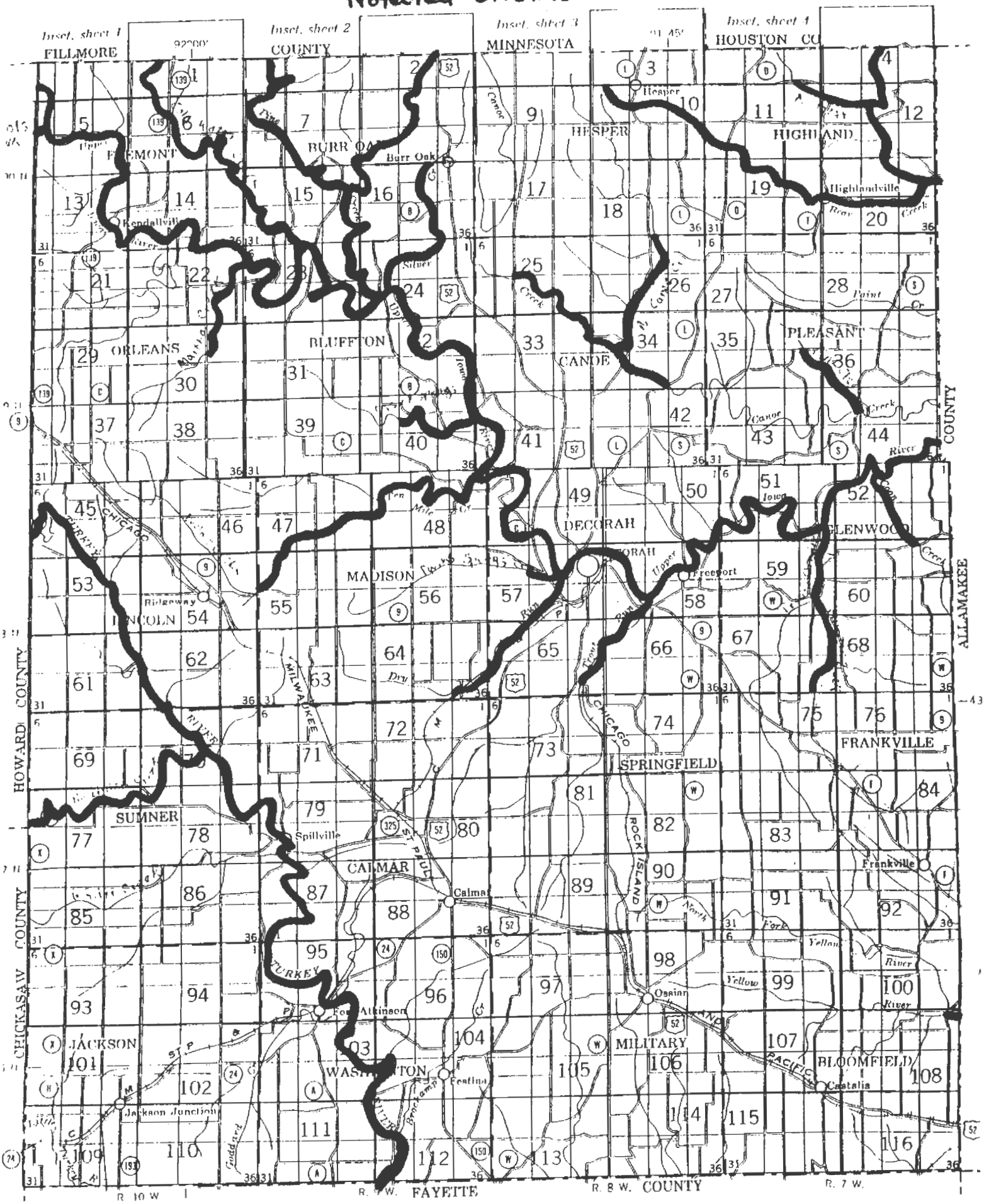
Map of Sinkhole Concentration in Winneshiek County
(Source: Winneshiek County Soil & Water Conservation District 1991)



STATE LAND MANAGED AREAS in Winneshiek County
(Managed by Iowa DNR)



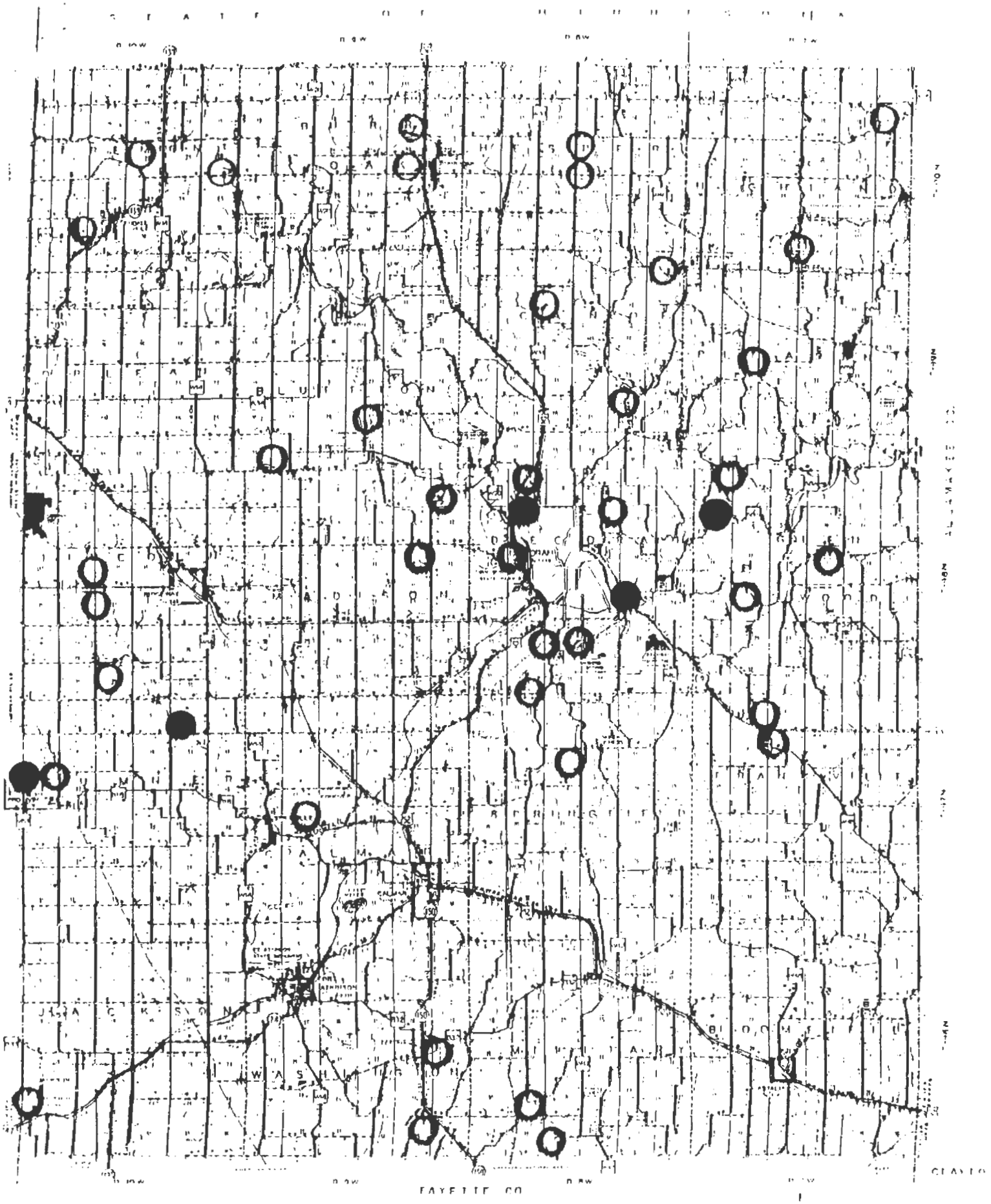
Protected Streams



PROTECTED STREAMS LIST

WINNESHIEK COUNTY

Bear Creek, east county line to source;
Bohemian Creek, mouth to west county line;
Canoe Creek, county road W38 (SE 1/4, section 24, T99N, R8W) to west line of section 8, T99N, R8W;
Coon Creek, mouth to road crossing in NW 1/4, section 13, T98N, R7W;
Dry Run, mouth to west line of section 36, T98N, R9W;
East Pine Creek, mouth (section 28, T100N, R9W) to north county line;
Martha Creek, mouth to west line of section 13, T99N, R10W;
Middle Bear Creek, mouth to north line of section 16, T100N, R7W;
Nichols Creek, (a.k.a. Bigalk Creek) mouth to west county line;
North Bear Creek, mouth to north county line;
North Canoe Creek, mouth to north line of section 2, T99N, R8W;
Pine Creek, mouth to north county line;
Pine Creek, mouth (section 26, T99N, R7W) to north line of section 21, T99N, R7W;
Silver Creek, mouth to north line of section 26, T100N, R9W;
Smith Creek, mouth to south line of section 33, T98N, R7W;
Ten Mile Creek, mouth to confluence with Walnut Creek (section 18, T98N, R9W);
Trout Creek, mouth (section 9, T98N, R7W) to confluence with Smith Creek (section 21, T98N, R7W);
Trout Creek, mouth (section 23, T98N, R8W) to confluence with unnamed tributary (a.k.a. Trout Run) in section 27, T98N, R8W;
Turkey River, south county line to west county line;
Twin Springs Creek, mouth (section 17, T98N, R8W) through one half mile reach;
Unnamed tributary to Trout Creek, (a.k.a. Trout Run) mouth to south line of section 27, T98N, R8W;
Unnamed tributary to Upper Iowa River, (a.k.a. Casey Springs Creek) mouth (section 25, T99N, R9W) to west line of section 26, T99N, R9W;
Unnamed tributary to Upper Iowa River, (a.k.a. Coldwater Creek) mouth (section 32, T100N, R9W) to north county line;
Upper Iowa River, east county line to west county line;
Yellow River, east county line to confluence with North Fork Yellow River (section 13, T96N, R7W).



WINNESHIEK COUNTY

Sand, Gravel & Limestone Quarries

LIMESTONE

SAND & GRAVEL

(not to scale)

LONG-RANGE PLAN MEETING
WINNESHIEK SOIL & WATER CONSERVATION DISTRICT

Summary of Group Comments

January 8, 1991

I. SOIL RESOURCES
- A. Land conversion - woods & pasture
- B. Land disturbing activities - urban & rural
- C. Mining operations
  - 1. bare areas left to erode
- D. Streambank erosion
  - 1. lack of stabilization
- E. Stripcropping - need more - low cost
- F. Residue management - education & promotion
- G. Pasture management
  - 1. rotational grazing 2. fencing 3. warm vs cool season grasses
- H. CRP
  - 1. Landuse after contract ends.
    - a. incentives for tree planting, especially hardwoods
- I. Resistance to "new" practices.
  - 1. Field demonstrations needed
  - 2. Cost-share
  - 3. Involve farm chemical suppliers
  - 4. Opportunities to overcome attitudes

II. WATER RESOURCES
- A. Sediment adjacent to streams
  - 1. mining operations
- B. Degradation of water resources
  - 1. farmland
    - a. cropland - lack of buffers
    - b. livestock - concentration along streams
- C. Road construction
- D. Politics
  - 1. lack of enforcement of existing laws
  - 2. abuse on public land
- E. Manure management
  - 1. farmsteads & drylots by streams
  - 2. lack of technical assistance
  - 3. coordination of agencies
    - a. cut the red tape
- F. Streambank erosion
- G. Sinkholes - dumping illegally done affecting groundwater

III. PLANT & WILDLIFE RESOURCES
- A. Loss of habitat
- B. Loss of diversity of habitat
- C. Value of non-game species
- D. Woodland value other than for harvest

E. Need for inventory of native prairie, wetlands, and woodlands
F. Preservation of these areas once known
G. Controlled grazing along streams
H. Buffer strips along streams
I. Incentives for private land owners
   1. cost-share

IV. EDUCATION & LAND-USE
A. Involve Spectrum Industries
B. Recreation
C. Sinkholes
D. Timber management
E. Ag. chemicals
F. Urban development
   1. cleanup on building sites
   2. chemical use on lawns
G. Zoning
   1. zoning steering committee
      a. get involved in all issues
      b. controversial
H. Quarries
   1. stripped areas
   2. visibility
   3. blasting near wells
I. Natural area preservation

V. Other Comments
A. Road construction needs water retention projects
B. North & South Bear Creek projects need cooperation & fund sharing with county
C. Cooperative effort needed by all
   1. public must share with private owners to ease financial burden

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Groups Represented:

1. Winneshiek Soil & Water Conservation District
2. Upper Explorerland Regional Planning Council
3. USDA - Soil Conservation Service
4. Winneshiek County Sanitarian
5. Winneshiek County Board of Supervisors
6. Winneshiek County Pheasants Forever
7. Groundwater Policy Education Project
8. Izaak Walton League
9. Security Bank & Trust Co.
10. Farmers Home Administration
11. Winneshiek County Extension Service
12. Iowa Department of Natural Resources
13. Winneshiek County Conservation Board
14. Iowa Natural Heritage Foundation
15. Interested landowners

SURVEY/QUESTIONNAIRE FOR 5-YEAR LONG RANG PLAN
WINNESHIEK SOIL & WATER CONSERVATION DISTRICT (SWCD)

The Winneshiek County SWCD is presently working on its Long Range Plan, which the District will use to target and direct its activities, personnel and other resources over the next five years. We need your ideas and suggestions!!

Please complete the following questions (you do not need to sign your name) and return this questionnaire in the box as you leave or mail them to:

Winneshiek County Soil & Water Conservation District
703 Commerce Drive
Decorah, IA 52101

THANKS FOR YOUR HELP!!

1. How would you rate the impact of the following land use activities or concerns on Winneshiek County's Soil & Water resources?

	No Problem	Some Concern	Serious Concern
cropland erosion			
land conversion (woods & pasture)			
urban land disturbing activities			
pasture overgrazing			
woodland management			
mining operations			
streambank erosion			
pesticides on agland			
fertilizer use on ag land			
sinkhole contamination			
loss of wildlife habitat			
animal manure runoff from lots			
livestock along streams			
erosion from road construction			
other			

2. What do you think would be proper land use and management of Conservation Reserve Program (CRP) land after the 10-year contract ends? _____
a. extend contracts b. bring back into production c. require land use easements d. require strict soil conservation practices e. other _____

3. Do you feel you have a good understanding of your FSA compliance plan for your highly erodible land? (Don't have highly erodible land) ____
____ Yes ____No -- Not sure

4. What can the SWCD do to improve its educational and technical assistance to land users in the County? Please check any that apply.

____ More field demonstrations
____ Establish different cost share policies
____ More information and education activities (radio program, tours, newspaper articles)
____ More newsletters
____ Other _____

5. Please indicate your occupation

____ Retired Farmer
____ Full-time Farmer
____ Part-time Farming
____ Landowner other than operator
____ Non-farm