

TAMING MULE CREEK

A PLAN FOR EVERY ACRE
IN THE WATERSHED

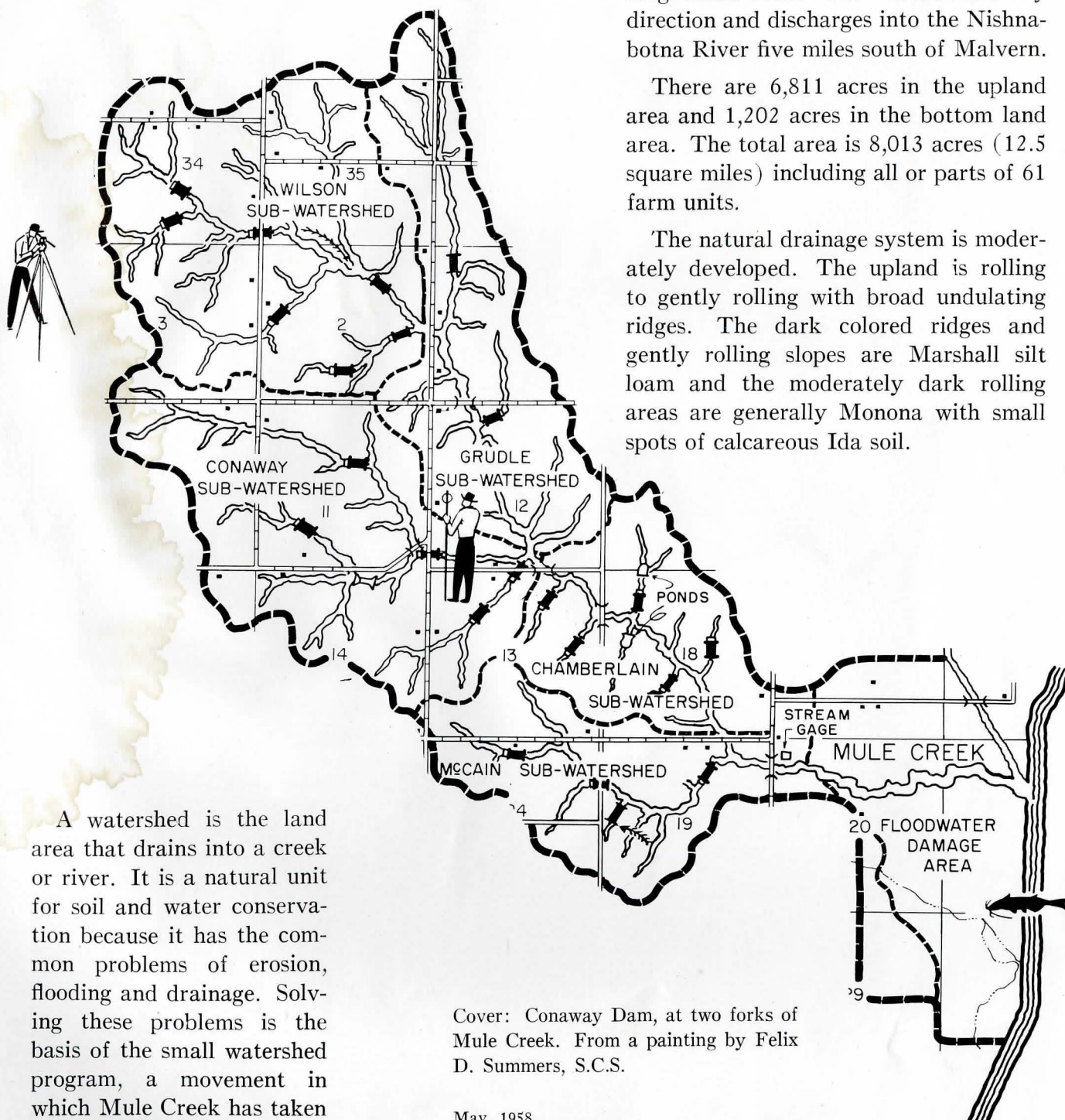


ABOUT MULE CREEK

Mule Creek is a tributary of the West Nishnabotna River. The entire watershed is in Mills County, Iowa, about four miles southwest of Malvern. It is about three miles wide and five and one-half miles long. Mule Creek flows in a southeasterly direction and discharges into the Nishnabotna River five miles south of Malvern.

There are 6,811 acres in the upland area and 1,202 acres in the bottom land area. The total area is 8,013 acres (12.5 square miles) including all or parts of 61 farm units.

The natural drainage system is moderately developed. The upland is rolling to gently rolling with broad undulating ridges. The dark colored ridges and gently rolling slopes are Marshall silt loam and the moderately dark rolling areas are generally Monona with small spots of calcareous Ida soil.



A watershed is the land area that drains into a creek or river. It is a natural unit for soil and water conservation because it has the common problems of erosion, flooding and drainage. Solving these problems is the basis of the small watershed program, a movement in which Mule Creek has taken a leading part.

Cover: Conaway Dam, at two forks of Mule Creek. From a painting by Felix D. Summers, S.C.S.

May, 1958

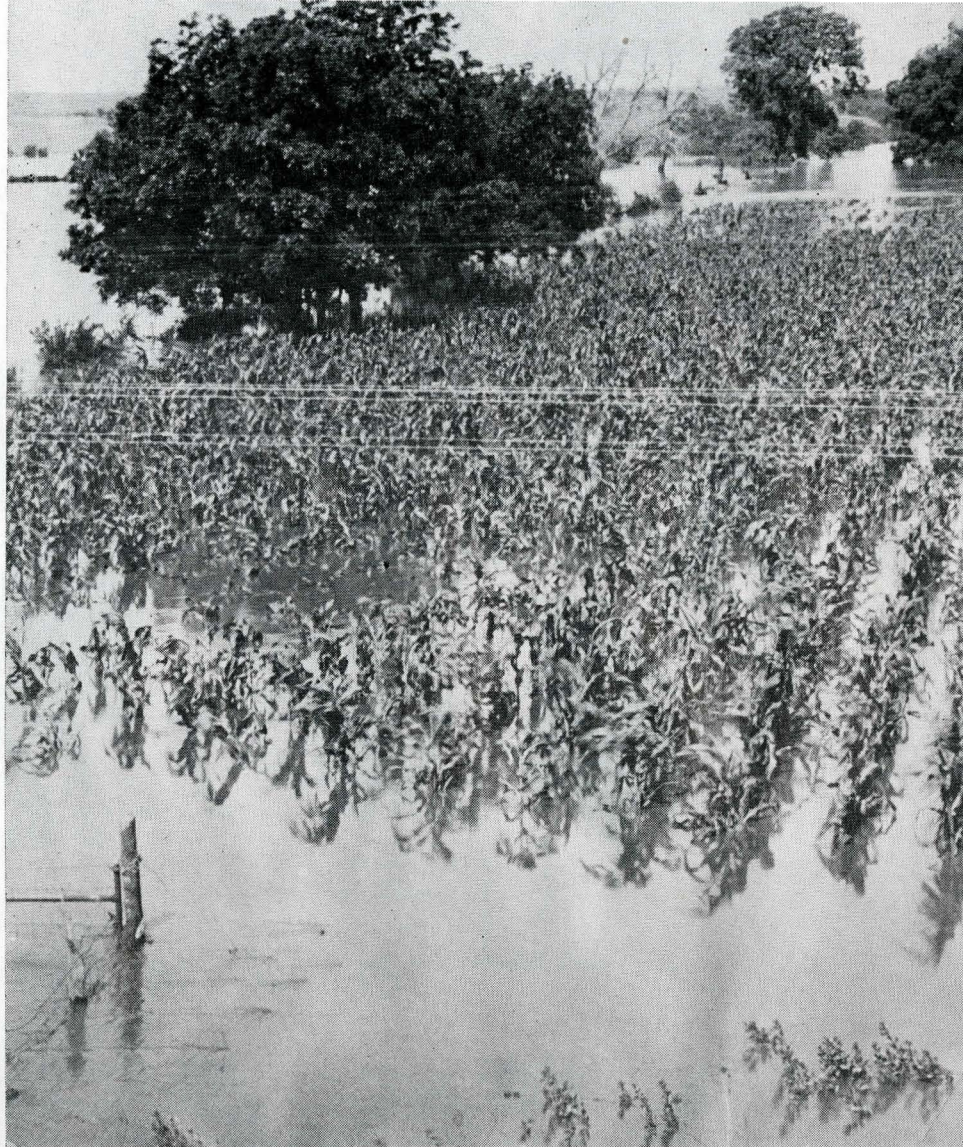
HOW IT STARTED

The Mule Creek watershed program is a working example of the benefits of combining soil and water conservation on the land with upstream flood prevention dams. It shows how local groups can team up with state and federal agencies in planning and carrying out watershed protection and development.

Every year floods sweep down streams like Mule Creek. These floods cause a billion dollars of damage annually to cities and farms. They cause so much damage that Congress has passed special legislation to help with this situation. That's why we hear so much about dams and watersheds in the soil conservation programs.

Watersheds have come into the national soil and water conservation picture because they're the logical unit for handling soil and water conservation problems. If we flood-proof the little creeks and medium size streams, the big rivers won't go on such destructive rampages. It's something like saying that a stitch in time saves nine.

The big push to control erosion and flooding on a watershed basis started in the middle '30's. In the Flood Control Act of 1936, Congress for the first time established a national flood control policy and set up a national flood control program under the Department of Agriculture.



SCS Photo (9-495)

Scenes like this were common on the Mule Creek floodplain before the watershed program. Now detention dams hold excess run-off and release it slowly.

A new movement against floods that is especially significant to Mills County came in 1953. That year Congress appropriated 5 million dollars to start a new program of small watersheds. This was on a "pilot" basis and was started on 58 small watersheds in 34 states. They range in size from about 6,000 acres to 204,000 acres. Mule Creek became one of the pilot watershed projects.

In 1954 Congress enacted the now famous Watershed and Flood Prevention Act. This is called the "566 program" because it was Public Law No. 566, 83rd Congress. As amended in 1956, it provides for federal assistance through watershed organizations when community benefits exceed the costs.

EROSION LAID A HEAVY HAND



When the first settlers came to Mills County, they rejoiced at the fertility of the soil. Erosion was no problem. Floods were few and far between.

But this picture changed. The settlers broke the sod to plant crops. With the plow came erosion and floods. Devastating floods occurred every seven or eight years. Crops suffered heavily.

But loss of crops and gullied land was not the only damage. Roads and bridges took a beating, too. One bridge which was only 32 feet long in 1910 is now 132 feet long after several replacements. Roadside erosion and damage to bridges made costs high.

Gullies were causing destruction of land. In many fields, gullies could not be crossed with farm machinery. Fields were being cut into two or three units. Some were no longer economical to farm. Gullies a half mile long, 10 to 20 feet deep and 30 to 60 feet wide were

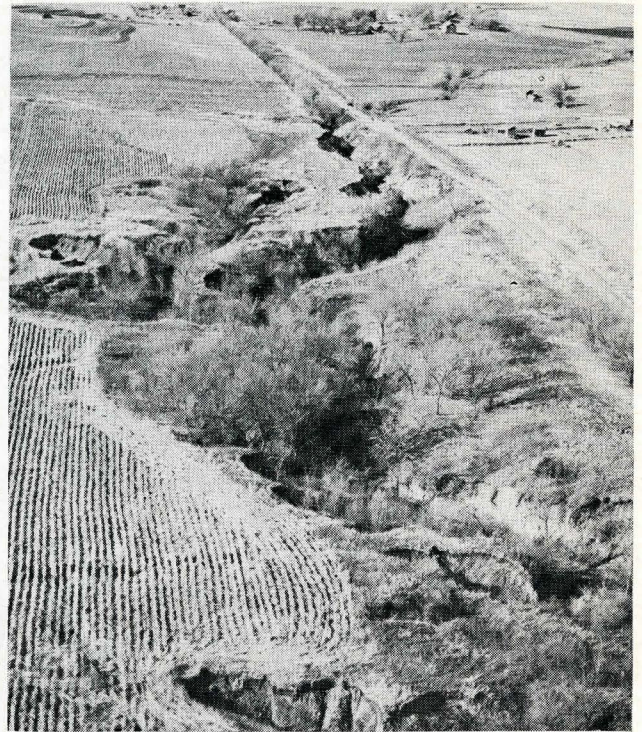


Photo by Mills Co. SCD

A community problem, this gully was damaging four farms and destroying a public road. The development of eleven side overfalls, in section shown, was typical of the gullies in Mule Creek Watershed.

common. Sometimes they grew in length as much as a hundred feet in a single year.

The deep windblown soils in the Mule Creek watershed are very erodible. So more silt washed into the stream. This clogged the lower channel and left sediment on bottomland.

Roads were often closed. Farm costs went up. Labor and machinery was less efficient.

The time was ripe for a drastic change. In 1947 farmers in the watershed asked the Mills County Soil Conservation District to organize a watershed association. But they were told there were not enough soil conservation practices on the land.

More progress was made in the next two years. A second request in 1949 resulted in the organization of the Mule Creek Watershed Association. Under the new program the topsoil on cultivated land is being tied down. Even the heaviest rain causes little damage.



Photo by Mills Co. SCD

Conservation plans, such as these in the Mule Creek neighborhood, were demonstrations of the practices needed.

IT TAKES MORE THAN DAMS

A plan to control gullies and check flood damage is much more than a dam-building program.

A watershed protection program includes using each acre of land within its capability. It means applying the practices needed to stop erosion and make water seep into the soil. These practices include improved rotations, soil treatments, contouring, terracing, grassed waterways, stubble mulching, cover cropping, pasture improvement, diversions, tree planting, wildlife and woodland protection.

A watershed program includes conservation farm planning just as it is ordinarily carried on in a soil conservation district.

In the Mule Creek Watershed improved rotations, contouring, terracing, diversions, and grassed waterways are the most important practices.

The Soil Conservation Service has been assigned the job of carrying out the U. S. Department of Agriculture's responsibility for

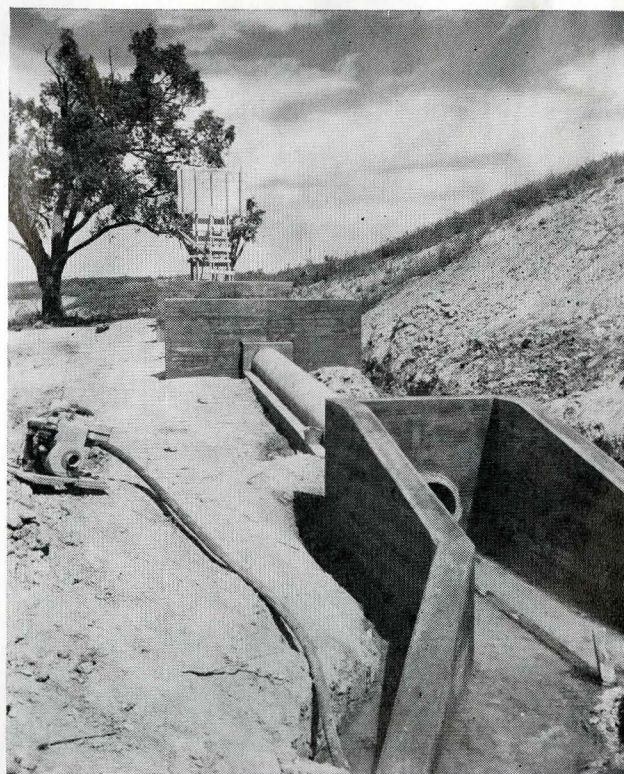


Photo by Mills Co. SCD

The cradled concrete pipe shown before the fill was made furnishes an outlet for the earth fill dams commonly used in the watershed.

watershed work. The Soil Conservation Service provided technical assistance to Mule Creek by:

1. Making an inventory of the land according to its capability for use.
2. Assisting in planning farm land use in accordance with this inventory.
3. Aiding farmers to plan and apply improved rotations, terraces, dams, diversions, waterways, and other practices.

Dams and other flood-prevention structures give only partial aid unless soil and water conservation practices are applied on the land.

Under Public Law No. 566, farmers must have conservation farm plans on not less than 50 percent of the land above retention reservoirs.

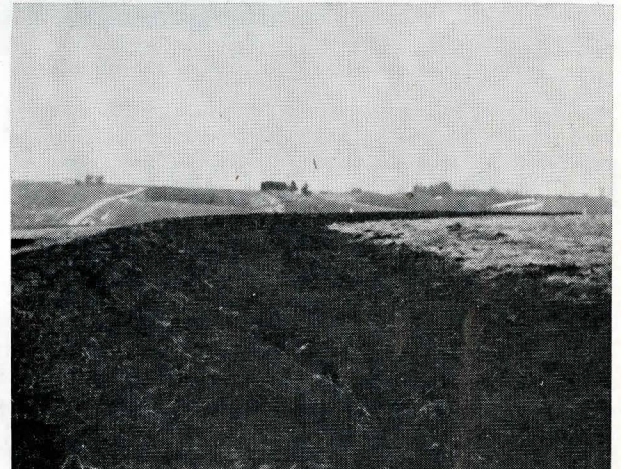
A watershed work plan provides for the conservation, use, and development of land and water. It meshes with the abilities and desires of the local people. It provides help for needed structures and other improvements too costly and complex for individuals to construct.

A watershed work plan is a guide for a local organization to use in protecting and developing its land and water resources.



Photo by Mills Co. SCD

Grassed waterways are an important part of the watershed protection program. This brome grass waterway is above the McCain dam.



Photos by Mills County SCD

Complete watershed protection includes terraces to slow runoff and enable water to soak into the soil. The Mills County system of level terraces is nationally famous.

The 24 impounding structures in the Mule Creek Watershed provide about 60 surface acres of water.

Their primary use is to stop the development of gullies which were carving deeper and deeper into fields. They also store a large amount of runoff, holding 568 acre-feet of water—that is 568 acres of water a foot deep. This surface acreage and volume of water will be reduced as sediment accumulates above the dams.

During a severe storm these dams provide temporary storage for another 973 acre-feet of water.

There are many benefits from these structures. Take the matter of waterfowl. Until three years ago, wild geese and ducks shunned the watershed, but now land by the thousands. Each fall there is excellent shooting for hunters.

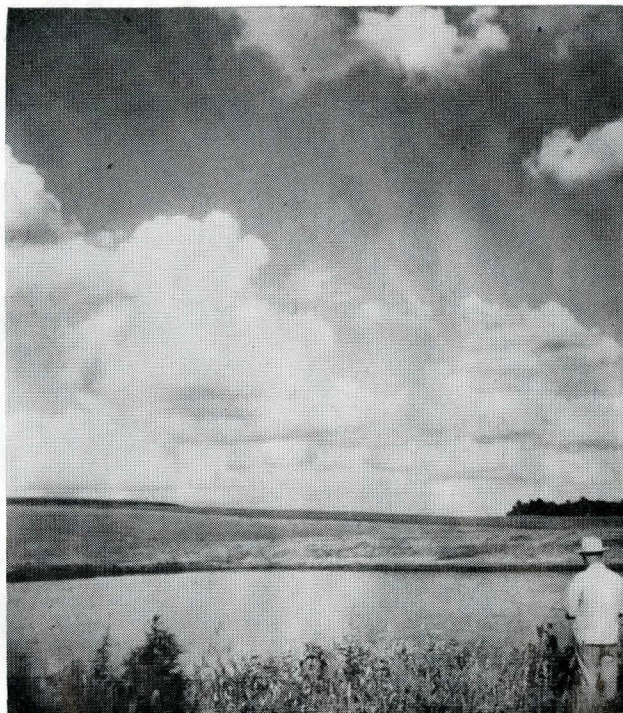
And that isn't all. Fishermen are hooking good-sized bass. There's a growing supply of bluegills in most of the impounded areas.

During a four-year period the dams have slowed gullying almost to a standstill. SCS technicians figure the gullies used to swallow up



Photos by Hugh Fiekel

Grandfather takes the younger generation fishing at Hilton Pond.



The Hilton Pond. Blue water, beautiful clouds and a day to fish.

about $6\frac{1}{2}$ acres of good farmland annually. Some of the gullies have been reshaped and converted into grassed waterways which will now provide pasture and hay.

Before the dams were built, Mule Creek carried about 257,000 tons of sediment per year down to the floodplain. This has been reduced to 56,000 tons annually, a reduction of about 78 percent. Before the dams were built, this sediment would have covered 139 acres of land a foot deep. Now it would cover less than 30 acres.

The ponds also provide fishing, swimming and picnicking. They are a source of water for livestock during dry years if wells fail. On one farm two wells failed on the same day. More than a hundred head of cattle bawled thirstily until the farmer made it possible for them to drink from the pond.

Many farmers have found these water supplies useful as a means of reducing their fire insurance premiums. For this use they must be close to the buildings.

COMMUNITY TEAMWORK —

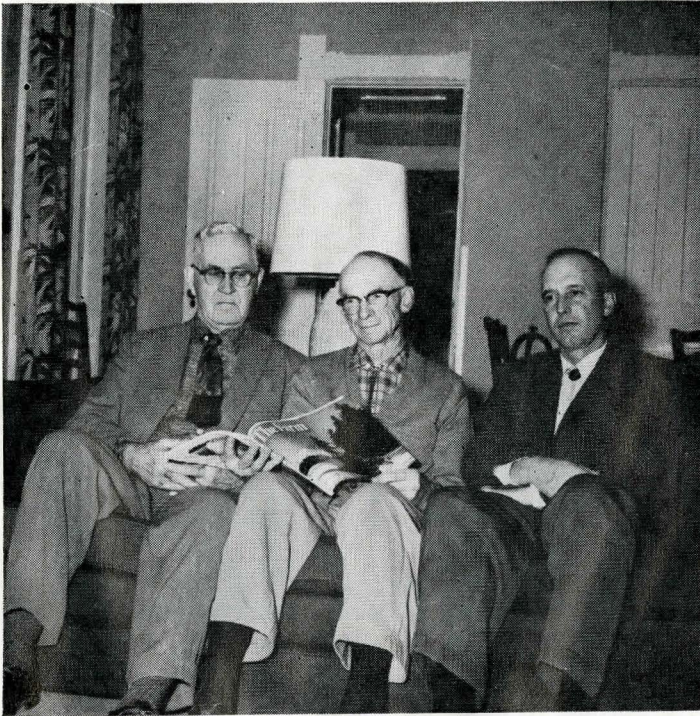
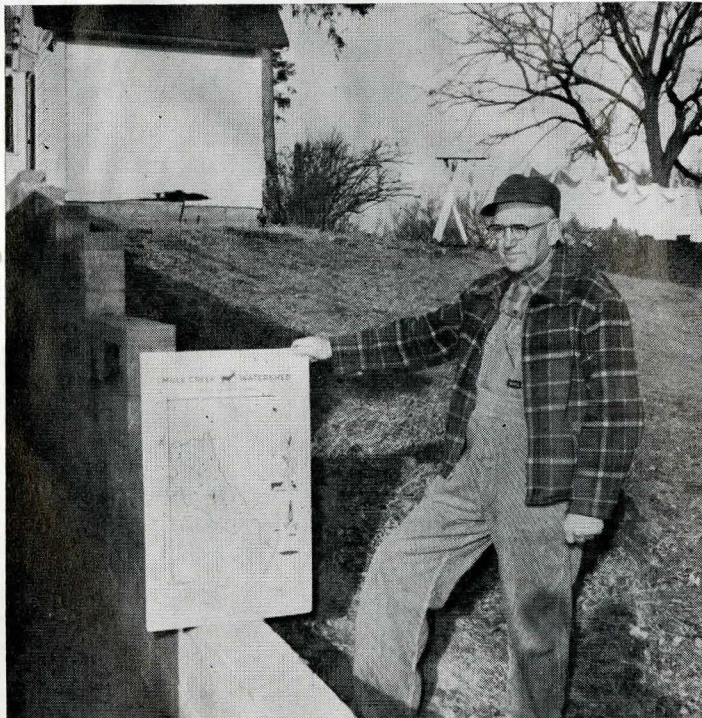


Photo by Mills Co. SCD

Shown here are S. C. Lincoln, Sr., D. N. McGrew, and J. F. Wearin, Jr., Commissioners of the Mills County Soil Conservation District during the development of the Mule Creek Watershed Project.



Mills Co. SCD Photo

Harold A. McCain as Chairman of the Mule Creek Watershed Association led the local group in developing the program, and now serves as Chairman of Trustees of Mule Creek Watershed Conservancy District.

The pools above the structures in the Mule Creek watershed with their inviting blue water are a fitting monument to the men whose work and planning made them possible.

This story began in June, 1941, when farmers of Mills County voted to form a soil conservation district. In the next six years there were many field demonstrations. A number of groups began to plan their soil conservation activities as joint enterprises.

In June, 1947, four 50-year rain storms—rains that are supposed to come only once every half century—fell during a 30-day period. They did so much damage that farmers in the Mule Creek Watershed turned for advice to the Commissioners of the Mills County Soil Conservation District.

The Mule Creek Watershed Association was organized October 6, 1949. Five directors were elected with Harold A. McCain, chairman, and Corte Stewart, secretary-treasurer. Other directors are Frank Chamberlain, Austin Bass and Harold Grindle.

The next few years can be summed up as a period of meetings and work, more work and more meetings. By July 1, 1953, the farmers had done about 40 per cent of the soil and water conservation work on their farms. They had constructed 154 miles of level terraces, 15 miles of diversion terraces, and many acres of sod waterways. A high percentage of row crops were planted on the contour.

Excitement swept through the watershed in July, 1953 when word came that

MADE THE PROJECT POSSIBLE

Mule Creek had been selected as a pilot watershed.

Plans for 24 structures were made and formal contracts awarded to the lowest competent bidders. Ground breaking ceremonies were held on April 7, 1954. The last contract was awarded in October, 1956.

Seeing the need for maintenance, the Mule Creek farmers had in February, 1954, asked the County Board of Supervisors to form a Mule Creek Watershed Conservancy District. This was to develop a tax base for all farms in the watershed. It provided means for a fair assessment to finance the maintenance of structures on private land.

After a series of public hearings, the Conservancy District was approved in June, 1956. The County Board of Supervisors appointed appraisers to examine each 40-acre tract and to assign a classification to each. This classification was based upon benefits from the watershed program.

The report of appraisers and the final hearing was held October 5, 1956. This completed the organization of the Mule Creek Watershed Conservancy District, and the governing body was the County Board of Supervisors.

To prevent the possibility of having a governing body composed of men who are not acquainted with the soil conservation program, the land owners petitioned for the election of three trustees to be selected from watershed owners. They were elected March 23, 1957. They are Harold McCain, Austin Bass and Wayne Hilton.



SCS Photo

Shown here is the Mills County Board of Supervisors discussing the program with E. T. Rhody, County Engineer, left, and Ray W. Jones, right, SCS Soil Conservationist. Seated, left to right, are: Will Van Orsdel, Harry Evans and S. C. Lincoln, Sr.



Mills Co. SCD Photo

Members of three county boards, the Mills County Board of Supervisors, the Mule Creek Watershed Association, and the Mills County Soil Conservation District make final inspection of a Mule Creek structure.

PUBLIC ROADS GET A BOOST

Roads and bridges in the Mule Creek Watershed have been improved by the new program. In many places gullies were destroying roads. Additional rights-of-way had to be purchased.

Dual purpose dams have now replaced four bridges where maintenance had been excessive.

The SCS surveyed, designed, and supervised construction of these four structures. Plans were approved by the Iowa State Highway Commission. The County Board paid construction costs on two, the SCS paid for the other two. Contracts were awarded through competitive bidding. Final inspections were made by the County Board and the Soil Conservation District Commissioners. The County Board assumed the cost of all future maintenance.

Typical of the bridge projects was one on the Plumb Estate farm. A gully at the bridge was 21 feet deep. The average annual maintenance cost of the bridge had been more than \$1,000.



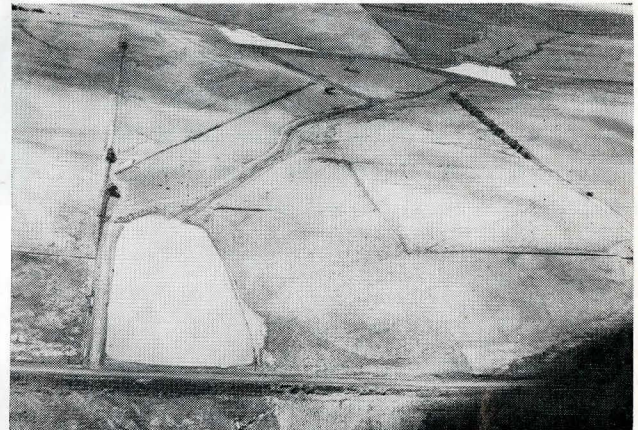
Mills Co. SCD Photo

This is the old bridge on the Plumb Estate farm which caused annual expense and endless worry to the County Supervisors of Mills County.



Mills Co. SCD Photo

Gully on Plumb Estate operated by Harold Blackman. Photo taken November, 1953. Gully extends into Hilton and Miller Farms.



Mills Co. SCD Photo

Completed dam on Plumb Estate and dams on Hilton and Miller farms. County road over top of dam, constructed in cooperation with Mills County Supervisors.

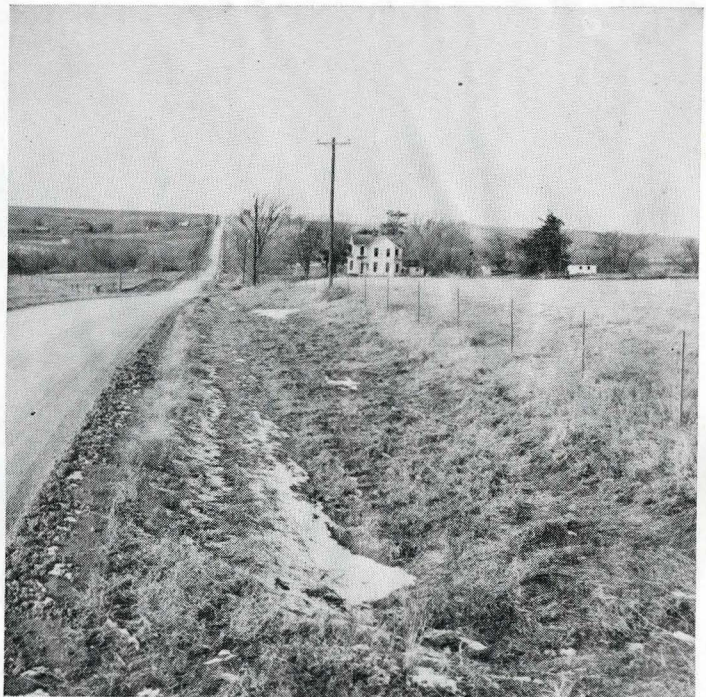
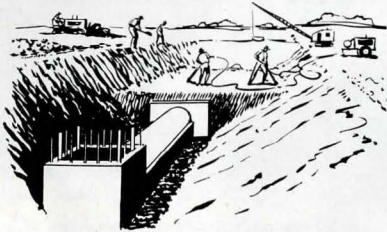
The new drop inlet detention-type dam has a permanent pond of about 4½ acres and temporary storage for 49 acre-feet of water.

This dam, which eliminates the need of a bridge, is 33 feet high, 1,100 feet long and has an earth fill of 25,500 cubic yards. The contract price was \$13,000. The estimated average annual maintenance cost will be \$33.00

The dam on the Conway farm which is used for the roadway (shown on the cover) has an interesting history. When a branch of Mule Creek began carving channels to the west and northwest, it was necessary to move the road and construct two bridges. The maintenance of the road and bridges exceeded \$2,000 per year.

Things are different now. The road is back in place. Two branches of Mule Creek are channeled to one drop inlet structure. There is a permanent 10-acre pond which can hold 153 acre-feet of water.

Instead of two bridges, a single road now crosses the big dam. It is 42 feet high and 1,020 feet long with 64,723 cubic yards of earth fill. The contracted price was \$31,000.



Mills Co. SCD Photo

This winter scene shows the road ditch south of Corte K. Stewart farm sloped and seeded to brome grass.



Mills Co. SCD Photo

The fence post dangling in the newly eroded roadside symbolizes needless waste of land and water resources.



Mills Co. SCD Photo

Troy Rhody, County Engineer, and Will Van Orsdel, a County Supervisor, check the inlet structure of the dam on Timmons' farm.



Malvern Leader Photo

Ground breaking ceremonies for the Mule Creek Watershed project were held April 7, 1954. Turning the first shovelful of earth are, left to right: D. N. McGrew, Chairman of the Mills County Soil Conservation District; Father Robbins of Shenandoah; Ray W. Jones, Soil Conservationist, SCS, and Harold A. McCain, Chairman of Mule Creek Watershed Association.

OF THE PEOPLE —

The accomplishments in Mule Creek illustrate two sound principles. One is that successful flood prevention work starts right out on the farms where the rain falls and the runoff starts. The other is that it takes local leadership to carry out a small watershed program.

That's why both of these principles are written into the watershed protection and flood prevention act. By their actions the people of Mule Creek have shown their willingness and ability to work together.

Farmer leadership has been an outstanding feature of the project. "We knew something drastic had to be done about these floods," said Harold McCain, chairman of the Conservancy

District Trustees. "We felt the watershed approach was the only way to stop those gullies and floods. Terraces, waterways and contouring helped to trap the rain as it fell but we needed dams to keep Mule Creek in check. Without them a lot of good land would be wasted through gullying."

McCain was expressing what soil conservation leaders long have recognized: That an unbridged gap exists between conservation work done by individual farmers and the large downstream dams and other developments on major rivers. In many cases, land-owners are unable to complete their farm conservation plans because of flooding and other problems they cannot solve as individuals.

The history of Mule Creek is a story of a community planning and working together. Historians will be interested in some of the mileposts that marked special accomplishments:

July 1949—Farmers appealed to the Mills County Soil Conservation District for technical help with flood problems.

October 1949—The Mule Creek Watershed Association was organized.

April 1950—A conservation program for all the farms in the watershed was adopted by the watershed directors.

September 1953—Mule Creek was made a pilot watershed by the Secretary of Agriculture.

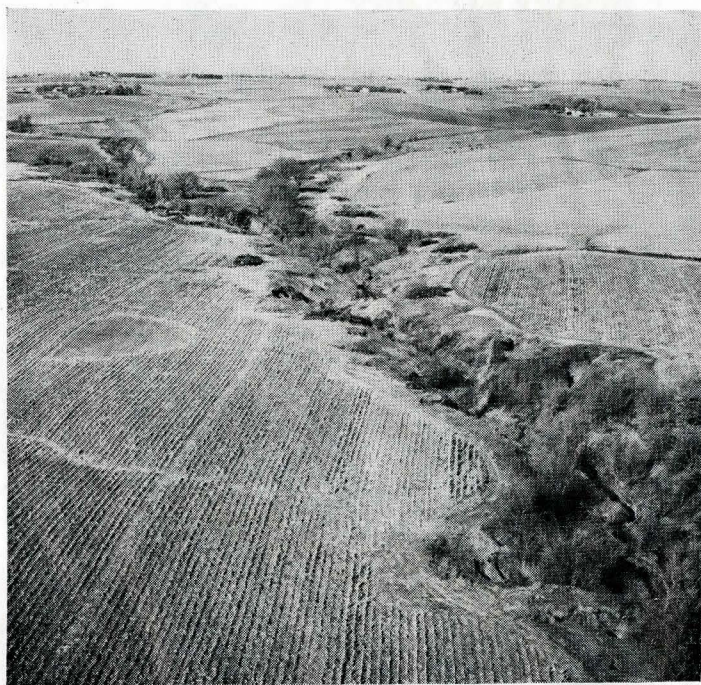
October 1953 — Watershed work planning got underway.

April 1954—The first structure contract was awarded and ground breaking ceremonies were held.

October 1956—The last of 24 structures was completed and the conservancy district was approved.

March 1957—Three watershed trustees were elected.

The Mills County Soil Conservation District Commissioners have frequently pointed out that cooperation among the farmers in the watershed and among the agencies and organizations working with and assisting the district has played a very important role in the success of the Mule Creek Watershed.



Mills County SCD Photos

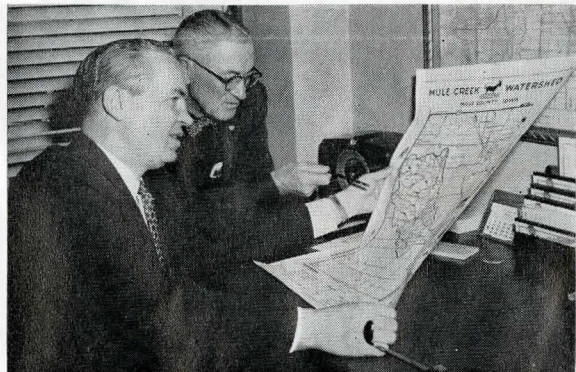
A constantly growing gully in the Mule Creek Watershed (top photo) has been checked by the Dickersbach dam and pond shown in the lower photo with the Blackman, Hilton and Miller Dams in the background.

FORWARD TOGETHER

In Mills County, Iowa, folks will tell you that soil conservation pays; and that the entire community benefits from conservation farm plans, gully stabilization and flood control work. Land values are stabilized, road and bridge maintenance costs are lower. Everyone profits by living in a community with a cooperative spirit.

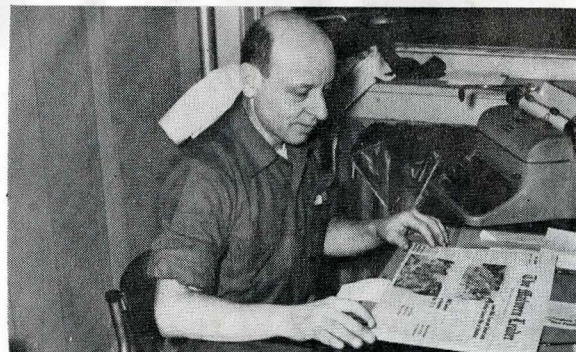
There is a spiritual value in living in a community of blue waters and green fields and friendly neighbors. Such is the future the people of Mule Creek are building.

Would you like to hear about it in their own words? Listen.



SCS Photo

E. W. Burdic, President of the Malvern Trust and Savings Bank, discusses the Mule Creek watershed project with Ray W. Jones.



Mills Co. SCD Photo

F. A. Wortman, Editor and Publisher of the Malvern Leader.



SCS Photo

Dale L. Harper, Farm Equipment Dealer and Mayor of Glenwood, Iowa, and Ray W. Jones.

"Everyone in our town benefited from this project. During the period since I came to Malvern, I have seen a remarkable change in the farming in Mills County due to soil conservation. I think the Mule Creek Watershed Project is one of the finest things that ever happened to this country." That's E. W. Burdic, Malvern banker talking.

"The Mule Creek Watershed Project has proven to be an effective example of group action in meeting a community problem. In addition it is providing a well documented study which can be used wherever conservation problems require the watershed approach," says F. A. Wortman, newspaper publisher.

"I believe that the Mule Creek Watershed Project has helped make the farms within the watershed more productive, as well as those on the floodplain. It has also developed more recreational facilities for both young and old. I feel that any project that helps the farmers will almost directly help any businessman in town, and hence the economy of the entire country." And that was Dale L. Harper, equipment dealer speaking.

"Appreciation of the total implications of the over-all values of a well engineered watershed project cannot be readily seen by the layman. However, such projects do have a tremendous long term, up-grading impact upon any community. We, in this community, can see benefits from increased income by conservation farming and watershed planning. We see recreational benefits, beautification of the countryside and an appreciation of a better community outlook as the results of man's cooperative efforts in such projects as the Mule Creek Watershed," said Newell P. Crink, educator.

D. N. McGrew, District Commissioner, has said, *"When every watershed of 2,000 to 50,000 acres has completed a watershed plan, we will have closed that big gap between what is known and what is being done."*

Harold A. McCain, Chairman of Mule Creek Conservancy District Trustees, says, *"The Mule Creek Watershed Project has demonstrated that the watershed approach is successful, and our plan has created considerable interest in developing other watersheds, both locally and in the Midwest. Farmers in the watershed are well satisfied with the plan and results to date.*

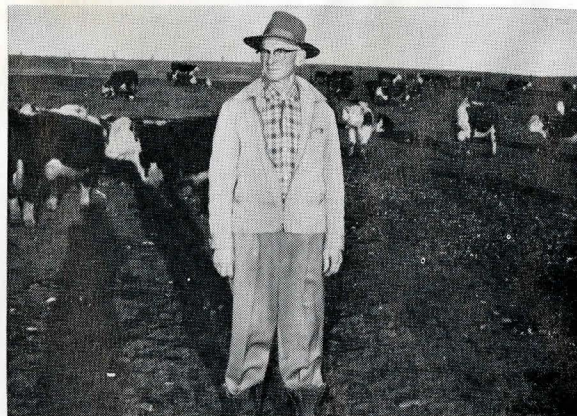
"The recreational value, both hunting and fishing, has far exceeded all expectations."

It is difficult to place a dollar-and-cents value on some natural resources. Gerald I. Bower, President of the Malvern Gun Club, says, *"The Mule Creek Watershed provides recreational facilities for young and old who are interested in fishing, hunting, boating, or picnicking by a pond. On a warm summer evening, many folks drive out to the ponds just to relax. There have been some tall tales told about hunting and fishing in the Mule Creek Watershed, all the way from a 5 pound bass to a 13 pound Canadian goose. The local merchants report an increase in the sales of fishing and hunting equipment."*



Mills Co. SCD Photo

N. P. Crink, Farm Owner-Operator and Superintendent of Malvern Schools.



Mills Co. SCD Photo

D. N. McGrew, District Commissioner for 17 years.



Mills Co. SCD Photo

Meeting of Mule Creek Watershed Conservancy District Trustees, left to right: C. M. Wilson, farmer; Austin Bass, Trustee; C. K. Stewart, farmer; Harold A. McCain and Wayne Hilton, Trustees.

Sponsors

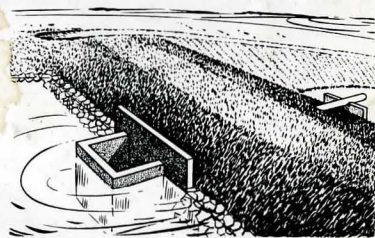
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ALBERT WASHBURN
*Chairman of District
Commissioners*

D. N. MCGREW
District Commissioner

DALE F. LINCOLN
District Commissioner