WATERSHED PROJECTS

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER RESOURCES

OF THE

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

HOUSE OF REPRESENTATIVES

NINETY-FIFTH CONGRESS

SECOND SESSION

ON

CYPRESS CREEK, Alabama and Tennessee
DYNNE CREEK, Alabama
FACTORY CREEK, Alabama
EAST FORK CADRON CREEK, Arkansas
LOWER CADRON CREEK, Arkansas
NORTH FORK CADRON CREEK, Arkansas
ANDERSON RIVER, Indiana
MIDDLE CREEK, Kansas
WET WALNUT NO. 2, Kansas
WET WALNUT NO. 3, Kansas
WET WALNUT NO. 5, Kansas
TWENTY-FIVE MILE STREAM, Maine
BOULDER RIVER, Montana
SHORT CREEK, Ohio
KICKAPOO NATIONS, Oklahoma
McKINNEY-BUZZARD CREEK, Oklahoma
ROBINSON CREEK, Oklahoma
BUSH RIVER, Virginia
CEDAR RUN, Virginia
GREAT CREEK, Virginia
GOOSE CREEK, Washington
PINE RIVER, Wisconsin

SEPTEMBER 21, 1978

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MATERIAL SUBMITTED FOR THE RECORD

WATERSHED PROJECTS OF THE SOIL CONSERVATION SERVICE

THURSDAY, SEPTEMBER 21, 1978

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON WATER RESOURCES
OF THE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:05 a.m., in room 2167 Rayburn House Office Building, Hon. Ray Roberts (chairman of the subcommittee) presiding.

Mr. ROBERTS. The subcommittee will be in order.

This morning the Subcommittee on Water Resources meets to receive testimony on 22 watershed projects of the Soil Conservation Service. These projects serve the primary purposes of soil erosion control and floodwater retention. Where appropriate, they may also include recreation and water supply. They can be authorized by resolutions on both our committee and the Senate Committee on Environment and Public Works.

Our first witness today is Mr. Joseph Haas, Assistant Administrator of the Soil Conservation Service for Water Resources. He is accompanied by Mr. Jim Mitchell, Director of the Watersheds Division.

It is a pleasure to have you here, Mr. Haas. We are pleased to have you back. But before we hear from you, I yield to my distinguished colleague, the gentleman from Minnesota, for any remarks he may wish to make.

Mr. HAGEDORN. Thank you, Mr. Chairman.

I would like to join you in welcoming our witnesses to the subcommittee this morning.

I note that the administration has made an interesting change in their past practices of holding up any and all water resources projects. It is my understanding that last week the administration recommended 11 watersheds for congressional action and this seems to signal a willingness to abandon the practices of the past 20 months when only one Corps of Engineer project was recommended for favorable action. I hope that this rather minor event may eventually signal the beginning of a better working relationship that this committee, and especially you, Mr. Chairman, have sought to establish with the administration so that we may fairly and honestly exchange views on water policy and eventually refine our policy as we identify the need to do so in the future.

Thank you.

Mr. ROBERTS. Mr. Haas, you may proceed.

TESTIMONY OF JOSEPH W. HAAS, ASSISTANT ADMINISTRATOR FOR WATER RESOURCES, SOIL CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, ACCOMPANIED BY JAMES W. MITCHELL, DIRECTOR, WATERSHEDS DIVISION

Mr. HAAS. Thank you, Mr. Chairman.

We are indeed proud to be here again this morning to bring before you some 22 small watershed projects similar to many of those you have heard in the past. These have all been analyzed with respect to economics and environmental issues. We do believe they are consistent with the administration policy and the views of the Congress.

In fairness to the committee, we wish to inform you that I have had some health problems in the past 2 or 3 days and have only learned to talk again lately. I am going to ask Mr. Jim Mitchell to talk. He is the director of our watersheds division and has knowledge of most of these subjects.

We also have other colleagues with us if there are questions of a technical nature that they may be able to help with. At this point, with your concurrence, I would like to turn the session over to Mr. Mitchell.

Mr. MITCHELL. Thank you.

It is indeed my pleasure to be here to present to you, Mr. Chairman, some of the vital facts of the various 22 watersheds that we have before this committee.

Realizing that there are 22, we will try to be very brief in our presentation of some of the facts that we have available and will provide ample time for questions that any of the committee members might have.

Mr. ROBERTS. All project reports will be received for the record and will appear in the appendix to this hearing. (See page 67.)

CYPRESS CREEK, ALA. AND TENN.

Mr. MITCHELL. The first watershed that we would like to present, and we will go alphabetically by State and continue so, is the Cypress Creek project in Alabama.

The gentlemen to my right in front of you have a map that will display some of the pertinent features of the proposal for Cypress Creek.

This watershed is 135,360 acres in size, and it is located in south central Tennessee and in northwestern Alabama.

The flood damages in this watershed affect a large acreage of agricultural land, some 10,200 acres along Cypress Creek and its tributaries. This land, not only from the magnitude of the size flood but the frequency of flooding in past years, has averaged two to five times each year. Erosion rates are also very excessive in this watershed.

For example, we have some 60 acres that have over 240 tons per acre per year coming off that land area. The proposed project as agreed to with the sponsors will relieve the problems by installing land treatment and structural measures. The land treatment measures to be installed will be those which are effective in reducing runoff and erosion.

Mr. ROBERTS. Mr. Mitchell, all of the local arrangements have been made properly. There are no problems as far as you are concerned?

Mr. MITCHELL. On Cypress?

Mr. ROBERTS. Yes.

Mr. MITCHELL. There is one thing I should bring to your attention, Mr. Chairman. This project when it was being planned, the environmental assessment identified a slackwater darter in one of the streams that was proposed for the endangered species list. The slackwater darter, since the time that the plan has been sent to OMB and to this committee, has been put on the endangered species list.

We have let a contract with a professional biologist who is working with the U.S. Fish and Wildlife Service and the Alabama State Fish and Game to study the effects this project might have on the slackwater darter.

There is a statement in the plan that no construction of any works or funds will be appropriated until we have a very clear clarification of the effects on the slackwater darter

Mr. ROBERTS. That will be in the next 30 years?

Mr. MITCHELL. We do not have any timetable.

Mr. ROBERTS. The gentleman from Alabama, Mr. Flippo, wishes to be heard on the project.

Mr. FLIPPO. Thank you, Mr. Chairman.

It is a pleasure to present this statement before the Subcommittee on Water Resources of the House Public Works and Transportation Committee. The attention of this committee has greatly benefited the Nation by assuring a clean and adequate water supply. Mr. Chairman, you are to be commended for your efforts and on these hearings.

The Cypress Creek watershed project is one which benefits the land and people of this region. The project will assist in solving problems of environmental quality in the Cypress Creek watershed area. The deterioration of the land, plants, and water resources has made it necessary for the development of a plan for the watershed protection and flood prevention.

The work plan for watershed protection and flood prevention for the Cypress Creek watershed was prepared by the Cypress Creek Watershed Conservancy District, Lauderdale County Commission, Lauderdale County Soil and Water Conservation District, University of North Alabama, three Cypress Creek watershed districts and the Wayne County Soil Conservation District as cosponsoring local organizations. Technical assistance was provided by the Soil Conservation Service and Forest Service of the U.S. Department of Agriculture.

The major soil and water problems in the watershed are floodwater damages to 10,321 acres of flood plain, flood plain scour, sheet erosion in the upland areas and critical erosion on about 60 acres. The estimated average annual floodwater, erosion, and indirect damages total $407,700 at current normalized prices according to the work plan.

The Cypress Creek watershed projects meets high standards of benefit to a region of 135,360 acres. Its objectives are the proper use, treatment, and management of soil and water resources in the watershed, the protection of flood plain lands and property, and economic stimulation through development.

The 211.5 square mile area of the Cypress Creek watershed is located in Lauderdale County in northwest Alabama and Wayne County in south central Tennessee. The watershed lies in the Tennessee River water resource region with an urban population of 35,000 and a rural

population of 3,000. Approximately 12 percent of the watershed is cropland, 18 percent is pastureland, 63 percent is forest land, and the remaining 7 percent is composed of urban area, roadsides, farmsteads, wildlife, and idle land.

The work plan proposes the installation, during a 10-year period, of a project for the protection and development of the watershed at a total cost of $9,588,300. The share of the cost to be borne by Public Law 566 funds is $7,760,300. The share to be borne by other than Public Law 566 is $1,828,000. In addition, the local interests will bear the entire cost of operation and maintenance.

The proposed plan is economically and environmentally sound bringing about a better management of land and water resources. It reduces the damage of floodwater and soil erosion. Measures planned under this project will contribute directly to the preservation and enhancement of the environment in the watershed. Emphasis has been given to measures which reduce soil and water losses, assure proper functioning of the structural measures, reduce flooding, and preserve and improve the habitat for the existing fish and wildlife resources of the watershed.

The Cypress Creek watershed project would have a beneficial effect on the quality of life in the area and its economy. It would create both skilled and unskilled employment during the 10-year installation period. The project would create an average annual regional income benefit distribution of $537,550. The reduction of flood damage would enhance life, health, and safety in the area. Flood protection to the 70-percent level would be provided to 320 landowners in the flood plain. The reduction of road and bridge washouts would provide greater traffic safety. Health hazards caused by decaying livestock and wildlife drowned by flooding would be reduced.

The proposed plan offers the best alternative because it would be the least destructive to the environment, the easiest to install, and the least costly to operate and maintain after construction. The Cypress Creek watershed project enjoys great public interest and wide public support from citizens of our area with whom I join in supporting the construction of this project.

Mr. ROBERTS. I appreciate the gentleman's support.

Are their questions on this project?

[No response.]

[The following was received for the record:]

STATEMENT OF HON. ROBIN L. BEARD, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ALABAMA

SUPPORT OF THE CYPRESS CREEK WATERSHED PROJECT

Mr. Chairman, thank you for this opportunity to express my support of the Cypress Creek Watershed project which is located in Wayne County, Tennessee and Lauderdale County, Alabama.

In looking over the purposes and goals of this watershed project, I have found that this watershed project will allow the reduction of soil loss to a rate that will permit a high level of productivity to be sustained economically and indefinitely. I feel that any project which can assure that the environment will be unharmed and also assure that the economy of the area will be helped is an excellent project and should be allowed to proceed as planned.

The objectives of this watershed project are the proper use, treatment, and management of soil and water resources in the watershed; the protection of flood plain lands and property; and the stimulation of the economic development. It is my understanding that the project as presently proposed will meet these objectives.

This watershed project on the Cypress Creek will also stimulate the economy by providing new employment opportunities. About 325 new semi-skilled and 18 skilled jobs will be created during the 10-year installation period. After this initial employment period, 213 man-years of employment will be needed to operate and maintain the project which will continue to have a favorable effect on the local economy. Additional income will be received by the laborers employed during the construction and by the farmers from the increased sales of farm products as a result of damage reduction and agricultural enhancement.

Reduced flooding will help increase the per capita income of the watershed residents. This knowledge of having flood protection should give the farmers a greater sense of economic security. This reduced flooding will also result in increased income for watershed residents by allowing for more efficient use of available land resources.

With all these positive aspects of the watershed project on the Cypress Creek in Wayne County, Tennessee and in Lauderdale County, Alabama in mind, I want to add my support for the construction of this project. I certainly believe that the benefits of this water resources project upport the need and cost effectiveness of the project.

Dynne Creek, Ala.

Mr. Mitchell. Dynne Creek watershed is also in Alabama. This is a small watershed of 16,600 acres. It calls for flood control, municipal and industrial water supply, and recreation. They will be in one multipurpose site and two floodwater retarding sites.

The flood plain is approximately 900 acres. The cost of the works of improvement are estimated to be $1.9 million of which 50 percent will be provided by Federal funds and 50 percent will be provided by local funds. The benefit/cost ratio on this project is what we feel is a healthy 1.5 to 1.

Are there any questions?

Mr. Flippo. Mr Chairman, I would like to file a statement on behalf of Hon. Bill Nichols.

Mr. Roberts. Without objection.

[Statement referred to follows:]

Statement of Hon. Bill Nichols, a Representative in Congress From the State of Alabama

DYNNE CREEK WATERSHED

Mr. Chairman, I am most appreciative for this opportunity to speak in support of the proposed Dynne Creek Watershed project presently pending before your Committee.

First let me express my thanks to you for expeditiously bringing this proposal to the immediate attention of your committee. For too many months this watershed has been held up in the Office of Management and Budget and the water shortage problems it is designed to correct have been compounding during the interim. Your interest in the water resources of this great nation is certainly commendable.

The Dynne Creek Watershed area is located in the southern portion of Cleburne County, Alabama. This county is located halfway between the metropolitan areas of Atlanta and Birmingham. It is strategically linked to both of the southern economic centers by the newly completed Interstate 20 and one may surmise that Cleburne County would be ideal for industrial growth and prosperity.

I regret to say that such is not the case however.

Cleburne County is poor and underindustrialized. The per capita income of the county is the lowest in Alabama and one of the lowest in the entire country. All efforts to attract new industry to the area have been thwarted because the county cannot assure prospective businesses that adequate water for industrial, private and recreation uses will be available.

Economic problems only tell part of the problem, Mr. Chairman. Safe drinking water for established residents of the county is already in short supply. I am told by the local county extension agent that nearly 500 rural homes in the southern part of the county are without drinking water because wells have simply gone dry during the summer drought. At tremendous personal expense some homeowners have attempted to drill new wells but most of these drillings have been in vain. Most residents have simply resolved themselves to hauling drinking water from town or from neighbor's homes. They are depending on the fall and winter rains to once again replenish their water supplies but the chance remains for the drought to continue.

In the Town of Ranburne with a population of about 500 persons, the Environmental Protection Agency is threatening to close the local water system because of filtration problems. So severe is Ranburne's plight that serious consideration was given to the idea of running a water line from the county seat of Heflin, twenty miles away, to carry adequate water for Ranburne. The cost of such a project makes the plan prohibitive.

These problems can be resolved by the construction of the Dynne Creek Watershed. In each vital area of flood prevention, recreation, municipal and industrial uses, the annual benefits far exceed the amortized costs of the Dynne Creek Project. It is a proposal that is feasible, environmentally sound, economic and productive and if completed it would serve more than 2,200 homes in a three county area.

Mr. Chairman, the people of Cleburne County have patiently waited for OMB to release this project for Congressional consideration. We have crossed the first hurdle and we anxiously wait for this Committee to grant its approval of the project.

The need for water in the area is immediate and essential. If the county is to pull itself out of an economic slump that has lasted decades, if the county is to assure its residents clean, safe water for the future, it can only be done with the construction of the Dynne Creek Watershed.

I sincerely hope that you and your committee members will authorize this project believing it is a sound investment of our federal dollars.

In closing I would like to request that the attached letter from the local county agent expressing his support of the Dynne Creek Watershed be included in the record.

THE ALABAMA COOPERATIVE EXTENSIVE SERVICE,
Heflin, Ala., September 18, 1978.

Hon. BILL NICHOLS,
House of Representatives,
Washington, D.C.

DEAR HONORABLE NICHOLS: I am writing this letter in regard to the Dynne Creek Watershed for Cleburne County.

First, let me say that it is imperative that this water system be completed as soon as possible to provide water for the City of Ranburne, the Poultry Processing Company, farmers throughout the southern half of the county, for new homes being built and for new industry that should and will come to the county when water is available. Ranburne needs water now; several farmers have spent more for dry wells on their farms than what they paid for the farm in the beginning.

The county also stands at the threshold of an orderly and planned industrial expansion if water can be provided for the southern half of the county.

It is also understood that another Poultry Processing Plant is interested in locating in this area of the county if and when water is available.

Another situation which makes it very important that water is available and new jobs provided is the low per capita income of our people. The per capita income for the county is probably the lowest in the nation since we are the lowest in Alabama.

For these and many other reasons not mentioned, the completion of this watershed is very important for the cultural and industrial growth in the years to come. It would also be of economic value to the state and southeast as well as to Cleburne County.

Bill, we would especially like for you to appear before the House Public Works Committee open hearing on Thursday, September 21, at 10:00 a.m. on behalf of the Dynne Creek Watershed. It is our understanding that our project is one of the 14 water projects sent to the Committee from the Office of Management and Budget last week.

If there is anything our people can do to help further our project, please let us know.

Thanks for what you and members of your staff has done for us on this needed watershed.

We feel that it is most important that this project be completed soon for the industrial and cultural growth in Cleburne County.

Will be in contact with you very soon.

Sincerely,

W. JOEL THOMPSON,
County Agent-Coordinator.

FACTORY CREEK, ALA.

Mr. MITCHELL. The next project is Factory Creek, also located in Alabama.

This is more of a typical size for our projects, 51,600 acres. There are sediment problems as well as flood damages. It is single purpose, what we call a flood damage reduction project.

Estimated Federal cost of $1.5 million of which the Federal funds will provide 49 percent and local funds 51. It has a benefit/cost ratio of 1.4 to 1.

Are there any questions?

Mr. FLIPPO. I would just like to add my support to the projects, Mr. Chairman.

Thank you.

Mr. ROBERTS. I have received a statement from Senator Maryon Allen regarding the Dynne Creek and Factory Creek watershed projects; and will place that statement in the record at this point.

[Statement referred to follows:]

STATEMENT OF SENATOR MARYON ALLEN

Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to sumbit a statement today in support of two watershed projects in the State of Alabama which are of great economic and environmental importance. The Dynne Creek Watershed project and the Factory Creek Watershed project have both been approved by the U.S. Department of Agriculture and the Office of Management and Budget. It is my hope that the distinguished members of this Subcommittee will see fit today to recommend these two projects for final approval.

Dynne Creek Watershed encompasses some 16,600 acres and is located in the south-central portion of Cleburne County, Alabama. For several years the local sponsoring organizations, the Dynne Creek Watershed Conservancy District, the Cleburne County Commission, and the Cleburne County Soil and Water Conservation District, have worked incessantly to get final approval of this worthy project. Their dreams will become reality upon the finalization of this project.

The major soil and water problems in the watershed are floodwater damages to 866 acres of flood plain, sediment deposition on 105 acres of flood plain during flood flows, flood plain erosion in 83 acres due to out-of-bank flow, sheet erosion in the upland areas, and critical erosion on about 32 acres of roadbanks. The estimated average annual floodwater, sediment, erosion, and indirect damages total more than $24,000 at current prices.

The Dynne Creek Watershed Plan proposes a project for watershed projection, flood prevention, municipal and industrial water supply, and water-based recreation. Conservation land treatment practices are planned to provide watershed protection. Two single purpose structures and one multipurpose structure will provide floodwater retardation.

Accelerated conservation land treatment will adequately protect much of the watershed area and will reduce sediment yield by 27 percent. Land treatment will reduce runoff by an estimated 5 percent and will enhance watershed aesthetic qualities. Floodwater retarding structures will reduce average annual flood damages by 69 percent on 866 acres of flood plain land. The structural measures in combination with land treatment will reduce sediment yield by 40 percent.

Conservation land treatment will be installed throughout the watershed within a 5-year period at a total cost of $218,930. The planned structures will be installed within a 5-year period at a total cost of $1,723,800. Total project installation cost is estimated to be $1,916,400. Total estimated average annual National Economic Development benefits derived from the installation of project measures are estimated to be $181,200.

Of equal importance is the Factory Creek Watershed located in rural Sumter County in West Central Alabama. The total drainage area is 51,600 acres.

This watershed plan was prepared by the Factory Creek Watershed Conservancy District, the Sumter County Soil and Water Conservation District, and the Sumter County Commission.

The watershed flood plain consist of about 4,800 acres. The major soil and water problems in the watershed are flood damages occurring on the 2,505 acres of flood plain land along Factory Creek, 952 acres on Tom's Creek, 102 acres on Turkey Creek, and 576 on Jones Creek and sheet erosion on 3,950 acres of upland cropland throughout the watershed. The estimated average annual flood damages and indirect damages total $41,550 based on current normalized prices.

Erosion in the watershed is slight to moderate occurring during periods of high storm runoff. The sediment resulting from this erosion is deposited on crops and pastures and in road ditches.

Conservation land treatment will be installed throughout the watershed within a 5-year period at a total cost of $760,425. The planned structures will be installed within a 5-year period at a total cost of $722,750. Total cost of installing the project is estimated to be $1,483,175. Average annual benefits from the project will accrue to National Economic Development at an estimated rate of $71,900 per year.

These projects, Mr. Chairman, will combine to provide flood prevention, watershed protection, municipal and industrial water supply as well as recreation areas. Both of these projects will serve as a great economic stimulus for the counties involved and will contribute to the preservation of the natural resources in the affected areas.

Thank you for the privilege of submitting this statement today on behalf of my deserving constituents.

CADRON CREEK, ARK.

Mr. MITCHELL. The next projects that we will take up are three projects that we planned concurrently. The reason for the concurrent planning is that the lower area of the Cadron Creek is affected and will be benefited by works of improvements in the three watershed areas. The three watershed areas are East Fork Cadron which is 199,000 acres, the Lower Cadron Creek of approximately 72,000 acres, and the North Fork of the Cadron Creek, approximately 197,500 acres.

Mr. Chairman, the timing on presentation of these projects to this committee is such that we have not been able to get a supplement that was agreed to between environmental concerns and also the sponsors in the elimination of one site, E–4, on the East Fork of the Cadron Creek. That supplement has now been signed by the sponsors, agreed to, and will be transmitted to this committee. I talked with representatives of the Office of Management and Budget yesterday, and they are aware of this situation.

Mr. ROBERTS. Mr. Mitchell, were these broken down in three sections because of the size? Is that the reason you have them all in three rather than in one, although they are all Cadron Creek?

Mr. MITCHELL. Yes, sir, that is right. As you know, we have a size limitation of 250,000 acres under the small watershed program. These are projects, which under the legislative history of Public Law 566 are eligible for concurrent planning as long as there are common flood plain areas.

Mr. ROBERTS. And these are 50 percent projects also?

Mr. MITCHELL. Fifty percent projects?

Mr. ROBERTS. 50–50 you said?

Mr. MITCHELL. Of cost sharing?

Mr. ROBERTS. Yes.

Mr. MITCHELL. The cost sharing on them will run as follows: East Fork, it is 54 percent Federal, 46 percent local; Lower Cadron 55, 45; and on the North Fork of the Cadron Creek, it is a little higher Federal, with 70 percent Federal, 30 percent local.

Mr. ROBERTS. Are there comments on these projects?

Mr. Hammerschmidt?

Mr. HAMMERSCHMIDT. Mr. Chairman and fellow members of the Subcommittee on Water Resources, I would like to take this opportunity to lend my strong support to the three Cadron Creek watershed projects proposed for Faulkner, Conway, Van Buren, White, and Cleburne Counties in my home State of Arkansas.

The Cadron Creek projects are located in the congressional district of my good friend and colleague, the Honorable Jim Guy Tucker, who has been a worthy advocate on behalf of these much-needed undertakings. I am happy to be able to support him in his efforts.

The three projects include the East Fork Cadron Creek watershed containing 199,900 acres, the Lower Cadron Creek watershed containing 72,500 acres, and the North Fork Cadron Creek watershed covering 197,500 acres. Because they are so closely interrelated and serve a common flood plain, the three plans have been developed simultaneously in orde rto best resolve water and land resource needs throughout the entire Cadron Creek watershed area. They provide for construction of floodwater retarding structures, implementation of soil conservation practices and development of public recreation facilities. Taken together their effect will be to:

Reduce sediment deposition by approximately 41 percent at the mouth of the watershed.

Reduce flood peaks and areas of flooding on 24,000 acres of flood plain lands.

Provide for increased recreational opportunities at the Woolly Hollow State Park,

Provide additional local employment opportunities, and improve the social and economic condition of the citizens in the area as well as others throughout the State.

The average benefit-cost ratio for these projects is 1.6 to 1. In addition, I am unaware of any present opposition to any of the three projects.

With regard to the East Fork Cadron Creek it is my understanding that the Soil Conservation Service has proposed to delete dam E–4 from the work plan. This recommendation has the support of local sponsors and Representative Tucker. I urge the committee to support this change.

Mr. Chairman, I am most appreciative of the strong leadership and direction that both you and the ranking minority member of this subcommittee, the gentleman from California, Mr. Clausen, have provided with respect to our Nation's watershed management needs. I am confident that once again, as you have done so often in the past, you will join me in supporting favorable final action on projects—such as those proposed for the Cadron Creek watershed—which are so beneficial to the people we represent and the country on a whole.

[Additional statements relating to Cadron Creek watershed project follow:]

CONWAY, ARK., *September 25, 1978.*

Hon. RAY ROBERTS,
Chairman, Water Resources Subcommittee,
Rayburn House Office Building, Washington, D.C.

DEAR SIR: I would like to take this opportunity to express my opposition to the Cadron Creek Watershed Project. I have been involved in this opposition for over two years and have become more convinced of the unnecessary nature of the project.

My specific objections to the project were contained in an earlier statement which became an Addendum to the Environmental Impact Statement. Therefore, I will spare you of a repeating of those objections. However, I would like to make a general statement related to the economics of the project. The methods of computing benefits of the project needs a careful review. Any method that allows you to count benefits that have already been realized before the project is approved, is obviously biased toward implementing the plan. Many of the recreational benefits included in the plan, especially the inclusion of the benefits for recreation related to Woolly Hollow State Park, are highly questionable. If these benefits are removed from the cost/benefit calculations, the entire project becomes very marginal.

This project will benefit a relatively few individuals at the expense of the landowners on the upper watershed and the taxpayers. Speaking as a taxpayer, I don't want to pay!

Thank you for the opportunity for input. Please include my letter as a part of the record on this project.

Sincerely,

BOB FISHER.

CONGRESS OF THE UNITED STATES,
September 29, 1978.

Hon. RAY ROBERTS,
Chairman, Water Resources Subcommittee, Committee on Public Works and Transportation, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: I appreciate the opportunity to comment on the North Fork Cadron Creek watershed project of the Soil Conservation Service.

This project has been extensively studied by SCS as a result of requests from five local sponsoring organizations in four counties of Arkansas seeking watershed protection and flood prevention. One of the counties (Van Buren) is in the First Congressional District which I represent.

We have reviewed the project with the SCS State Conservationist for Arkansas. Additionally, the Watershed Plan has been subjected to strenuous criteria established by the Office of Management and Budget and forwarded by the President to the Congress approved as cost effective.

This is a very important project for the agricultural community of the area. I believe every effort will be made by the sponsors to make some of the structures available for public access and by the SCS to preserve the environmental quality of the region. My evaluation indicates that it is overwhelmingly favored by the citizens of Van Buren County.

In view of the above I do support the project and appreciate the consideration of the Subcommittee.

With kindest regards, I am

Sincerely,

BILL ALEXANDER,
Member of Congress.

CONWAY, ARK., *September 24, 1978.*

Hon. RAY ROBERTS,
Chairman, Water Resources Subcommittee,
Rayburn Building, Washington, D.C.

DEAR REPRESENTATIVE ROBERTS: In a telephone conversation this past week with Assistant Counsel, Errol Tyler, I was told that it is possible to submit written testimony on the watershed projects recently approved by the OMB and that this testimony will be reviewed and considered by the staff and committee mem-

bership. I would therefore ask you to please include the following statement as part of the record of hearings on the Cadron Creek Watersheds project (USDA–SCS–EIS–WS–(ADM)–76–1–(F)–AR) in Central Arkansas.

The three Soil Conservation Service Cadron Creek Watersheds projects as proposed in the six documents:

1. Final Work Plan for Watershed Protection and Flood Prevention, lower Cadron Creek Watershed, November 1975.

2. Final Work Plan for Watershed Protection and Flood Prevention, North Fork Cadron Creek Watershed, November 1975.

3. Final Work Plan for Watershed Protection and Flood Prevention, and Recreation, East Fork Cadron Creek Watershed, November 1975.

4. Final Environmental Impact Statement, Cadron Creek Watersheds, April 1976.

5. Addendum to Final Work Plan for Watershed Protection, Flood Prevention, and Recreation, East Fork Cadron Creek Watershed, March 1978.

6. Amplification of Final Environmental Impact Statement, Cadron Creek Watersheds, May 1978.

should never be given authorization for implementation for the following reasons:

1. The proposal will not achieve any of the five originally stated goals as will be documented by citing SCS figures in the proposal.

2. The information in the proposal is seriously out of date, inaccurate, and misleading, as will be shown with documentation provided, or easily obtainable.

3. The project is not economically justifiable as can be seen by looking at figures provided by the SCS.

4. The project is not sociologically justifiable in that no people, no cities, no homes, no utilities, no roads and no buildings are threatened by flooding which this project would address, and an analysis of the claimed recreational benefits prove them to be unjustified.

5. The project is environmentally unsound.

In short, not only is there no justification for these projects, the implementation of these projects would be a gross misapplication of public funds and would result in irreversable and irretrievable damage to a major area in Central Arkansas. Each of the above charges will be substantiated one by one.

The project will not achieve any of the five originally stated goals.

The first goal listed on page 1 of the EIS is, "Watershed Protection (conservation land treatment)". According to the proposal, "accelerated land treatment measures" would result in the completion of this goal in five years rather than the ten years projected if this proposal is disallowed. According to the EIS, these measures were 68 percent completed in 1974. These standard, but necessary and valuable improvements in land practices will be achieved regardless of the implementation of the SCS proposal. According to the SCS (page 143, EIS), "the land treatment measures will continue and be effective without the 'structural measures.'" The point is, these worthwhile, on-going local SCS projects should not be used to justify the building of 14 dams, particularly since they were already 68 percent completed in 1974. The project will not obtain this goal; it will occur independently of this project.

The second goal listed in the draft proposal but removed in the final proposal was, "Drainage". In response to comments from the "Citizens' Committee to Save the Cadron," the SCS states, "Drainage" was erroneously included in the draft environmental impact statement as a goal of the project." (page 159, EIS)

The third goal listed and undoubtedly the most important, is "Flood Prevention". In fact, with all 15 originally proposed dams in place, the proposal estimated that there would be a reduction in average annual flooding of only 52 percent. Counting each acre flooded each time it floods on a 24,002 acre flood plain, they estimated flooding would be reduced from 38,286 to 18,175 acres a year. That is not flood prevention. On page 98 of the EIS it is stated, "Backwater from the Arkansas River and the Conway water supply weir will not allow enhancement of agricultural operations in those reaches above where flood reduction is less than 50 percent." It should be noted here, that only farm and agricultural land and no people, municipalities, utilities, or buildings are flooded in this area. Since the above figures on flood reduction were provided, the sponsors of the project have elected to delete one of the dams—structure number E–4—as detailed in the Amplification of Final Environmental Impact Statement Cadron Creek Watersheds and the Addendum to Final Work Plan for Watershed Protection, Flood Prevention, and Recreation East Fork Cadron Creek Watershed. Also since the above figures were provided, the Army Corps of Engineers has

stated site preparation for a new Conway water supply reservoir which is approximately 2 miles below the L–1 structure proposed by the SCS. (This is easily documentable by Mr. Jim Brewer, Manager of the Conway Corporation or General Donovan of the Army Corp of Engineers.) Obviously it would be the height of irresponsibility to proceed with plans to build L–1 or to claim benefits from L–1. In spite of our repeated requests, no figures have been supplied by the SCS for the total amount of reduction in flooding to be expected when these two structures (E–4 and L–1) are removed from the proposal; but surely one would anticipate considerably less than a 50 percent reduction in average annual flooding from the implementation of the remaining structures.

According to the SCS proposal, this project only hopes to obtain a reduction in average annual flooding and yet they and the sponsors of the project continue to advertise the project as a "flood prevention project." There will be even less reduction in the larger, more damaging 5-year, 10-year, and 100-year frequency floods.

The fourth goal listed is, "Fish and wildlife and recreation." There is so much information in this proposal on this goal which is fallacious and misleading, it is difficult to know where to begin to set the record straight.

In the first place, there can be no claim of recreational benefits from the impoundments themselves. All of the impoundments will be under private control, without public access, and without public facilities. The only potential for recreation would be for fishing, but the sponsors have refused to provide public access (page 125, EIS) and, "The single purpose floodwater retarding structures are not designed for public recreation" (page 125, EIS). The fluctuating water levels would have a negative impact on fishing (page 132, EIS). The increased temperature of the water as a result of its retention in flat water pools would considerably alter the fishing potential of the streams. The reservoirs will inundate habitat of whitetail deer, squirrels, fox, rabbits and quail (page 123, EIS). And, the "existing local sponsors are not willing to bear the local cost" (page 126, EIS) of purchase of mitigation land as suggested by the Department of Interior. The change in the Cadrons, which are the only fishable streams in this area, to provide more flatwater fishing recreation would indeed be ironic since this area already has the world's largest State Game and Fish Commission lake (Lake Conway: 6,700 acres), 8 other major fishing lakes and over 3,238 farm ponds, many of which are well stocked with fish. Thus, there is no question but that the impoundments would be overall detrimental to the local game and fish recreation, a fact reflected in the opposition to this project expressed by local and regional hunting and fishing organizations.

The only economic recreational benefits claimed from this project, $175,000 average annual benefits (page 13 of the addendum to the Final Work Plan), are totally unjustifiable. All of these benefits are projected to accrue from the planned improvements at Woolly Hollow State Park. None of the projected improvements at the park are in any way related to the prevention of flooding, land conservation or any of the projected reservoirs. Yet, in this proposal, over 13 percent of all the total average annual benefits claimed are from the completely unrelated improvements at Woolly Hollow State Park. All of these benefits are claimed in spite of the fact that the state has proceeded with 100 percent state financing and in fact completed almost all of the original plans for the development of Woolly Hollow last year. It is completely unreasonable to allow benefits from unrelated state financed, and completed projects to be used to justify the building of 14 FRS by the SCS.

The fifth and final stated goal of the project is, "Municipal and industrial water supply." Yet, on page 159 of the EIS, the following statements are made, "it is not feasible at this time to include municipal and industrial water supply in any of the planned structures; and, "No benefits, whatever, have been included for any potential water supply." In fact, the Conway Corporation has assured the citizens of this area that there is no foreseeable possible benefit to Conway or any other municipality or any industry. Surely this goal should be justified or removed, as misleading, from the proposal.

INFORMATION IN THE PROPOSAL IS SERIOUSLY OUT OF DATE, INACCURATE AND MISLEADING

First let me point out that the Addendum to Final Work Plan for Watershed Protection, Flood Prevention, and Recreation East Fork Cadron Creek Watershed was apparently not completed until September 15, 1978, in spite of the fact it carries a March 1978 publication date (letter September 18 from M. J. Spears

to Bruce Haggard). Certainly no local citizens have had an opportunity to evaluate, or to respond to this important change. Nor did the Office of Management and Budget have this information before it at the time it passed the project. It should not be legal to change a project of this magnitude after its consideration by Federal officials and legislative committees. The addendum deletes one FRS, adds newly proposed recreational facilities at Woolly Hollow State Park, and updates some but not all of the economic data on the East Fork Cadron Creek plan.

It should be noted that the addendum itself contains serious errors even on a superficial reading. Table 1—Estimated Project Installation Costs on page 5 purports to use 1978 Price Base figures, but, all of the top half of the table has exactly the same figures as appear in the Final Work Plan, page 87 using 1974 Price Base.

Is it not illogical that in flood reduction project such as we are discussing, the removal of the E–4 FRS would result in an increase in the benefit: cost ratio? In the older plans the ratio was 2.1:1 and after deletion of E–4 it is 2.3:1 (page 13, Addendum) considering the East Fork alone. With tongue in cheek, should we not see what the benefit: cost ratio would skyrocket to if we deleted all the dams!

The addendum adds (1) entrance station (2) superintendent quarters (3) fishing dock (4) picnic pavilion (5) camping area and (6) trail which were not in the original plans submitted in the 1976 EIS and yet uses a "resolution of the governing body of the Arkansas Department of Parks and Tourism adopted at a meeting held on April 25, 1976" (page 16) as authorization for these improvements. A local citizen might suspect that since Wolly Hollow State Park had been developed with 100% state financing, the additions above were used to allow the SCS to continue to claim not only the $170,000 Average Annual Benefit in the original proposal but an additional $5,000 annually—$175,000 (page 13, Addendum). Surely this type of maneuver would be unethical if it is not illegal, particularly since the development of this State Park is so totally divorced from any agricultural, land conservation, or flood prevention which the SCS proposal is supposed to be addressing. These totally unrelated benefits are almost 14% of the Total benefits used to justify the building of the original 15 dams!!

On numerous occasions earlier (see page 128, EIS) and within the last 3 months, it has been pointed out to representatives of the SCS that the Army Corps of Engineers has received approval for and has begun site preparation of a Conway Water Supply Reservoir approximately 2 miles below the SCS proposed L–1 structure. According to the best information available, the L–1 structure would actually be inundated by the Corp's dam along with a great deal of the projected area "benefited" by the L–1 FRS. Surely the SCS does not plan to proceed with the L–1 structure. Yet, they have taken no action to even alert the executives and legislators to this, even as they are being asked to vote approval of the project. A fair evaluation of the Cadron Creek Watershed Project cannot possibly be made until we are provided with accurate information on the costs, benefits, and efficiency of the project with L–1 deleted. The removal of L–1 is required.

No mention is made in any of the proposal documents of the 270 acres of "Natural Areas" on Cove Creek which has been purchased by the Arkansas Natural Heritage Commission. This area will be impacted by structures N–1, N–2, and N–8. It is understood that a project effecting a natural area is required to include an assessment of the impact in the EIS.

Numerous errors in the original EIS were documented by the Citizens' Committee to Save the Cadron (pages 271–283, Appendix C of the EIS) and others. Some of these were corrected, by changing sentences, figures, charts, etc., but none were truly integrated into the analysis (see the exceptional number of specific changes on pages 123, 124, 130, 132, 134, 135, 142, 145, 149, 150, 151, 155, 159, 165, 166, 168, 169, 179, 181, 183, 184, 185, 187, 200, 205, 206, 208, 209, 210).

These were errors in which they misstated the local economic conditions, erroneously described the fishing as limited, described the stream using lake water parameters, used incomplete and misidentified flora and fauna records, and made mistakes in economic calculations.

On several pages of the EIS (page 146, page 190–2 times, and page 195) the statement is made that, "The increase in scarcity of free flowing streams in Arkansas is not documented." This is obviously false when one realizes that

several agencies are in the process of damming streams but none, identified so far, are creating free flowing streams. Documentation is also available in the 1970 publication, "Stream Preservation in Arkansas" published by the Arkansas Planning Department.

On page 177 of the EIS, the statement is made that the SCS "has no indication at this time that Farmers Home Administration will be the funding agency" for the sponsors. Yet, on page 162 of the EIS is: "A letter of intent to borrow has been filed with the Farmers Home Administration."

The fact that many costs have been left out and the benefits exaggerated is documented in the EIS (page 275).

An obvious example of exaggeration is the SCS estimate that 9% of the total average annual flood damage ($91,740) results from interruption of personal travel. There is no documentation that any road in the watershed is blocked or flooded.

The Citizens' Committee to Save the Cadron was led to believe (letter of 31 July 1978 to Dr. Michael Rapp from M. J. Spears, SCS) that the SCS was in the process of updating and correcting the proposal when we received word that the proposal was passed by the OMB.

THE PROJECT IS NOT ECONOMICALLY JUSTIFIABLE

An accurate financial statement is impossible since the SCS does not provide data with the L–1 and E–4 structures deleted, and some of the data which is provided is in 1974 and some in 1978 dollars. However, using their 1974-based estimated, with all 15 dams projected, with the costs minimized, and benefits exaggerated, the SCS projected an "average annual cost" in PL 566 funds of $757,616 with an average annual reduction in flood damages of only $647,910 (Appendix A, EIS). The project is provided an acceptable cost benefit ratio only if one includes all the grossly exaggerated redevelopment, recreation, and secondary benefits.

Even using the questionable figures provided by SCS, if one included all local costs, it is easy to show the project to be economically unjustifiable even with all 15 dams in place. It is easy to look at the projected benefit to cost ratio 1.6:1 provided by the SCS and be impressed, but that leaves out many local and state costs and claims total benefits of even unrelated projects. This type of misrepresentation should not be allowed!

THE PROJECT IS NOT SOCIOLOGICALLY JUSTIFIABLE

Nowhere in the proposal is there any claim or documentation that flooding on the Cadron Creek is a threat to lives, cities, municipalities of any kind, buildings of any kind, utilities, or public roads. The revised EIS admits that fishing on the Cadron is good. The addition of 13, 14 or even 15 impoundments and 990 farm ponds to the 9 lakes in the area is unlikely to improve the fishing. No other recreational benefits are projected except at the State Park. No recreation will be provided for on any of the impoundments in spite of recreation being singled out as one of the major goals of the project. No city or industry has plans to use or will be able to use the water in the impoundments in spite of this also being singled out as a major goal of the project. The most positive impact foreseeable from this project would be on the 800 acres of farm lands on which row cropping could be instituted after the project was installed and on the reduction in damage to some of the crops in the rest of the flood plain (24,002 acres). This certainly does not justify the projected $123,310,863, 100-year total cost or even the projected PL 566 100-year cost of $75,761,000.

THE PROJECT IS ENVIRONMENTALLY UNSOUND

The proposed project would irretrievably take the only stream in the area to create 3,922 acres of flatwater in an area which already has Lake Atkins (852 acres), Lake Harris Brake (1,300 acres), Lake Overcup (1,025 acres), Lake Conway (6,700 acres), Lake Beaverfork (900 acres), Lake Bennett (35 acres), Greers Ferry Lake (31,500 acres), and is about to get a Cypress Creek Reservoir (1,000 acres) not to mention the Arkansas River. Yet the writers of the EIS have the gall to say this project would increase the environmental diversity of the area. This watershed area is a unique and dwindling resource that we need to protect for ourselves and future generations. Almost every local person, with the possible exception of some who stand to make a personal profit, has had and hopes to continue to have this valuable resource available.

In response to the Department of the Interior suggestion that a less destructive alternative be implemented, the SCS indicated the local sponsors would not consider that, and thus it was, "not a viable alternative." There are alternatives but they are not being considered by the local sponsors or the SCS.

In conclusion, it is to be hoped that this proposal is the aberration and not the norm for the SCS. This is only 3 of 107 such projects in Arkansas alone. Even though the errors and misrepresentations were consistently in a fashion so as to make the project look better than it was, it cannot possibly sell itself to anyone who would take the time to study it. It is difficult to believe that anyone—let alone everyone—would benefit from the implementation of this project and the taxes that go with it. Local opposition to the project can be indicated by the more than 800 petition signatures sent to your committee last year, the frequent editorials in the local newspaper, the Log Cabin Democrat and in one of the statewide papers the Arkansas Gazette. No papers have editorialized for the project that we are aware of. Local, regional, state, and national branches of the Wildlife Federation, Audubon Society, League of Women Voters, and Ozark Society have vocally opposed the project. And, of course the Citizens' Committee to Save the Cadron, made up entirely of local citizens many of whom are landowners in the watershed area, was organized specifically to oppose this project.

Even though there exists considerable inaccuracy in the proposal as it is submitted and even though there seem to be several legal questions including the submitting of an addendum after it passed the OMB, etc., please vote to stop it now; for it will never get any better. Kill it forever, so it may never raise its ugly specter at a time the opposition begins to think it has died, as it has in the past.

For those of you who have taken the time to work through this testimony, I can only express my admiration and my sincere hope that you will do something to stop this ill-conceived project. If there are inaccuracies, I apologize and hope they are not serious, for they were not intentional. It should be noted that no one expected or was prepared for such rapid congressional consideration of this project. No one connected with the preparation of this testimony has been paid, nor stands to gain in any way by the defeat of the project. We are all simply concerned volunteers of the affected area. The only expertise we have is incidental to our chosen professions as Biologists, Chemists, Economists, and Farmers.

Thank you for your consideration.

Yours truly,

BRUCE HAGGARD, Ph. D.,
For the Citizens' Committee to Save the Cadron.

Some other committee members:

DONALD E. CULWELL, Ph. D.
Associate Professor of Biology;
ROBERT T. KIRKWOOD,
Associate Professor of Biology;
J. E. MOORE, Ph. D.,
Professor of Biology, UCA;
RICHARD A. COLLINS,
Professor of Biology and landowners;
DARRELL K. HUTCHINS,
Professor of Physics;
ARTHUR A. JOHNSON, *Biologist.*

CONWAY, ARK., *September 29, 1978.*

Representative RAY ROBERTS,
Chairman, Water Resources Subcommittee,
Rayburn House Office Building, Washington, D.C.

DEAR MR. ROBERTS: I would like to express my opposition to the proposed Soil Conservation Service's Cadron Creek Watershed Project and would greatly appreciate your including this letter in the record of your panel's hearing on the project.

I own land along the North Cadron Creek near Guy in Faulkner County, Ark., and am very much concerned about the detrimental effects this project would have on my property. I have carefully reviewed the environmental impact statement on the project and have concluded that I would not be benefitted by any

of the dams (contrary to the claims of the SCS), although I would be taxed directly through an improvement district to pay for part of the cost of the project.

In short, I think the plans are simply a waste of my and other taxpayers' money.

Sincerely,

CARLTON M. (SONNY) RHODES.

CONWAY, ARK., *September 24, 1978.*

Hon. RAY ROBERTS,
Chairman, Water Resources Subcommittee,
Rayburn House Office Building, Washington, D.C.

DEAR MR. ROBERTS: I urge you and the members of your committee to stop the Soil Conservation Service from erecting dams on the Cadron. The cost of the project is too high, and the dams will bring small benefits but large damage to a beautiful, natural area.

Please save Arkansas from this technological blunder.

Sincerely yours,

CAROL SCHEDLER.

CONWAY ARK., *September 24, 1978.*

Hon. RAY ROBERTS,
Chairman Water Resources Subcommittee, Rayburn House Office Building, Washington, D.C.

DEAR REPRESENTATIVE ROBERTS: I am writing in regard to the 14 dams proposed for the Cadron Creek by the Soil Conservation Service in central Arkansas. Please critically read the Environment Impact Statement of the Cadron Creek Watersheds (and the other documents prepared by the SCS concerning this project). This impact statement is very erroneous; when the SCS has been questioned by members of the Citizens' Committee to Save the Cadron about these errors, there has been little response or the answers have been vague and unrelated. The SCS, a public agency, has become a strong partisan promoter of a project benefiting very few citizens and has refused to objectively examine the project as a whole paid for in part by all taxpayers.

The Cadron Creek is the last unspoiled, free flowing stream in central Arkansas, a fact that has attracted industry to Conway and been a real asset to the people here. There are a few large property owners farming rice and soy beans in the bottoms of the lower Cadron who strongly favor the plan at the expense of the smaller landowners upstream and at the expense of public citizens today and of the future. I have enjoyed many stretches of the Cadron Creek on fishing, canoeing and hiking expeditions. By far the majority of persons I see there do not favor the SCS project dams.

Costs of the project have never completely been explained. When asked how the people in the benefit areas along the creek would be taxed no answer has spelled this out. Farmers along the Creek who have now heard of the project are up in arms. Costs of the project outweigh the benefits and there are no completely updated 1978 figures for the entire project.

Please review the detailed report sent to you by the Citizens' Committee to Save the Cadron. Examine the petitions you received several years ago opposing the project (over 800 residents of central Arkansas) or check with the Arkansas senators. I urge you to oppose this boondoggle!

I look forward to hearing from you and hope that you can help my voice be heard. Please include this statement as a part of the record of hearings on the Cadron Creek Watersheds Project in central Arkansas. Thank you.

Yours truly,

DONALD E. CULWELL, Ph. D.

GARY TUMLISON, D.D.S.,
PREVENTIVE DENTISTRY,
Conway, Ark., September 22, 1978.

Hon. RAY ROBERTS,
Rayburn House Office Building,
Washington, D.C.

Please enter this letter in the hearing testimony for Soil Conservation Service/ Cadron Creek Watersheds Project.

I believe this project would benefit only very few large property owners. The cost benefit ratio is terrible and distorted by the SCS. In my opinion, it is a waste

of taxpayers money to spend millions to pay farmers NOT to grow certain crops and then turn around and spend more millions so a few large landowners can grow more of these same crops. We are directly opposed to this project. And I am a Faulkner County resident who is supposed to benefit from this. I would benefit much more by not wasting my taxes on debatable projects like this, balancing our U.S. budget and thereby fighting inflation.

Sincerely,

GARY TUMLISON, D.D.S.

CONWAY, ARK., *September 25, 1978.*

Hon. RAY ROBERTS,
Chairman, Water Resources Subcommittee, Rayburn House Office Building, Washington, D.C.

DEAR REPRESENTATIVE ROBERTS: It has come to my attention that the Cadron Creek Watersheds Project, as proposed by the Soil Conservation Service for Cadron Creek and its tributaries in central Arkansas is being considered by the Water Resources Subcommittee. I would like to take this means of expressing my opposition to this proposal. In my judgment, the project is both economically and environmentally unsound and I would urge that it be considered very carefully before public funds are committed to the implementation of this ill-conceived plan. Some of the reasons for my opposition are listed below and I would appreciate having this letter included in the record of the hearings on the Cadron Creek Watershed project.

1. Poor quality of the written proposal:

Due to the confusing methods of presentation and the prevalence of inaccuracies and exaggerations in the written proposal and environmental impact statement, it is difficult or impossible to determine a number of things that should be known for a proper evaluation. For example, what will be the total expenditure per benefitted acre from public funds? How would this compare with the total value of the benefitted land? What will be the total expenditure per benefitted acre from other sources? How much tax per year will be assessed against the benefitted area by the Watershed Improvement District? What are the methods of arriving at the many unsubstantiated figures presented? How is it that when the figure of $90 per year of "damageable values per acre" used in justification of the proposal is applied to the supposed benefitted area of 24,002 acres, nearly all of which is located in Faulkner County, a figure is obtained which exceeds the total value of crops sold in Faulkner County in 1969, the only year reported in the proposal, by nearly a factor of three?

Large tracts of land on the lower Cadron and real estate developers who are speculating on the land surrounding the proposed impoundment pools. Must the people of Arkansas suffer the travesty of having a rapidly disappearing natural resource, a free flowing stream, put to the bulldozer in a project that will incur a monetary deficit in its total experience and will irreparably damage the natural qualities and ecology of the watershed? I urge the Water Resources Subcommittee to reject this proposal as representing an unwise use of public monies.

Sincerely,

DARRELL K. HUTCHINS.

ARKANSAS WILDLIFE FEDERATION,
Little Rock, Ark., September 22, 1978.

Hon. HAROLD T. JOHNSON,
Chairman, House Committee on Public Works and Transportation, Longworth House Office Building, Washington, D.C.

DEAR CONGRESSMAN JOHNSON: The Arkansas Coalition of Conservation Organizations continues to oppose construction of the Cadron Creek Watershed Project. We are enclosing additional comments challenging the benefits claimed for this project, and are attaching our review of the Environmental Impact Statement.

We believe construction of this project would be adverse to the best interests of the people and will appreciate your review and consideration of our viewpoints.

Very truly yours,

BETTY ALBRIGHT,
Corresponding Secretary.

SUPPLEMENT REVIEW OF THE CADRON CREEK WATERSHED PROJECT, ARKANSAS

(With additional comments on project plan sand proposals and Environmental Impact Statements and the Amplification of the First Environmental Impact Statement, dated May, 1978; prepared by the U.S.D.A., Soil Conservation Service.)

An initial and critical review of the Draft Environmental Impact Statement for this project was prepared by the Arkansas Wildlife Federation in 1965. This review was prepared in accordance with provisions for review and comments under terms of "The Environmental Policy Act of 1969". (See Attachment) Subsequently, the S.C.S. responded to (rebutted) the criticisms of project benefits claimed.

It is our contention that initial criticisms of the Draft E.I.S. (and other comments made on prior S.C.S. documents) were valid and that responses made by the S.C.S. did not adequately answer criticisms presented by the Arkansas Wildlife Federation. The following comments are submitted to further identify project deficiencies, and are in reference to the "Amplification of Final Environmental Impact Statement".

1. In accordance with the objectives of the Arkansas Wildlife Federation, Arkansas Coalition of Conservation Organizations, the State Committee on Stream Preservation, and other conservation interests, a major objective is the preservation of remaining free-flowing streams in Arkansas for their hydrologic, esthetic, historical, unique recreational, scientific and other values; and to perpetuate environmental diversity.

We wish to note that Cadron Creek is the last remaining free-flowing stream in Central Arkansas, and this project would radically alter this stream.

2. The value of recreational opportunities on the 15 (now 14) flat-water reservoirs on Cadron Creek tributaries has been presented as a benefit in project plans.

But, this stream is surrounded by a number of large lakes including Greers Ferry, Beaver Fork, Overcup, Harris Brake, Lake Conway, Lake Atkins, and the vast chain of lakes along the Arkansas River, which provide more than ample opportunities for lake type recreation.

Cadron Creek does thus provide opportunities for recreational diversity of a unique type in this area where opportunities for lake recreation are most extensive.

In addition, the Floodwater Retarding structures will have radical fluctuations in water levels, limiting their use; and they will be in private ownership—although constructed with public tax dollars. In the completed (nearby) Point Remove Watershed Project, for example, real estate interests now advertise "lots" for sale around F.W.R. impoundments and construction sites are now advertised for sale on the basis of their proximity to proposed F.W.R. structures on Cadron Creek.

3. Construction costs for the 15 F.W.R. strutcures on the Cadron were estimated at $16,063,116.00 by the S.C.S. in 1975. No increases in costs estimates are calculated in the Final Draft Environmental Statement or in the Amplification, dated May, 1978; although costs of commodities, services, supplies, and interest rates have increased from 3 percent to 10 percent annually since the Draft E.I.S. was prepared by S.C.S.

4. In addition, the Amplification of the Final E.I.S. (dated May, 1978) provides for removal of Structure No. 4, and estimates the $ values deleted from the project at $903,574.00, "at costs based on November, 1977 prices". This reduction made in ratio to 1977 prices, is deducted from other costs estimated at 1975 prices, and imposes a deduction for this single project feature, which we believe cannot legimately be balanced against those cost estimates calcualted in 1975.

5. The development of Wooly Hollow State Park, for which benefits are claimed, are negated by the fact that this State Park is essentially completed, but claims for benefits proposed in S.C.S. documents have not been deleted from benefits claimed for the entire project.

6. The U.S. Army Corps of Engineers has been authorized to construct a water supply reservoir on Cypress Creek—a tributary of the Cadron.

This large impoundment will negate benefits claimed for an S.C.S. impoundment planned for construction on Cypress Creek. But, nowhere in the Final E.I.S. or its Amplification documents is any mention made of the effects the Corps Water Supply Reservoir will have on the planned S.C.S. structure—cost estimates and claimed benefits are thus distorted.

7. The Arkansas Natural Heritage Commission has purchased more than 200 acres of land in the unique and spectacular lower reaches of Cove Creek—a tributary to the Cadron. These lands were acquired and dedicated to preservation into perpetuity as a "natural area", in accordance with the jurisdictions of the Natural Heritage Commission.

But, two F.W.R. impoundments are planned for construction on tributaries to Cove Creek and these structures will alter water regime, flow patterns, water temperatures and biological communities in Cove Creek, negating a major purpose of the Natural Area System. No mention is made of this area or the potential impacts of impoundment proposed in S.C.S. project documents.

8. Additionally, data obtained from the U.S. Geological Survey Water Resource Division records demonstrates that, due to exposure of surface waters collected behind the 14 planned F.W.R. structures to solar radiation and wind action, evaporation from these impounded waters will be at least equal to the annual rainfall. As a result, water which would normally flow downstream maintaining ground water tables, normal stream flows and flow patterns, normal water temperautres, and biological communities will be lost through evaporation into the atmosphere. S.C.S. reports contend that downstream flows on the Cadron will be improved. We believe these losses of surface waters induced by construction of these F.W.R. impoundments will have adverse rather than beneficial effects on stream flows in Cadron Creek.

9. We wish to reiterate that major flood problems in the lower (main segment) of Cadron Creek (a prime agricultural area) are radically affected by backwater from the Arkansas River, resulting from the construction of major impoundments for navigation purposes, and the Corps recognized this eventuality by acquiring more than 2,000 acres in flowage easements within the Cadron Creek Watershed. Thus, the watershed project will have comparatively little impact in reducing the effects of flooding in the area affected by backwater from the Arkansas River.

We have previously commented on other inadequacies in the claims for project benefits and wish to state that we believe these criticisms are pertinent and valid. We have attached copies of our comments on the Draft E.I.S. for your review and consideration.

In summary, we would reiterate that no increases in costs for construction are included (except for a planned deletion of one structure); other agencies have approved plans for construction or preserving areas which will negate proposed benefits and these other plans are not recognized; and that flooding in the lower flood plain is the result of developments for the Arkansas River Navigation System which will not be alleviated by the watershed plan. We also wish to observe that this stream is the last unaltered stream in central Arkansas, that it provides environmental diversity and is surrounded by a number of large impoundments available to the public for flat-water recreation. Many of the benefits claimed for wildlife resources are questionable, and there is little data to substantiate economic benefits claimed by the S.C.S.

We are also concerned about the fact that this proposed major natural resource alteration is conditioned by the limited interests, jurisdiction and affiliations of a Federal Bureau, and that it provides claimed benefits to a very limited segment of the public sector at large costs to the general public, and with few or no benefits to this public sector.

Elimination of this and other less desirable projects of this type from the nearly 3,000 watershed projects proposed for construction in Arkansas and elsewhere would help reduce the large public debt and perpetuate options for resource use and management for present and future questions.

Submitted by Arkansas Coalition of Conservation Organizations composed of: The Arkansas Wildlife Federation, The Arkansas Ozark Society, The Arkansas Audubon Society, Arkansas Sierra Club Chapters, The Arkansas Ecology Center.

BETTY ALBRIGHT,
Corresponding Secretary.

REVIEW OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, CADRON CREEK WATERSHEDS, ARKANSAS PREPARED BY U.S.D.A., SOIL CONSERVATION SERVICE

(Prepared under authority of the Watershed Protection and Flood Prevention Act, Public Law 566, 83d Congress, 68 Stat. 666, as amended) Dated December 2, 1975

This Report, apparently prepared by Midwest Research Institute in Kansas City, Missouri, has reference to proposals and plans for construction of fifteen

(15) dams on the forks and tributaries of Cadron Creek which drains watersheds in Cleburne, Conway, Faulkner, Van Buren and White Counties, Ark.; and accelerate "land treatment measures" in the watershed. Project purposes and goals are defined (on pages 1 and 2) as (1) watershed protection, (2) flood prevention, (3) drainage, (4) Fish and Wildlife and recreation and, (5) municipal and industrial water supply.

Structural measures (dams) will permanently inundate 1,163 acres of land and 'floodwater detention pools will periodically and regularly inundate up to 3,922 acres behind these dams, and an additional 265 acres will be committed to these developments—for a total of 5,350 acres of land permanently or frequently covered by impounded waters. In addition, 42.6 miles of streams would be inundated permanently or periodically. Total costs for installation of the project are estimated at $16,063,116 with P.L. 566 (Federal) monies covering $9,869,101 of these costs (page 17, Project Costs). Presumably, local and state interests would pay the balance of $6,194,015 for installation charges. Interest, amortization and other costs would continue during the assumed life of the project.

In addition to structural developments, "accelerated land treatment measures" would be applied to 242,000 acres in the watershed (See page 1) (This is an going program, which would otherwise be accomplished without the project.)

It is of interest to note that data available from preliminary project reports, reviewed in 1973, give an overall initial project cost estimate of $11,736,505 with estimated interest and operating costs totaling $44,854,000 over the life of the project. Apparently project installation costs have increased by $4,326,611 over the past three years (See Science Center Report, Feb 6, 1973)

In 1972 and 1973, we reviewed preliminary project plans and statements for state agencies and for the Arkansas Wildlife Federation. Our comments, at that time, noted numerous descrepancies and contradictions, and lead to the conclusion that benefits claimed were questionable, that there would be irreversible and extensive environmental losses, that these expenditures of public monies would benefit relatively few people, and that, in view of existing public debt and critical needs (health, education, housing, etc), expenditure of public funds for this (and certain other planned projects of this kind in Arkansas) was unwarrented. Among other judgments, it was estimated that separate farm benefits added up to a subsidy of $65,000 per benefited farm in the "East Fork Cadron Creek" project segment, (re letter "Science Center", Conway, Ark, Feb 6, 1973). In this current "Draft Statement", we find few basic revisions of initial plans, increased initial and ongoing costs, and even less justification (in terms of benefit vs. costs) and outstanding environmental losses related to construction of this project.

The current report, plus three volumes describing the separate unit plans incorporated into the Draft Statement, constitutes voluminous documents which contain much reiteration of data, sometimes contradictory or unclear statements, and numerous unsubstantiated assumptions and/or conclusions. Thus, we find even less justification for pursuing these development plans than may have existed in 1972 and 1973. At that time, we were particularly concerned about the alteration and loss of one of the few high quality free flowing streams in the State having unique and irreplaceable recreation, esthetic, historic and other values, and the increasing public costs and indebtedness from this and some 3,000 similar projects planned in this country, and these continue to be among our principle concerns.

We have reviewed the 1975 Draft Report and the following comments pertain to statements and data presented on this Draft Environmental Review. It should be noted, however, that the volume and repetitious nature of this Draft Statement, dispersal of data through the report, and time limitaions, makes any thorough analysis difficult. Contradictions and inadequacies do, however, make questionable many of the statements presented. Some of these questionable features are itemized and commented upon below:

1. p. III. Here, Federal agenices (14) and national organizations (7) are listed as recipients of this report.

Comment.—But no state organizations are so listed, even though they have previously commented at length and have an acute interest in this project. (Example—The Arkansas Wildlife Federation.)

2. Under "Summary" P.I., it is commented that (the project) will reduce the annual area flooded by 52 percent.

Comment.—But, further data in the report notes that, of 24,000 acres in the flood plain to be benefited 18,175 acres are expected to be flooded annually with

the project (see p. 78 and elsewhere) and; there is no apparent data on "seasonal or other periods. when this occurs—which is most significant in relation to agricultural activities.

3. (p. 2) A declared purpose is: "to provide maximum possible protection for fish and wildlife resources by augmenting low flows in streams in the watershed, and manage (areas) for wildlife habitat."

Comment.—There is little evidence that augmentation of "low flows will benefit the fish population and much evidence (See Game and Fish Commission data) that the Cadron is a high quality fishing stream, with high quality water conditions, which will not benefit from manipulation of hydrologic cycles.

Also, there is no substantial evidence that lands in the watershed (privately owned) can be given any appreciable degree of management to augment wildlife populations. In fact, the report postulates losses of forest lands, wetlands and grasslands as a result of the project. Measures for increasing fish and wildlife populations are speculative only, and these resources would be damaged by the above mentioned losses.

As noted, there will be over 5,000 acres of land permanently altered due to structural developments (impoundments) and this will have adverse effects on wildlife resources which will not be compensated.

It is stated (p. 4) that wildlife management is proposed on 1,900 acres of grassland.

Comment.—No data are presented on how this is to be accomplished on grazing lands of this catagory.

4. (See p. 2) It is noted that 205,165 acres of upland and 239.841 acres "downstream" from the retarding structures will receive "accelerated land treatment measures" and (elsewhere) 68 percent of land treatment measures are "already instituted".

Comment.—The land treatment program has been in progress, with the anticipation that it would continue. Plans propose that the remaining treatment program will be "accelerated" with the project, but no evidence is presented that the project is essential to continuation of land treatment or addition of 990 livestock ponds to those that already exist (3,238 ponds). In other words, the land treatment measures will continue and be effective without the structural measures.

5. Among the stated goals are "municipal and industrial water supply" and potentials for enlarging reservoirs for these purposes. (See p. 2 and elsewhere.)

Comment.—But, no mention is made of studies being conducted by the Corps of Engineers (at public expense) to provide a water supply reservoir for Conway (some 6 sites under consideration) or privately conducted (Water District) studies which has considered sites on Cadron Creek, which propose to supply water to communities throughout the Central Arkansas District, and for which recommendations have been made. Obviously, the S.C.S. has made plans and proposals and incorporated these as potential benefits, without any coordination with other agency or private plans and this must constitute a waste of tax moneys.

6. The Impact Statement notes (See p. 12) that fifteen (15) people now occupying four dwellings and one mobile home and outbuildings will be relocated and states "the estimated relocation costs are $31,850".

Comment.—Possibilities of replacing four (4) housing facilities outbuildings and land at a cost of only $31,850 appears wholly unrealistic in these times.

7. (p. 13) The report states "Existing facilities affected by structures are roads, utility lines and buildings".

Comment.—No data are provided on costs of replacing these facilities or who pays these costs.

In addition, in a letter dated October 12, 1972, the State Highway Department lists 10 bridges which will be inundated by dams and parts of roads which will be convered up, and raises the question as to who will pay for these facilities. This report, apparently, supplies no answer to these questions.

8. Under public recreation faciilties, (p. 13) attention is called to "1,163 acres of sediment pools in the (F.W.R.) structures have a potential for public water-based, recreational use, including fishing, boating, and swimming".

Comment.—It should be noted that these structures (15) are to be built with public moneys but they will be privately owned and used for private developments (urban developments, houses, etc.) and will thereby, benefit the very limited number of people who own surrounding lands.

There is no provision for public use, except for Lake Bennett (Woolly Hollow Park) which will be turned over to the Arkansas Department of Parks and Tourism, with operational costs estimated at $59,350 annually for this facility.

In further reference to this park, the report postulates an estimated participation (annual) of 125,480 days—yet, the report states that only 9 percent of visitors are from the watershed area.

Comment.—There is no mention of recreation transfers from other areas (which are a loss to other recreational facilities), and no mention is made of the extensive flat water facilities in the area (including Greers Ferry, Lake Conway, Beaverfork Lake, Harris Brake, Overcup Lake, and the large lakes created on the Arkansas River) which provide many thousands of acres of lake water within a 50 mile radius of the city of Conway, and near the Cadron Creek Watershed.

Equally significant, no mention is made of the increasing scarcity of free-flowing streams, which furnish unique and diversified recreation opportunities in Arkansas, and are of exceptional value for their unique recreational, scenic, historic and hydrologic significance and values.

North Cadron Creek (identified as a segment of this project) has been listed by the "State Committee on Stream Preservation" as one of the last high quality and free-flowing recreation streams in Central Arkansas and the Committee has recommended the preservation of this stream for its recreation and other values. It also proposed preservation of the other segments of this stream system.

As previously observed, there are several thousand acres of impounded waters available for lake water enthusiasts. In view of this circumstance, additional impoundments (privately owned yet built with public funds) cannot be justified.

9. (p. 16) It is noted that the Department of Parks and Tourism will be accountable for maintenance of facilities at Lake Bennett Park at an annual cost of $59,350.

Comment.—As noted, extensive lake type facilities are already available throughout the area and region.

10. (p. 17) As noted, installation costs are estimated at $16,163,116.

Comment.—With interest, amortization and other ongoing costs, and inflation, it is unlikely that current estimated costs represent an accurate appraisal of costs for this project.

17. The report (p. 39) states that populations in the watershed declined 44.5 percent from 1940–1960 and increased 11.3 percent to 1970.

Comment.—No evidence is presented concerning reasons for this decline and increase.

18. Table No. 9 indicates that there are 1,262 acres of wooded swamps in the watershed. This is highly important wildlife habitat and relates directly to these surface waters and the water table.

Comment.—If project purposes are achieved, undoubtedly, waters maintaining this habitat would be lost. There are no data on potential effects.

19. Data (p. 48) indicates that land uses in the watershed are grasslands 48.3 percent, forest land 43.0 percent, and cropland 5.2 percent.

Comment.—There is little evidence forest and grassland are seriously effected by periodic flooding and the effects of (loan deposits, etc.) may be beneficial. These uses constitute 94.8 percent of the watershed.

20. (p. 51) Comments relate "Industrial growth—particularly around the Conway area" "as being a result of (the industrial park)—and the Arkansas River Navigation Project".

Comment.—But there is no extensive loading dock or loading facilities on the Arkansas River near Conway and no evidence of any contributions to industrial growth at Conway by the project.

21. There are comments in this report (p. 54 and elsewhere) which relate "low per capita income in the area to low employment opportunities".

Comment.—There is little or no evidence that this watershed project would have any marked effect on this situation which can be due to a multiplicity of factors (not mentioned).

11. (p. 18) The area to be protected from flooding statedly covers 24,000 acres.

Comments.—Based on installation costs of more than $16,000,000, this gives a per acre (initial project) cost of $669.24 per acre, plus ongoing costs on lands which have an actual value much below the cost of partial protection.

12. (p. 27) North Fork of Cadron is classified as a Class A Stream, other elements are listed in a B category.

Comments.—Streams having these classifications are considered suitable for fish, wildlife, water supply, primary and secondary "contact recreation" and other uses. In other words, these are exceptionally suitable for recreational uses in their existing condition.

13. (p. 31) The E. Statement comments that "temperatures between 68 and 93 degrees F. are recommended as being compatible with the well-being of many freshwater fish".

Comment.—We question the validity of this statement, since research projects carried out at the University of Arkansas demonstrated that young catfish began to die when water temperature exceeded 90° F.

14. (p. 24) Par. 3—notes that ". . . water sampling was conducted at 12 selected sites (figure 5) by "Midwest Research Institute of Kansas City, Missouri". These samples were taken during only two periods, late July and early October, 1974.

Comment.—Turbidity, biological quality and other characteristics would, thus, have been taken at a low-flow period, which was not characteristic at other seasons. Sampling on such a limited basis must be considered insufficient to provide accurate, data applicable to varied seasons and conditions of the stream.

15. *Comment.*—Data (p. 26) presented indicates that there are already 1,554 acres of impounded waters in farm ponds, Beaver Lake and Lake Bennett, plus 990 more ponds planned in the watershed, (in addition to large lakes) questioning a need for more flat water for recreational uses in that watershed.

16. All data on chemical and bacterial analysis are from Lower Cadron (near Conway). These data are not necessarily representative of the upper reaches of this stream, where there has been less opportunity for contamination, siltation and other adverse effects.

22. Statements as "deer hunting in the watershed is poor" have no direct relation to project factors, and the statement "Arkansas does not have a rare and endangered species list" is false (See Reports of the "Natural Heritage Commission", 1974.)

23. The statement (p. 64) "the aquatic habitats of the Cadron Creek Watershed are somewhat limited in the productive capacity due to sporadic and low seasonal flows as well as turbidity," and (p. 65) "pools are isolated by dry riffle areas and production is severely curtailed" have no substantiating data and are contradicted by the following comment (par. 3) "Surveys Conducted" by the Arkansas Game and Fish Commission" indicate standing crops (fish) totaling 614 and 131 pounds/acre for pools in the East and North Forks . . .". Further comments that these high populations are due to crowding are not substantiated. This stream is known as a high quality fishery with a variety of stream species. "Further data (1974) from a fish kill on N. Cadron showed an estimated 115.6 pounds/acre "and 50 percent of the fish killed were game fish"—"suggesting a rather high quality fishery".

24. The statement "the Cadron Creek Watershed is not among areas recommended for preservation in the natural area plan . . ." is irrelevant, since this plan does not have stream preservation as its main objective, but is concerned with acquisition of small and discrete natural areas.

25. (p. 75) It is noted that 68 percent of land treatment measures are installed at a cost of $10,178,512, indicating an (already) sizable expenditure of public monies to improve this area, with continuing land treatment measures.

NOTE.—We have no objection to this land treatment program—with most effects beneficial

26. (p. 76) The Corps of Engineers have ". . . flowage easements on approximately 2,510 acres of flood plain within the watershed" and have purchased 3,163 acres.

Comment.—These acquisitions were to provide for backwaters piled up behind the navigation dam, which prevents a normal outflow from Cadron Creek into the Arkansas in flood stages. In other words, the project would not have any major benefits in Lower Cadron due to uncontrolled backwater in flood stages on the Arkansas.

27. Table 31. Lists "Average Annual Area Flooded and Total Average Damages".

Comment.—On page 80 Ave. Ann. Losses are estimated at $1,024,750 and on page 81 at $1,009,170. There is no information on how these data were obtained, or explanation of differences.

28. The statement (p. 82) "the estimated downstream sediment damages to the Arkansas River is $108,000 is questionable, since no information is available as to how these data were obtained.

29. (p. 83) Again, reference is made to potentails for inclusion of water supply storage in FWR dams—but, there is no reference to Corps of Engineers or Central Arkansas Water District (private) studies and plans for dams made by these agencies.

30. Under "Water Quality Problems" (p. 84), it is stated "inadequate dissolved oxygen in surface waters may contribute to an unfavorable environment for fish and other aquatic life", and lists "lethal concentrations of dissolved oxygen at 3.1 m. l. in summer.

Comment.—The report implies low flows create this condition, but dissolved oxygen levels (mean 5.99464) are listed as high in lower Cadron where conditions are least favorable. (See Table #7.)

There are also highly questionable biological data throughout the Report as—grazing plans which "may have a beneficial effect on upland game species", and postulated increases in ducks, songbirds, furbearers, wading and shore birds—many of which are dependent on natural habitats which would be reduced by the effects of project developments. (pp. 88–94)

31. There are also implications (p. 95 and elsewhere) such as (the project) "will improve the social and economic life of the people" and "$91,900 will accrue annually by providing employment opportunities during installation of the project and from operation and maintenance of the project measures over a 20 year period".

Comment.—Such data can be assumed to be highly speculative without substantiating data; and "secondary benefits—are estimated to be $203,810 annually, adjusted to account for the portion of the new income spent outside the area", (p. 97) and comments of this type are speculative, and are not supported by substantiating data.

Other insufficiencies include the failure to assess the productive potentials (over the life of the project) of the more than 5,000 acres of land to be inundated permanently or periodically behind the 15 dams (although these potentials are figured for lands considered protected by these structures) or recreation values to be lost or degraded through alteration of the remaining high quality free-flowing streams.

Finally the failure to make any adequate assessment of alternatives is a most serious deficiency in the Draft Environmental Statement. Among these are zoning and acquisition potentials similar to those acquired and administered by the Corps of Engineers on the Lower Cadron, which are designed to compensate for backwaters from the Arkansas River Project.

SUMMARY

Based on this review of the "Draft Environmental Statement, Cadron Creek Watersheds", we consider this statement inadequate, often inaccurate, and insufficient in its assessment of benefits over costs to justify this project. We believe this project would provide benefits to relatively few people, with little or no benefits to others outside the area who will be taxed to cover project costs; that this project will have adverse effects on environmental quality and other resources values and uses. It also ignores other agency plans for the area, and does not present adequate justifications for construction of this costly project.

We are particularly concerned about the loss of another of the few remaining free-flowing streams in Arkansas, and the unique recreational, historic, asthetic, hydrologic and other values which exist in this stream system, and the fact that this project is only one of some 124 proposed planned or constructed watershed projects of this type in Arkansas, which the S.C.S. proposes to construct at large public costs in tax dollars and other resource values. We think that many benefits claimed are not justified by data or systems of analysis, and are not substantiated; and that alternatives have not been adequately assessed. We would support studies designed to consider flood-plain zoning, flood insurance and land treatment, but, as in our Statement presented in 1973, the Arkansas Wildlife Federation continues its opposition to the Cadron Creek Watershed Project.

HENRY W. MEYER, *President.*

Mr. ROBERTS. Thank you.

We will proceed to the next project, please.

Anderson River, Ind.

Mr. Mitchell. The next one we will proceed to is in Indiana, Anderson River, 97,000 acres in size.

The plan calls for 46 small floodwater retarding structures, three multipurpose structures which will serve for flood prevention, recreation, water supply, along with some recreation facilities, and municipal and industrial water outlet facilities. It also includes 10 miles of channel work. This is truly a multicomprehensive plan.

The total cost is $11.1 million, of which the local sponsors will provide $6.5 million or 58 percent of the cost. The benefit/cost ratio on this project is 1.4 to 1.

Mr. Roberts. Are there questions?

Let me ask you one thing, Mr. Mitchell.

Have any of these projects been considered before and rejected? If so, would you please advise us?

Mr. Mitchell. Yes, sir, the Anderson River project was before this committee at a prior time, and we understand that it is now again up for consideration. So this is the only one that we have, Mr. Chairman, that has been before the committee before.

Mr. Roberts. Thank you, sir.

Mr. Hagedorn. Mr. Chairman, just one question.

Why was the Cypress Creek watershed project computed at 6⅛-percent interest and the Cadron Creek watershed project at 5⅞?

Mr. Mitchell. They were sent in at varying times when those interest rates were applicable. The Water Resource Council sets the interest rates to be used in water resource projects. At the time those projects came in, that was the interest rate that was effective. We have not had time to update the benefit/cost ratio because of the large number that we have had here. The current rate is 6⅞, I believe, but we have not had time to update them. That is the reason why you see the varying interest rates.

Mr. Hagedorn. Thank you.

Mr. Mitchell. The 6⅝ percent. I think I said 6⅞.

Mr. Roberts. We will proceed.

Middle Creek, Kans.

Mr. Mitchell. The next project is in Kansas, called Middle Creek. It is 44,000 acres in size. It has sediment and erosion problems, and flood damage reduction problems. There is also an interest in recreation facilities that will serve some 50,000 recreation visits per year. The total Federal cost is estimated to be $5.5 million of which 42 percent will be provided by the local sponsors. The benefit/cost ratio on this project is 1.5 to 1.

Mr. Roberts. Are there questions? Next project, please.

Wet Walnut Creek, Kans.

Mr. Mitchell. The next projects we will take are similar to the Cadrons, Mr. Chairman. They are projects on the Wet Walnut Creek watersheds in Kansas. There are three before this committee which are known as subwatersheds 2, 3, and 5. These also have common flood

plains and were planned concurrently in order to be able to evaluate the structural effects of this common flood plain. They are flood damage reduction projects.

Two of the planned reservoirs will provide water-based recreation facilities for 60,000 visitor days annually.

The cost of the three projects before the committee is $17.8 million, of which the sponsors will provide $7.1 million or 40 percent. Each of the projects before you have a benefit/cost ratio of 1.3 to 1 or greater.

Mr. ROBERTS. Are these projects tied into other projects, one with the Corps of Engineers? I understand we have one or two here that operate in conjunction with the Corps of Engineers.

Are these protection for others, these three are they the ones that are in protection of some other——

Mr. MITCHELL. No, sir, they are not.

Mr. ROBERTS. Thank you, sir.

[Additional statements received for the record follow:]

STATEMENT OF JAMES A. POWER, JR., EXECUTIVE DIRECTOR, KANSAS WATER RESOURCES BOARD

The Kansas Water Resources Board is pleased to find out that the Office of Management and Budget has released Middle Creek Watershed District No. 50, eastern Kansas, and Wet Walnut Watershed District No. 58 in western Kansas, so that the Subcommittee on Water Resources may consider their authorization. The delay in processing these projects by the Office of Management and Budget for the last several years has not only increased their cost for installation but delayed the installation of several multipurpose projects which could have been used during the recent drought experienced in Kansas.

Governor Bennett, in March 1976, approved the Wet Walnut Watershed plan of work urging installation as rapidly as possible. He recognized the plan will not only provide flood control and recreation, but will increase groundwater recharge to an area of our state which is water-short. The Kansas Water Resources Board participated in the preparation of the plan of work because of its interest in this part of the state. Several state agencies are interested in the multipurpose projects contained in the plan of work for the district. The Board has found the project to be consistent with and made it a part of the Kansas State Water Plan.

Governor Bennett recommended authorization of the Middle Creek Watershed District plan of work in 1977. A number of state agencies participated in the formulation of the plan of work for this district. One of the structures in which the state has an interest would provide a water supply for a number of communities and rural water districts in Miami County. Several of these communities experienced severe water shortages during the recent drought. The Kansas Water Resources Board has found the plan of work to be consistent with and made it a part of the Kansas State Water Plan.

On behalf of the Kansas Water Resources Board, I would urge authorization of these two watershed districts.

Mr. ROBERTS. Next project, please.

TWENTY-FIVE MILE STREAM, MAINE

Mr. MITCHELL. The next project is Twenty-five Mile Stream in Maine.

This is a 93,000-acre project just northeast of Augusta, Maine. Reduction of sediment into a well-established lake in that particular area is one of the purposes to be served, along with flood protection of properties around the lake.

The cost of the project is estimated to be $1.6 million, with the sponsors furnishing 31 percent.

The benefit/cost ratio is 1.7 to 1.

Mr. ROBERTS. Are there questions on this project?

Is there anything unusual about it, Mr. Mitchell?

Mr. MITCHELL. No, sir.

[Additional statements received for the record follow:]

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., October 3, 1978.

Mr. RAY ROBERTS,
Chairman, Water Resources Subcommittee, Committee on Public Works and Transportation, Rayburn House Office Building, Washington, D.C.

DEAR RAY: Thank you for your letter asking for my views on the Twenty-five Mile Stream Watershed project which was the subject of your recent hearings.

I understand that your Subcommittee is about to include the project in your mark-up proceedings. I hope that you will add my favorable comments with regard to the Twenty-five Mile Stream project, as it is one which is important to many Maine communities with flood control problems.

It has been over two years since any action has been taken on this project, and I am pleased that final consideration is imminent.

Again, thank you for soliciting my views on this matter. If I can be of any further assistance, I hope you won't hesitate to contact me.

With best wishes, I am

Sincerely,

WILLIAM S. COHEN.

Mr. ROBERTS. Next project, please.

BOULDER RIVER, MONT.

Mr. MITCHELL. The next project is in Montana. It is one of our projects that we have before you that would provide irrigation water to some areas that are short right now. It is a fairly large project, 224,000 acres in southwestern Montana.

The project plan calls for conservation land treatment, one multipurpose site which provides irrigation water along with recreation. It will also provide fishery enhancement and irrigation water delivery canals and the pertinent structures to be able to accrue the irrigation benefits.

There are some 4,500 acres of land that will receive supplemental water that is now short of water.

The total cost of this project is estimated to be $9.6 million, of which the sponsors through taxation and bonds will provide $5.5 million. It has a benefit/cost ratio of 1.7 to 1.

Mr. ROBERTS. Are there questions on the Montana project?

If not, we will proceed.

SHORT CREEK, OHIO

Mr. MITCHELL. The next project we have is the Short Creek watershed project in Ohio, approximately 81,000 acres.

The purposes of this project are, in addition to the land treatment, will be to provide a high degree of protection from flood damages to the cities of Adena, Dillonvale, Newtown, Olszeski Town, and Pine Valley.

There are some 531 residents and approximately 86 business locations that are affected from severe flood damages in this watershed.

The total cost is estimated to be $7.4 million, of which the sponsors will provide approximately 39 percent.

The benefit/cost ratio is 1.3 to 1.

Mr. ROBERTS. Are there questions?

Mr. Applegate, this is Ohio.

Do you have a problem?

Mr. APPLEGATE. Thank you, Mr. Chairman.

We have a lot of projects. We are happy to see this project coming before the committee. I hope we can get it resolved.

Mr. ROBERTS. No further questions. Next project please.

McKINNEY-BUZZARD CREEK, OKLA.

Mr. MITCHELL. McKinney-Buzzard Creek watershed, Okla., 16,000 acres located along the Red River.

Mr. ROBERTS. It is 165,000 acres.

I am sorry, I am looking at Kickapoo.

Mr. MITCHELL. Yes, you are at Kickapoo.

There are 16,000 acres along the Red River on the border of Oklahoma and Texas.

Reduction of flood damage and improved drainage on approximately 1,800 acres of land in this watershed along with 1,400 acres of land that can be used at a higher level of intensity. Stabilization of water flow and stream channels is also a concern in this area.

The project will cost approximately $939,000, of which the sponsors have agreed to share 51 percent.

The benefit/cost ratio is 1.4 to 1.

Mr. ROBERTS. Are there questions on this project?

If not, we will proceed.

KICKAPOO NATIONS, OKLA.

Mr. MITCHELL. Kickapoo Nation, which you correctly identified as 165,000 acres in central Oklahoma.

There is a need for reduction of floodwater damages on some 6,500 acres of good agricultural flood plain land.

The project will also provide adequate water supply to meet the city of Chandler's needs to the year of 2005. The project will also provide recreation benefits of approximately 62,000-visitor days annually at a cost of $11.7 million, of which the sponsors will provide 34 percent or $4 million.

The project has a good benefit/cost ratio of 1.7 to 1.

Mr. ROBERTS. Are there questions on this project? Please proceed..

ROBINSON CREEK, OKLA.

Mr. MITCHELL. Robinson Creek in Oklahoma, 40,000-acre watershed, is to reduce flooding on some 2,400 acres of flood plain land and to provide municipal water to the city of Prague.

It will also provide recreational use days for 49,000 visitors annually at a cost of $5.6 million of which 32 percent will be provided by the local sponsors. It has a 1.2 to 1 benefit/cost ratio.

Mr. ROBERTS. That is a little scary, isn't it, 1.2?

Mr. MITCHELL. That perhaps is as low as any project we have here. The nature of the agricultural benefits and the cost of building the dam evidently is not what we would call our most cost-effective dam.

Mr. ROBERTS. Give us a letter or take a look at that. That sort of scares me when it gets that tight.

Mr. MITCHELL. 1.2?

Yes, sir, we will provide you with that.

[The following was received for the record:]

[SOIL CONSERVATION SERVICE SUBMISSION FOR THE RECORD]

In response to Mr. Robert's request to take another look at the benefit-cost ratio (1.2 to 1) for the Robinson Creek Watershed project, the Soil Conservation Service has reevaluated benefits and costs using 1978 price levels and the current interest rate of 6⅝ percent. This reevaluation has revealed the average annual benefits to be approximately $332,400 and the average annual costs to be $256,100. The resultant benefit-cost ratio is 1.3 to 1.

In addition to benefits evaluated in monetary terms, it should be noted that the savings from reduced flood damages, the new monies brought into the area by recreational visitors, and contractors who will purchase many supplies locally and hire local labor, will provide a major stimulus to the local economy. The stabilized farm income plus the improved economic conditions of many of the low and medium income families will generate an economic stimulus which will result in local merchants improving goods and services throughout the area. The reduction of flooding will reduce the worry and tension of local residents. The 11 small scattered lakes throughout the watershed will add a pleasing note to the appearance of the local countryside. The stabilization of the stream base flows will also improve the aesthetics of the area, as will the elimination of the unsightly sediment fans which are presently common in the flood plain.

Mr. ROBERTS. We will hear now from our colleague, Representative Wes Watkins of Oklahoma.

TESTIMONY OF HON. WES WATKINS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OKLAHOMA

Mr. WATKINS. Allow me to express my appreciation to you and the distinguished members of this subcommittee for hearing my testimony in behalf of the Robinson Creek and Kickapoo Nations watershed projects in Lincoln County and McKinney-Buzzard Creek watershed project in McCurtain County, all in my congressional district.

Before I begin my brief testimony, I would like to introduce to members of the subcommittee several supporters of the Lincoln County projects who have traveled here for this hearing.

With me in connection with the Robinson Creek project are Oklahoma State Representative Charles Morgan, who represents Prague in the Oklahoma Legislature; Mr. James Hargrove, president of the First National Bank of Prague; Mayor James Teague of Prague; City Councilman Robby Teape of Prague; City Manager Drake Rice of Prague, and Mr. Sam Grissom, a Prague business leader.

Representing the Kickapoo Nations project are Mr. L. D. Wornom, president of the First National Bank of Chandler; Mr. Ben Walkingstick, president of the Union National Bank of Chandler; Mr. Leroy Guest, representing the Central Oklahoma Telephone Co. of Davenport, and Mr. Raymond G. Hayes, an active business leader in Wellston for many years.

I will keep my remarks brief, Mr. Chairman, but believe there are a few points that should be stressed. Coming from Texas, you know how brutal hot summers can be—particularly when they go hand and hand with drought conditions. Much of my district suffered that kind

of year. Crops have been lost, livestock has been lost, water has been rationed.

Kickapoo Nations watershed project would serve as a supply of water for the city of Chandler, and the Robinson Creek project would serve the city of Prague as another source of municipal water. In addition, they would cut down on erosion of valuable farm land and reduce flooding, sedimentation and scour damages. The projects—proposed by the Soil Conservation Service—also are designed to minimize damages to fish and wildlife and archeological and historical sites.

Erosion and flooding in the areas—when it does rain—result in monetary damages, reduced crop yields and environmental degradation.

Under current estimates, the Kickapoo project cost has been placed at $11.8 million with $7.7 million coming from the Federal Government for an average cost of $480,600 per year. The benefits from the project are estimated to run $860,800 a year. Benefits will include rural development jobs for the unemployed and underemployed and water-based recreation.

The same benefits would be felt with construction of the Robinson Creek project. Estimated cost of that project has been put at a total of $5.6 million, with the Federal share set at $3.8 million. Average annual costs of this project are estimated at $206,600, and annual benefits are put at $255,600.

Both the Kickapoo Nations and the Robinson Creek projects meet the criteria laid down earlier this year by the President for water projects and have been approved by the Office of Management and Budget.

Turning my attention now to the McKinney-Buzzard Creek watershed project in McCurtain County in far southeastern Oklahoma, total cost of the project has been estimated by the Soil Conservation Service at $939,400. Of that amount, $463,000 will be the Federal share, and $476,400 will come from other revenue sources.

The completed project will reduce erosion and flooding, increase crop yields and net returns of low-income operators. It will create job opportunities and improve water quality.

Conservation plans are to be developed on some 95 percent of the farms and ranches in the watershed, and a reduction of 70 to 80 percent in average annual floodwater and related damages is to be provided to the agricultural flood plain lands.

From an economic standpoint, Mr. Chairman, the conditions of the low-income farm families and rural communities will be improved. I cannot stress the importance of that fact enough. This area we're talking about has a totally unacceptable level of unemployment and underemployment and one of the lowest economic bases of any of the counties in my congressional district. The people need help—and action at the earliest possible time would be deeply appreciated.

Mr. Chairman, I ask your support and the support of your colleagues for these projects. Thank you. I would like to offer, for the record, statements and communications relating to the Kickapoo Nations and Robinson Creek projects.

[The following were received for the record:]

City of Chandler

DRAWER 576

CHANDLER, OKLAHOMA 74834

BEN WALKINGSTICK, Mayor (405) 258-0890

ROBERT JAMES, City Manager (405) 258-2024

ETHEL PAYTON, City Clerk

COUNCIL MEMBERS:

L. D. WORNOM

CARL WHITE

HAROLD POTTER

EARL GREENFIELD

September 20, 1978

Chairman of the Public Works Committee
House of Representatives
Washington, D. C.

Re: Current Domestic Water Situation
in Lincoln County

Dear Sir:

Lincoln County, Oklahoma, is located in the heart of the state. The county is close to Oklahoma City and Tulsa which provide excellent job opportunities, plus several centers of higher education. The result has been a steady influx of people who wish to enjoy rural living while being close to the conveniences the larger cities offer. During the period 1973 to 1976, almost 400 new homes were added in the rural areas alone. The ever present problem of insufficient quality water for domestic use is compounded by this continued growth.

While many areas of the country have received an abundance of rainfall, the 22,000 residents of Lincoln County are faced with extreme water shortages due to a prolonged four-year drought. The shortage of domestic water supplies is evidenced in much of the rural areas of the county and has reached the critical stage in the cities of Davenport, Chandler and Wellston. Davenport's water supply is provided by a lake, which has only four weeks reserve remaining. Wellston depends on wells for its water supply. The water has such a high sulfate content that visitors find it difficult, if not impossible, to drink.

Chandler's water supply is provided by a lake which is only one-quarter full. A rural water district has signed an agreement with Chandler to purchase water for almost 100 families it soon will be serving. Davenport needs water now, and it is looking toward Chandler for help. A recent engineering study reveals that Chandler, if it fills these needs and its own requirements, probably has a year's supply of water remaining.

The quality of water from wells in rural areas is questionable in many cases. The Lincoln County Health Department recently reported that water from 71 of 199 wells tested in 1977 was unsuitable for human consumption due to high bacteria count.

The water problem is of particular interest to the Sac and Fox Indian Tribe. The tribal project to build 160 badly needed homes for its members has been indefinitely delayed until an adequate supply of potable water can be found. At the time of this report they have been unable to develop or purchase an adequate supply of water.

Recently the Lincoln County Development Authority was formed to study and hopefully solve the county rural water problem. The Authority conducted a county-wide survey which revealed more than 700 rural families whose domestic water supply is inadequate. Of these families, 498 indicated a desire to be included in a county-wide rural water district.

Faced with a domestic water supply problem which grows worse daily, the Lincoln County Development Authority, the Lincoln County Conservation District, the Kickapoo Nations Conservancy District, the Lincoln County Commissioners, the Oklahoma County Commissioners and the City Councils of Chandler, Davenport and Wellston have adopted a plan to solve the problem.

Site Number 1-M of the Kickapoo Nations Watershed was selected as the most feasible source of a domestic water supply for the bulk of Lincoln County, since success of rural water distribution is keyed to a centralized water storage reservoir.

The new water supply (Kickapoo Nations Watershed Site I-M) will supply a total of 3.7 million gallons of high quality water per day. The county's current estimate demand for the cities of Chandler, Davenport, Wellston and proposed rural water district for additional water is less than 1.2 million gallons per day. The Lincoln County Development Authority has applied for a Farmer's Home Administration loan in the amount of 3.8 million dollars to develop this capacity.

Separate plans have been adopted for the development of the water distribution system. The water distribution system is currently designed to serve the needs of 498 rural customers, 200 families of the Sac & Fox Indian Tribe, 350 families in the City of Davenport, 1200 families of the City of Chandler and 350 families of the City of Wellston. Due to the emergency nature of the situation, construction of the water distribution system is planned to take place concurrent to the construction of the site. The Lincoln County Development Authority has applied to the Farmer's Home Administration for a loan of 4.5 million dollars for this construction.

Sincerely,

Ben T. Walkingstick

Ben T. Walkingstick, Mayor
City of Chandler

City of Chandler

DRAWER 576

CHANDLER, OKLAHOMA 74834

BEN WALKINGSTICK, Mayor (405) 258-0890

ROBERT JAMES, City Manager (405) 258-2024

ETHEL PAYTON, City Clerk

COUNCIL MEMBERS:

L. D. WORNOM

CARL WHITE

HAROLD POTTER

EARL GREENFIELD

September 20, 1978

Chairman of the Public Works Committee
House of Representatives
Washington, D. C.

Dear Sir:

I am enclosing a copy of a study made by C. H. Guernsey & Company for our city on October 25, 1977 projecting our water level and consumption rate for the next five years.

As you can see, the lake level is down as of September 20, 1978 to the projected low for October 1981. We have discontinued watering the golf course over a month ago and are in the process of preparing an emergency water rationing ordinance for our city.

The Kickapoo Nations Watershed Reservoir is a necessity for our community and the surrounding area. Your consideration in this matter will be greatly appreciated by the citizens of Lincoln County.

Sincerely,

Ben T. Walkingstick, Jr.
Mayor

BTW:skt

Enc.

C. H. GUERNSEY & COMPANY
CONSULTING ENGINEERS & ARCHITECTS
NATIONAL FOUNDATION WEST BUILDING
NORTHWEST 58TH & PORTLAND
OKLAHOMA CITY 73112
(405) 947-5515

October 25, 1977

Mr. Robert James
City Manager
P.O. Drawer 576
Chandler OK 74834

Dear Bob:

The City Lake is now at its lowest level on record. In order to estimate the level at which water rationing should be instigated, we have assumed the Chandler population to be 3,000 and a water consumption rate of 100 gallons per person per day. To this, we have added the water use at the golf course based on 300 gpm for a period of 12 hours per week for 52 weeks even though the course is not watered in freezing weather.

We have started with the present capacity of the lake of 945 acre feet and computed the loss each year using the statistics of the driest three of the seven driest years. This seven-year dry cycle was used to compute the yield for the Bellcow Creek Reservoir project. This is normally done by computer on a monthly basis but for our present purpose, the annual computation is adequate and avoids the delay and expense of obtaining computer time.

Using the least runoff and maximum evaporation that could be expected, we found that the water level and capacities might be lowered as follows:

Year	Elevation	Ft. Below Spillway	Acre/Ft. Capacity	Acres Surface Area
(Lake Full)	892.5	0	2600	193
Oct. 1977	881.6	10.9	945	115
Oct. 1978	880.9	11.6	846	109
Oct. 1979	880.0	12.5	759	107
Oct. 1980	879.2	13.3	676	98
Oct. 1981	875.5	14.0	611	94
	865.0	(lowest opening in intake tower)		

Current Lake Level as of Sept. 20, 1978

The possibility of having four more consecutive dry years is rather remote and we recommend that rationing be deferred until conditions are much worse.

Very truly yours,

C. H. GUERNSEY & COMPANY

John A. Peckham

JAP:gmc

Acre/ft. (Storage) Capacity	Gallons in Storage
2,600 (full)	849,420,000
945	308,731,500
846	276,388,200
759	247,965,300
676	220,849,200
611	199,613,700

Computed by using 326,700 gallons in an acre foot of water times acre/ft. (storage) capacity. Water consumption in Chandler is approximately 120,000,000 gallons annually.

Central Oklahoma Telephone Co.

POST OFFICE BOX 369 • TELEPHONE 918-377-2241
DAVENPORT, OKLAHOMA 74026

September 20, 1978

Congressman Wes Watkins
Room 514
House of Representatives
Washington, DC 20515

SUBJECT: KICKAPOO NATIONS WATERSHED AND BELL COW MULTIPURPOSE RESERVOIR

Dear Congressman Watkins:

As you well know, water in Oklahoma has become a very critical natural resource. There are towns and rural areas throughout the state that need long-range dependable water for municipal, agricultural, and industrial use.

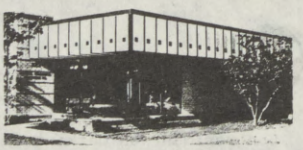
In Lincoln County we have a compound problem, - it seems to be either too much or too little. A large part of our county is in the Deep Fork Watershed. Heavy rains in the watershed produce heavy flooding of thousands of acres of bottom land that, if flooding were prevented, would produce cattle, pecans, and other crops. Contruction of upstream flood control dams on the Kickapoo Watershed would be a major step in conserving water and land in our county.

The multipurpose dam on Bell Cow Creek is a major structure in the Kickapoo Watershed. The Bell Cow Reservoir is planned as a municipal water supply for the towns of Chandler, Wellston, and Davenport plus rural areas surrounding these towns. It is being sponsored by the Lincoln County Development Authority and could serve other communities in the county as the need might arise.

Davenport has been my home town since 1936. My parents and I moved there to operate the Davenport telephone exchange when I was 15 years old. We purchased the system in 1946. With R.E.A. financing, we now serve Davenport, Kendrick, Sparks, Agra, and Tryon in Lincoln County, and Boley and Castle in Okfuskee County with the very best in all private line dial telephone service.

Central Oklahoma Telephone Co.

POST OFFICE BOX 369 • TELEPHONE 918-377-2241
DAVENPORT, OKLAHOMA 74026



During all these years Davenport has had a chronic water problem. We built a city lake in 1952 but the watershed is too small and our water consumption per individual has increased. Our lake right now has perhaps three weeks of water left for the towns people. We will start hauling in Civil Defense pumps and pipe to lay three miles of temporary line and pump from a fair sized farm pond if we can reach an agreement for purchase of raw water. Or we may have to lay five miles of temporary water line on Highway 66 to purchase treated water from Chandler. Either project will be a monumental task for our small town.

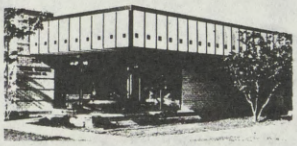
We have considered other possibilities. There are no suitable lake sites in the vacinity of Davenport. Water wells would have to be very deep, thus very expensive, and deep water wells in our area could turn salty overnight due to oil field drilling dating back to the boom days in 1928. Shallow water wells in much of our county will produce only a limited amount of water, and many of these are turning up polluted according to our county sanitarian.

Davenport voters will vote on September 26th, on a proposal to construct a permanent line to Chandler. Chandler has agreed to sell us about 25% of our daily water needs now and we are hoping this would allow our lake to recover and we could get by until this Bell Cow Reservoir could be constructed. Our county is growing and we must make long-range provisions to meet the growth needs of our towns and rural areas.

Chandler and Wellston have similar problems in meeting the water needs for their citizens. Lincoln County is one of the top milk producing counties in Oklahoma. Many of these dairy operators would increase the size of their operations but their water wells will not produce the needed additional water.

Central Oklahoma Telephone Co.

POST OFFICE BOX 369 • TELEPHONE 918-377-2241
DAVENPORT, OKLAHOMA 74026



The Bell Cow Reservoir is vitally needed now to provide flood control and to provide municipal water to meet the immediate needs of a large part of Lincoln County people.

Respectfully,

L. A. Guest, Manager
Central Okla. Telephone Co.

LAG: tjg

STATEMENT TO

SUBCOMMITTEE ON WATER RESOURCES

OF

HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

OF

THE CONGRESS OF THE UNITED STATES

ROBINSON CREEK WATERSHED PROJECT OF LINCOLN COUNTY, OKLAHOMA

PRESENTED AT WASHINGTON, D.C. ON SEPTEMBER 21, 1978

The Robinson Creek Project is a result of more than ten years of meetings and later public hearings by farmers and ranchers in the Robinson Creek Watershed, and residents of Prague, Oklahoma whose goals were to establish a method of flood control and water supply. After all of the meetings with public participation, the Robinson Creek Watershed Project has been endorsed by the Lincoln County Soil Conservation District and the City of Prague and is now before you for consideration.

The Robinson Creek Watershed Area is located in Southeastern Lincoln County, Oklahoma and is a tributary of the Deep Fork of the Canadian River in Central Oklahoma. In past years when rains have been plentiful, extensive water erosion and sediment and scour damage have occurred on the farm lands along the Robinson Creek which has caused financial hardships to farmers and ranchers in the area. In times like the present when rainfall is inadequate, farm ponds have little or no water for irrigation or livestock and with wells going dry, farmers and ranchers are faced with financial hardship due to crop and livestock loss.

During summer months of previous years as well as during the present summer, residents of Prague have been faced with low water pressure from noon until late in the evening because the wells which presently supply the city with water can not meet the demand. At the present time, the city is laying three miles of new water line so that two more wells may be added to the existing nine well system in an effort to try and meet present load requirements. But the question of the availability of ground water is uncertain. This uncertainty is evidenced by the dropping output of all the present wells. For example, one of the wells which produced an average of 85 gallons per minute in 1972 only produced an average of 67 gallons per

minute in August of this year.

A Consumer Market Study conducted in Prague this past June by an Oklahoma City firm asked Prague residents to state their personal feelings regarding the need for a lake which would provide the Prague area with additional water. The study showed that an overwhelming majority of the local residents were aware of the critical need for an additional water supply and would support the completion of the project.

Another reason that the City of Prague feels that this project is necessary is the need for a long term water supply to meet the needs of a growing area. Since the mid-1970's, building permits for new homes and school enrollment have increased by thirty to forty per cent. This growth can be attributed to two factors, one of which is the industrial growth in Shawnee, Oklahoma, of which Prague is a bedroom city. The other factor is the urban migration to our community from the Tulsa and Oklahoma City areas since Prague is located midway between these two cities.

Without the additional water supply which this proposed lake project would supply, it may become impossible for the City of Prague to supply water service to additional customers, rural and municipal. Presently the Prague municipal water system serves 948 customers inside the corporate limits and 32 customers outside these limits. Five families outside the city limits along the new three mile water line addition will be added during the month of October.

The eleven structures of the Robinson Creek Watershed Project would provide needed water supply for livestock and irrigation, for farms and ranches, as well as a municipal water supply for rural residents and city residents that are presently being served and those anticipated with future

area growth.

It should be noted that the City of Prague is, at the present time, the only city in this area that obtains all of its water supply from the Vamoosa aquifer. With the threat of salt contamination to this aquifer, as pointed out in an article that appeared in the Daily Oklahoman on September 16, 1978, the need for the proposed lake is further reinforced.

The City of Prague is prepared to meet its portion of the financial obligations, approximately 1.9 million dollars, on the Robinson Creek Watershed Project.

ROBINSON CREEK WATERSHED

Robinson Creek Watershed is located in Lincoln County, Oklahoma. This watershed contains 40,320 acres and has a population of approximately 1,000 people. The watershed contains 4,072 acres of cropland, 11,458 acres of improved pasture, 14,460 acres of rangeland, 9,546 acres of wooded land and 784 acres of miscellaneous. There are 2,375 acres in the floodplain. The 188 farm and ranch units in the watershed consist of livestock and general agriculture.

PROBLEMS: There is a serious erosion problem on 604 acres in the upper reaches of the watershed and 1,330 acres of erosion and sediment damage in the floodplain.

PROPOSED PROJECT:

Land Treatment - Conservation cropping systems, crop residue use, contour farming, diversions, terraces and other conservation practices will be installed on about 13,000 acres of the agricultural area will be treated using concrete chutes, channel liners, gully shaping and sodding, protective fencing and other measures.

Structural Measures - 10 single purpose floodwater retarding structures and one multi-purpose structure including recreation and municipal water storage for the City of Prague. The single purpose structures will involve about 725 acres of agricultural land. The multi-purpose structure will involve about 522 acres of agricultural land including about 225 acres in the municipal and recreation storage pools, about 87 acres in flood pool, dam and spillway areas, and about 210 acres in the recreation area.

Project Costs

	Federal	Local	Total
Land Treatment	$1,880,680	$1,062,085	$2,942,765
Structural Measures	1,913,260	787,040	2,700,300
TOTAL	3,793,940	1,849,125	5,643,065

Project Benefits	Average Annual Benefits
Flood Damage Reduction	81,600
Intensified Land Use	45,800
Municipal Water Supply	38,000
Recreation	75,700
Employment	22,200
TOTAL	$263,300

UPSTREAM FLOOD CONTROL PORJECTS - CENTRAL OKLAHOMA

KICKAPOO NATIONS - ROBINSON CREEK

You are today considering approval of a number of Upstream Flood Control Projects authorized under Public Law 566 and located in various parts of your country.

Since passage of Public Law 566 you have passed other legislation attempting to do the same thing Public Law 566 attemps to do - i.e., protect our environment and eliminate polution of our waters. The most important legislation since Public Law 566 dealing in this matter has been Section 35 of the Rural Clean Water Act (208), and Public Law 91-190, the National Environmental Protection Act of 1969 for which rules and regulations to regulate compliance were published in the Federal Register on August 8, 1977.

All of the Upstream Flood Control Projects you are considering will assist in implementing the intent of your legislation.

BUT

Your particular attention is invited to the Kickapoo Nations Project and Robinson Creek Project. Both projects are located in Central Oklahoma, where soil is rocky and/or sugary, and either drouth or flood prevail.

At present drouth prevails. Both projects include multi-purpose reservoirs to provide municipal water supply to people in dire need and recreation.

The Kickapoo Nations Project will provide water supply for the municipalities of Wellston, 350 families; Davenport, 350 families; Chandler, 1167 families; one rural water district presently under construction, 73 families; 200 Sac and Fox Indian Families; and another Rural Water District of 498 families, formed but presently awaiting your approval of the Kickapoo Nations Project, and all of these families are in dire need of WATER SUPPLY.

The Robinson Creek Project will supply water for the City of Prague, 1,056 families.

Water supply to these people is important, but your intent in Public Law 566 was to supply flood protection and by later Laws (Rural Clean Water Act and National Environmental Protection Act) to clean up the water and prevent non-point polution (siltation).

These projects do this, and to a degree greater than any other projects submitted from Oklahoma, perhaps greater than any of those you are considering today. REASON? To these projects has been added 'CRITICAL AREA TREATMENT'. Critical Area Treatment provides land treatment to prevent erosion and water polution in areas within the Watershed boundry which are not protected by structural measures (Dams) but where erosion is significant and must be controlled to insure prevention of water polution and insure downstream sedimentation.

This is important. This is a chance to really eliminate the denuded hills, deep gullies and sedimentation which is presently filling up our streams and rivers and incidentially, our large reserviors and barge canals. This needs to be done. Incidentially over $2,000,000.00 of the total cost of these two projects is designated to be spent on 'CRITICAL AREA TREATMENT' and even with this cost included, the projects still bear a favorable 'Cost/Benefit' ratio.

Facts as to cost, benefits, land areas involved, people benefited, etc. are attached for your further information. Also pictures of present depleted reservoirs of Chandler (less than 1 year supply) and Davenport (less than 1 month supply) are attached.

Your prompt and favorable consideration of these projects will be appreciated. Time is of the essence. We, the local people, are ready to move. Are you ready to commit yourselves to the legislation enacted by you in Public Law 566, The Rural Clean Water Act, and the National Environmental Protection Act? Your favorable and early movement will be appreciated.

KICKAPOO NATIONS WATERSHED

The Kickapoo Nations Watershed contains 165,300 acres located in Lincoln and Oklahoma counties, Oklahoma. More than 6,000 persons live within the watershed. In the watershed there are 17,500 acres of cropland, 41,300 acres of improved pasture, 57,000 acres of rangeland and 57,000 acres of wooded land. The immediate floodplain of the watershed is 6,515 acres. An additional 7,800 acres of floodplain land is along the Deep Fork River. This is a private livestock and agriculture enterprise with 785 farm and range units.

PROBLEMS: There is a serious erosion problem on 2,138 acres which created critical sediment source and there is also flooding in the urban area of the City of Chandler.

PROPOSED PROJECT:

Land Treatment - Conservation cropping systems, crop residue use, contour farming, diversions, terraces, and other conservation practices will be installed on about 45,640 acres of agricultural land. About 1,955 acres of critical areas within the agricultural area and about 90 acres along roadsides will be treated using concrete chutes, channel liners, gully shaping and sodding, protective fencing and other measures.

Structural Measures - 19 single purpose floodwater retarding structures involving 2,215 acres of land in pool and dam areas. 1 multipurpose structure involving 1,070 surface acres in a municipal and recreational water storage pool and 1,180 additional acres in a recreation area.

Project Costs

	Federal	Local	Total
Land Treatment	$3,092,170	$1,527,800	$ 4,619,970
Structural Measures	4,742,870	2,442,530	7,185,400
TOTAL	$7,835,040	$3,970,830	$11,805,370

Project Benefits	Average Annual Benefits
Flood damage reduction	213,420
Intensified land use	72,760
Changed agricultural land use	56,490
Municipal water supply	338,000
Recreation	139,500
Employment	40,640
TOTAL	$860,810

KICKAPOO NATIONS UPSTREAM FLOOD CONTROL PROJECT

DAVENPORT, OKLAHOMA RESERVOIR 9/19/1978

KICKAPOO NATIONS UPSTREAM FLOOD CONTROL PROJECT
CHANDLER, OKLAHOMA RESERVOIR 9/19/1978

KICKAPOO NATIONS UPSTREAN FLOOD CONTROL PROJECT
LINCOLN COUNTY, OKLAHOMA

Attached is a narrative explaining an urgent water supply problem which exists in this area. Included in the narrative is background information describing progress made to deal with the situation. We want you to be aware of the problem, and we sincerely solicit any assistance you may be able to provide. Also, we will appreciate any guidance or suggestions you can give us as we continue our efforts to find a solution to this pressing matter.

Respectively,

Kickapoo Nations Conservancy District:

H.W. Goggins, Chairman

Lincoln County Conservation District:

Cecil Ford, Chairman

Lincoln County Development Council:

Harold Taylor, Chairman

Lincoln County Development Authority:

Arthur Thompson, Chairman

Lincoln County Commissioners:

Jack Poskey, Commissioner, District I

Archie Hopkins, Commissioner, Dist. II

Franklin Shaw, Commissioner, Dist. III

For the Chandler City Council:

Ben Walkingstick, Mayor

For the Sac & Fox Indian Tribe:

Elmer Grant, Chief

For the Davenport City Council:

Marshall Sullenger, Mayor

For the Wellston City Council:

Gary Eidson, Mayor

Lincoln County Rural Water District II

Bob R. Merry, Chairman

NARRATIVE OF CURRENT DOMESTIC WATER SITUATION IN LINCOLN COUNTY

Lincoln County, Oklahoma is generally considered as a good place to live, work, play and raise a family. The county is close to Oklahoma City, Shawnee, and Stillwater, all of which provide either excellent job opportunities or centers of higher education. The result has been a steady influx of people who wish to enjoy rural living while being close to the conveniences the larger cities offer (See attachment No. 1). The everpresent problem of insufficient quality water for domestic use is compounded by this continued growth.

THE SITUATION

The shortage of domestic water supplies is evidenced in much of the rural areas of the county and is reaching the critical stage in the cities of Chandler, Davenport and Wellston. Exceptions are two previously established rural water districts and the cities of Stroud, Prague, Meeker, Carney and Tryon. The City of Stroud has sufficient water to meet its present needs but will require an alternate water supply should the Seven Continents recreational theme park materialize.

A third rural water district has signed an agreement with Chandler and soon will be providing water to an additional 73 families. Chandler's water supply is regarded as barely adequate to meet its present needs and its governing body is somewhat hesitant to sell more water until additional water supplies are developed. The City of Davenport, however, is wanting to buy water from Chandler now. The city lake of Davenport is currently very low and volunteer water rationing has been implemented. Davenport citizens are accustomed to water rationing as their lake nearly went dry in 1974. "The rains came just hours before we faced total disaster," L. A. Guest, the clerk of Davenport reports.

Wellston depends on wells for its water supply. The water has such a high sulfate content that visitors find it difficult, if not impossible, to drink. The sulfate content makes water highly corrosive to buildings and equipment. Other areas of the county have another type of water quality problem. Kenneth Burns, sanitarian for the Lincoln County Health Department, reports that the water from seventy-one of the 199 wells tested in 1977 was found unsuitable for human consumption due to high bacteria count.

The water problem is of particular interest to the Sac and Fox Indian Tribe. The tribal project to build 160 badly needed homes for its members has been indefinitely delayed until an adequate supply of potable water can be found. The water available on their land is neither of the quality or quantity needed. At the time of this report they have been unable to develop or purchase an adequate supply of water.

Recently the Lincoln County Development Authority was formed to study and hopefully solve the county rural water problem. The Authority conducted a county-wide survey which uncovered more than 700 rural families whose domestic water supply is inadequate. Of these families, 498 also indicated a desire to be included in a county-wide rural water district. (See attachment No. 2).

THE PLAN

Faced with a domestic water supply problem which grows worse daily, the Lincoln County Development Authority, the Lincoln County Conservation District, the Kickapoo Nations Conservancy District, the Lincoln County Commissioners, the Oklahoma County Commissioners and the City Councils of Chandler, Davenport and Wellston have adopted a plan to solve the problem.

Site Number 1-M of the Kickapoo Nations Watershed was selected as the currently most feasible source of a domestic water supply for the bulk of Lincoln County, since the success of rural water distribution is keyed to a centralized water storage reservoir.

The watershed plan was written and submitted with the city of Chandler being the sponsor which assumed the responsibility of the added cost of the construction development and operation of the reservoir domestic water supply capability. Since the plan has been submitted, the City of Chandler has by resolution transferred this sponsorship to the fifteen-member Lincoln County Development Authority which is more representative of the geographic area to be served.

The new water supply (Kickapoo Nations Watershed Site 1-M) will supply a total of 3.7 million gallons of high quality water per day and the county's current estimate demand for the cities of Chandler, Davenport, Wellston and proposed rural water district for additional water is less than 1.2 million gallons per day. The Lincoln County Development Authority has applied for a Farmer's Home Administration loan in the amount of 3.8 million dollars to develop this capacity.

Separate plans have been adopted for the development of the water distribution system. The water distribution system is currently designed to serve the needs of 498 rural customers, 200 families of the Sac & Fox Indian Tribe, 350 families of the City of Davenport, 1167 families of the City of Chandler and 350 families of the City of Wellston. Due to the emergency nature of the problem, construction of the water distribution system is planned to occur almost concurrent to the construction of the site. The Lincoln County Development Authority has applied to the Farmer's Home Administration for a loan of 4.5 million dollars for this construction.

The City of Davenport has applied for a Farmer's Home Administration loan to build a water line from Chandler to Davenport immediately as they would like to contract with Chandler for additional water beginning immediately. This same pipeline would be used to carry the water from site 1-M to Davenport.

STATUS OF PROJECTS

The final work plan of the Kickapoo Nations Watershed Project and the accompanying Environmental Impact Statement has been developed and forwarded to Washington, D.C. No further action can be initiated locally until the plan is approved in Washington.

Applications for the loan of the needed funds to complete site 1-M and the water distribution system have been filed with the Farmer's Home Administration. Additional effort on the processing of these loans has been discouraged until the final work plan of the Kickapoo Nations Watershed is approved in Washington.

C. H. Guernsey and Company has been retained by the Lincoln County Development Authority to do the engineering on the project. Preliminary plans have been completed. Detailed planning will start when the loans are approved by the Farmer's Home Administration.

NEED FOR ACTION

According to the information we have, the final plan of Kickapoo Nations Watershed has been published in the Federal Register and is undergoing a 30-day waiting period. At the close of the 30-day waiting period, and at their descretion, the Office of Management and Budget will forward the plan to the joint house and senate subcommittee for public works. After review by this sub committee, the plan is forwarded to the full committee where the plan is either approved or rejected.

Since local action is at a stand still until the plan is approved, efforts must be directed toward expediting the ultimate approval of the plan. Local agencies and officials are encouraged to place a high priority on responding to any requests for additional information or needed changes in the plan that might be required for the approval by Washington.

TABLE 1

RURAL HOME DEVELOPMENT IN LINCOLN COUNTY

1973 thru 1976

Year	New Houses	Houses Moved In	Total
1973	85	17	102
1974	97	1	98
1975	78	20	98
1976	75	26	101
		TOTAL	399

Mr. ROBERTS. Thank you, Mr. Watkins. Without objection, here I would like to take the testimony of the gentleman from Virginia, Dan Daniel, since the next three projects are in Virginia.

BUSH RIVER, CEDAR RUN, GREAT CREEK, VA.

TESTIMONY OF HON. DAN DANIELS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. DANIEL. Thank you, Mr. Chairman.

Thank you for giving me the opportunity to appear before you today in support of the Bush River and Great Creek watersheds projects, which lie in my congressional district.

Both of these projects have been long in the making and both, when completed, will greatly improve land and water resources in their respective areas.

The Bush River project is located in Prince Edward County, Va., and covers an area of 98,772 acres. It is jointly sponsored by the Piedmont Soil and Water Conservation District, the Prince Edward County Board of Supervisors and the Virginia Commission of Game and Inland Fisheries. The application was approved by the Virginia Soil and Water Conservation Commission on June 8, 1967 was approved for planning assistance on July 27, 1970, and the final plan was released on May 10, 1976.

The Great Creek watershed project is situated in Brunswick County, Va., and covers 29,754 acres. It is jointly sponsored by the Southside Soil and Water Conservation District, the Brunswick County Board of Supervisors and the town of Lawrenceville, Va. The application for this was approved by the Virginia Soil and Water Conservation Commission on February 9, 1955. It was approved for planning assistance on May 24, 1971, and the final plan was issued on May 14, 1976.

In both cases, I am unaware of any opposition and we have been contacted by a great many people in both counties urging that congressional approval be given without delay.

A hearing on these projects was held in the Senate Water Resources Subcommittee 1 year ago last June and resolutions of support have recently been approved by the Senate Environmental and Public Works Committee.

Because the benefits to be derived from these projects are so promising and because the need for them is obvious, I urge the subcommittee to give its approval to the Bush River and Great Creek projects. They are soundly conceived and efficiently planned. The cost benefit ratio appears to be in line with similar projects being considered and it is abundantly clear that further delay in beginning work will only add to the ultimate cost.

Therefore, I strongly support these projects and hope the subcommittee will give them careful consideration.

For the record, I am including a letter and resolution from the Piedmont Planning District Commission, at Farmville, Va. We also may have several other items to submit in support of these two projects and would like to request permission for these to be included in the printed hearings.

Thank you.

[The following were received for the record:]

PIEDMONT PLANNING DISTRICT COMMISSION,
Farmville, Va., September 18, 1978.

Hon. W. C. "DAN" DANIEL,
Longworth House Office Building,
Washington, D.C.

DEAR CONGRESSMAN DANIEL: Enclosed is a resolution passed by the PPDC during our meeting of September 7, 1978. The Planning Commission is reaffirming our support of the Bush River Watershed Project, as it will offer many benefits to the citizens of Prince Edward County and the District as a whole. In addition to the obvious flood control advantages, the project will serve as a recreation area and water supply for the County.

The water supply need is a critical one, for as you know, economic growth and development is very dependent on an adequate water supply. Bush River will go a long way towards solving that need.

We urge you and your colleagues to approve Bush River, and request that our letter and resolution be submitted to the Water Resources Subcommittee. We thank you for your time, consideration and assistance on this project.

Sincerely,

DANIEL R. LYNN, Jr.,
Executive Director, Piedmont Planning District Commission.

RESOLUTION OF THE PIEDMONT PLANNING DISTRICT COMMISSION SUPPORTING BUSH RIVER WATERSHED PROJECT IN PRINCE EDWARD COUNTY, VA.

Whereas, the Piedmont Planning District Commission through its Areawide A–95 Review Process commented favorably on the Bush River Watershed Project in November of 1975, and

Whereas, the proposed watershed project will provide flood protection to the highways and prime agricultural land along the Bush River and its tributaries, and

Whereas, the proposed watershed project plans for the creation of two multipurpose structures for recreation and future municipal water supply for Prince Edward County, and

Whereas, the Planning Commission encourages and endorses those projects aimed at the improvement of the area's economic and social well being.

Now therefore be it resolved, by the Piedmont Planning District Commission that the United States House of Representatives favorably endorse and approve the Bush River Watershed Project, in a much as the project will provide for the social and economic well being of the area.

Upon Motion by Commissioner Cassell, duly seconded by Commissioner Vaughan, adopt this 7th day of September 1978, with 14 of the 23 members of the Piedmont Planning District Commission in attendance.

ROY D. LOWE,
Chairman, Piedmont Planning District Commission.

Attested: DANIEL R. LYNN, Jr., *Executive Director.*

Mr. ROBERTS. We will now proceed to hear from the Soil Conservation Service.

TESTIMONY OF JOSEPH W. HAAS, ASSISTANT ADMINISTRATOR FOR WATER RESOURCES, SOIL CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, ACCOMPANIED BY JAMES W. MITCHELL, DIRECTOR, WATERSHEDS DIVISION—Resumed

Mr. MITCHELL. Very briefly, Bush River has an estimated cost of $6.6 million, of which the sponsors will provided over 50 percent. It has a benefit/cost ratio of 1.7 to 1.

The congressman has indicated that this will help provide flood protection that is needed on approximately 3,800 acres of flood plain land and will also provide a much needed supply of water for the residents of Prince Edward County.

Mr. ROBERTS. Are there questions?

The gentleman from California.

Mr. CLAUSEN. I just want to ask the one question. I am sorry I was late. I was detained.

Is the applied discount rate to all these projects at 6⅛? What is the applied discount rate?

Mr. MITCHELL. Mr. Clausen, they vary because of the time these projects were submitted for approval. Some of them have been in, as you probably well know, for a number of years. The applicable rates were pertinent at that time. We have not had time to update those rates to the present rate that we are to use on a new planning start at 6⅝ percent, so that the benefit/cost ratios that I am providing to you are at the rate that shows on your fact sheet. Some of them are 5⅞, some 6⅛.

Mr. CLAUSEN. All right, fine.

CEDAR RUN, VIRGINIA

Mr. MITCHELL. Cedar Run, Va., is a project of 65,000 acres.

The estimated cost is $4.9 million of which the sponsors will provide 43 percent to get flood protection on approximately 4,500 acres of flood plain land.

This project will reduce sedimentation that is rapidly taking place into a number of reservoirs, Warrenton, Lake Jackson, Occoquan Reservoir, and into Occoquan Creek. It will also provide a more substantial water supply to the residents of Fauquier County.

It has a benefit/cost ratio, as I indicated, of 1.7 to 1.

Mr. ROBERTS. Are these tributaries of the Potomac?

Mr. MITCHELL. I don't believe that they are. I am not sure that they are.

Mr. ROBERTS. They will eventually flow into the Potomac?

Mr. MITCHELL. Yes, sir, they eventually flow into the Potomac, but they are not direct tributaries, I don't believe.

Mr. ROBERTS. Are there questions here?

If not, proceed.

GREAT CREEK, VIRGINIA

Mr. MITCHELL. The next project is also in Virginia. It is Great Creek, some 29,800 acres in size. It is located approximately 60 miles south of Richmond.

It also will provide flood protection and reduce sedimentation in two rivers that have excess sedimentation at this time, and it will also provide municipal-industrial water supply to residents of Brunswick and Lunenburg Counties.

It will cost approximately $1.4 million of which the local sponsors will provide 22 percent. The average annual benefits related to average annual costs results in a benefit-cost ratio of 1.5 to 1.

Mr. ROBERTS. The gentleman from California.

Mr. CLAUSEN. I may have the answer before me, but you said that the local sponsorship would provide for 22 percent. Could you give me a breakdown on the amount of money, that is, what that 22 percent will represent in terms of dollars?

Mr. MITCHELL. Yes, sir, I can. You have a fact sheet I think before you that has a heading of "capital cost."

If you will notice, there is a column for 556 funds and other funds. Those other funds are the local funds.

Mr. CLAUSEN. In other words, the $388,000 would represent the local cost sharing.

Mr. MITCHELL. Yes, sir.
Mr. ROBERTS. Proceed.

GOOSE CREEK, WASH.

Mr. MITCHELL. The next project, let's move across the country to Washington, Goose Creek, State of Washington.

This is a project that is approximately 40,000 acres in size. It will provide flood protection from the 100-year storm in a much needed area that receives quite a lot of urban flood damage. It will provide water-based recreation with facilities for boating, fishing, picnicking, serving approximately 54,000 recreation visits annually.

The project is expected to cost $3.9 million of which the local sponsors will provide 48 percent. It has a benefit/cost ratio of 2.1 to 1.

Mr. ROBERTS. Are there questions on this project?

If not, we will take up the last one.

PINE RIVER, WIS.

Mr. MITCHELL. Let's move back to the Midwest in Wisconsin, Pine River watershed, 159,000 acres in size.

The project will reduce flooding on about 9,400 acres of flood plain land and will benefit approximately 205 landowners. It also provides a very good degree of protection to some 496 homes and businesses in the city of Richland Center, Hub City, and Rockbridge. It also will provide some recreation facilities such as boating, picnicking, hiking, for that type of recreation experiences.

The project is estimated to cost $6.9 million. The local sponsors must put up 41 percent of that cost.

The benefit/cost ratio is 1.2 to 1. The interest rate on this one, Mr. Chairman, was 6⅛, so the benefit/cost ratio is not far from what it would be in an updating to the 6⅝.

Mr. ROBERTS. Does the gentleman from California have questions?

Mr. CLAUSEN. No questions.

Mr. ROBERTS. Are there questions on this project?

Are there any general questions before we release the witnesses?

If not, gentlemen, we appreciate very much your clear, concise and brief manner so that we can get down to knocking them around.

Mr. MITCHELL. Thank you. It has been our pleasure.

Mr. ROBERTS. We appreciate the Soil Conservation Service and appreciate the way you do business.

Mr. HAAS. Thank you, Mr. Chairman.

Mr. ROBERTS. We now have a series of witnesses from the House. The first one is a distinguished member of this committee, the gentleman from Indiana, Mr. Cornwell.

ANDERSON RIVER, INDIANA

TESTIMONY OF HON. DAVID L. CORNWELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF INDIANA

Mr. CORNWELL. Mr. Chairman, my fellow members of the Subcommittee on Water Resources:

I welcome the opportunity today to testify in strong support of the Anderson River watershed project located in my district.

The Anderson River watershed will, when completed, cover 97,000 acres in four counties in southern Indiana. These watershed structures will reduce by almost 50 percent the flooding now occurring yearly on over 6,000 acres of prime farmland valued at $4 million in the Anderson River area. The structures will also store water for use by area communities.

In conjunction with the watershed project, the Soil Conservation Service is sponsoring a land treatment program which, when fully implemented, will reduce by 23 percent the amount of erosion now occurring in the area.

The Anderson River watershed project enjoys broad support in the four-county area covered. The different county soil and water conservation districts have endorsed this project, along with the State of Indiana. In fact, the non-Federal share of this watershed project will be $6,472,000 out of a total estimated cost of $11,134,000. According to the latest SCS cost figures, the Anderson River project has a positive benefit/cost ratio of 1.4 to 1.

On August 23, 1978, the Senate Environment and Public Works Committee gave this project final approval. Once this subcommittee and the full Public Works and Transportation Committee act, the Anderson River watershed project will finally be authorized by Congress and the Soil Conservation Service is ready is proceed.

This has been a major project in my district that I have been working for even before I became a Member of Congress and hope that this committee sees fit to go ahead and authorize the completion of the Anderson River watershed project.

I thank you very much, Mr. Chairman.

Mr. CLAUSEN. Could I ask just one question of the gentleman from Indiana?

As far as you know, is there any known opposition to the project in the area. I gather that there is broad support for it.

Mr. CORNWELL. There is very broad support. At one time there were some concerns about too much of this money going into recreation. I can say that there are only three multiple purpose structures in this project, and they will be used primarily for primitive-type recreation, and I think that the benefit to the area, as far as the watershed stopping of erosion and inundating of valuable cropland in the growing season, will far outweigh any sort of negative feeling that the people have, which is very, very small, I might add.

The opinions of the people who live there have been changed once they know what the full impact of the project would be. So I would say to the gentleman that there is virtually no opposition to this project.

Mr. CLAUSEN. I thank you.

Mr. ROBERTS. I believe the gentleman from Ohio, Mr. Applegate has already filed and made his statement.

Do you have a further statement on the Ohio project?

SHORT CREEK, OHIO

Mr. APPLEGATE. Thank you Mr. Chairman.

Only to ask the approval expeditiously as I have mentioned before. There are no problems with the project, but there is a tremendous need, that it be initiated, implemented, and put into practice because of the tremendously severe flood problems due to an apparent inadequate

flood control system in the Short Creek system and because of that, it has caused economic and agricultural devastation at times. So all of the projects, of course, are very necessary to the various districts, and we certainly look forward to quick approval.

Thank you very much, Mr. Chairman.

Mr. ROBERTS. I see our distinguished colleague from Virginia, Kenneth Robinson.

CEDAR RUN, VA.

TESTIMONY OF HON. J. KENNETH ROBINSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA, ACCOMPANIED BY JASON PAIGE, JR., CHAIRMAN, FAUQUIER COUNTY BOARD OF SUPERVISORS; DAVID A. BOTTS, VICE CHAIRMAN, FAUQUIER COUNTY BOARD OF SUPERVISORS; EDWIN F. GULICK, CHAIRMAN, JOHN MARSHALL SOIL AND WATER CONSERVATION DISTRICT; AND MILBURN COLVIN

Mr. ROBINSON. Thank you very much, Mr. Chairman.

I appreciate this opportunity to appear before your distinguished committee. I understand that the committee has already considered and received no unfavorable reaction with regard to the Cedar Run project located in Fauquier County in the district that I represent.

This project is of great significance to that area and even impacts on the Washington area with respect to the Occoquan Reservoir about which we heard so much last year during the very dry season. It would have been a great deal of assistance at that point in time and would be also in case of flood times.

I am pleased to report, Mr. Chairman, that I have in support this morning the chairman of the board of supervisors and other members of the board of supervisors of Fauquier County as well as the chairman of the John Marshall Soil and Water Conservation Board, all of whom are in support. I know of no unfavorable reaction to this project, and I sincerely hope that the committee can move forward with it.

Thank you very much for the opportunity to be here.

Mr. ROBERTS. We appreciate your being here.

The gentleman from California.

Mr. CLAUSEN. I appreciate the gentleman's appearance before the committee. He has discussed the matter with me, and I am sure other members of the committee, explaining the importance of the project.

Do you have some of the people with you that you would like to introduce?

Would they like to stand up? Are they in the room?

Mr. ROBINSON. I would like to introduce Mr. Jason Paige, chairman of the Fauquier County Board of Supervisors and ask him to introduce those gentlemen that also accompany him.

Mr. PAIGE. I am accompanied today by Dr. David Botts, who is vice chairman of our board, and Mr. Edwin Gulick, who is chairman of the John Marshall Soil and Water Conservation District, which is a cosponsor of the project with the board of supervisors, and Milburn Colvin, who served many years on our planning commission and had a lot to do with getting this project started.

Mr. CLAUSEN. Do you know if there is any opposition to the project in the area?

Mr. PAIGE. No, sir, it has full public support, I can assure you.

Mr. ROBERTS. Our next witness is the Honorable Alvin Baldus of Wisconsin.

PINE RIVER, WIS.

TESTIMONY OF HON. ALVIN BALDUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN

Mr. BALDUS. Mr. Chairman, thank you for this opportunity to testify in support of the Pine River watershed project in southwestern Wisconsin. The subcommittee's hearing marks the culmination of over 20 years of hard work and effort by the Richland and Vernon County Soil and Water Conservation Districts and many local citizens. The Pine River project is of special interest to me. On many occasions, I have traveled through this area and spoken with farmers and Soil Conservation Service people in the 248 square miles of this watershed. I firmly believe that accelerated land treatment measures adopted in conjunction with retaining structures are the best way to deal with the area's unique flooding problems. The overall plan is to employ soil conservation practices on farms, construct seven floodwater retarding structures and improve 4.5 miles of trout stream. Recreation facilities are also planned in the development of two multiple-purpose structures, one with a 50-acre lake and the second with a 484-acre lake.

The need for this project cannot be emphasized enough. The topography of the watershed is marked by steep hillsides and narrow valleys. Frequent and severe flooding has destroyed crops; washed out roads, bridges and fences; damaged buildings and other property; and deposited debris on cropland and pasture. Cleanup in the six communities in the watershed following the floods has been difficult. The most recent flood, in July 1978, caused an estimated $3 million worth of damage in the watershed. Adoption of the measures outlined in this plan over the next 8 years should considerably lessen future damage and heartache.

The opportunity to accelerate soil conservation practices on individual farms has received the most interest and support among farmers. Attacking the problems at the source offers the best chance for reducing and controlling the damage. If approved, this project will mark the first time Public Law 83–566 funds have been used in Wisconsin for accelerated land treatment measures. The techniques to be applied by individual landowners include agricultural waste management systems, conservation cropping systems, floodway retarding structures, tree planting and wildlife habitat management. Streambank protection and grade stabilization structures are planned to end the serious erosion of streambanks and gullied areas.

The proposed structures consist of nine earthfill dams: Seven single purpose and two multipurpose, providing recreational benefits to a population of 750,000 within a 150-mile radius. In addition, three dikes and an outlet system in the largest community, Richland Center, will provide 100-year flood protection.

Sedimentation and flooding have also had an impact on trout habitat in the area. Implementing some of the techniques I have mentioned

along with riprapping, bank cover and cattle crossings, will help to improve the trout stream habitat of Melancthon Creek.

The project offers an excellent opportunity for Federal, State and local governments to work in unison to resolve the problems of flooding, erosion and sedimentation in the Pine River watershed. Individual farms have already employed various conservation measures and Richland County has been acquiring land since 1969 in anticipation of implementing more extensive measures. However, these efforts are still insufficient to solve the major problems of flooding, erosion and sedimentation. It is for that reason that approval by the House Public Works and Transportation Committee is so crucial. I hope that your review of the plan will lead you to the same conclusion.

Thank you for your time and consideration.

Mr. ROBERTS. Next, the Honorable Max Baucus from Montana.

BOULDER RIVER, MONT.

TESTIMONY OF HON. MAX BAUCUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MONTANA

Mr. BAUCUS. Mr. Chairman, your committee has before it a proposal to develop and construct the Boulder River project in western Montana.

This project provides for the construction of a dam on the Little Boulder River to store water for summer irrigation.

There has been a good deal of support for this proposal. Gov. Thomas L. Judge is supportive of the project, as is the Montana congressional delegation.

I have reviewed the justification for the project and feel that it is a worthwhile proposal. I am personally familiar with the area, having grown up in Helena which is about 30 miles away.

The State of Montana has provided $500,000 to develop recreational facilities at the project site. Your expeditious consideration and approval of this project this session will avert the necessity to reappropriate these funds next year.

I support the Boulder River project and I am grateful for the opportunity to share my views with the members of the committee.

Mr. ROBERTS. Next, Representative Keith Sebelius from Kansas.

WET WALNUT CREEK, KANS.

TESTIMONY OF HON. KEITH SEBELIUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF KANSAS

Mr. SEBELIUS. I want to thank the chairman and members of the subcommittee for giving me this opportunity to speak on behalf of a project of this much importance to the people living in the "Big First" District of Kansas.

Few issues are more fundamental to the long-term health of our agricultural economy than the proper management of our soil and water resources. That is why it is so important to expedite development of the Wet Walnut Creek watershed in Scott, Lane, Ness, Pawnee, Rush, and Barton Counties.

34-749 O - 78 - 6

As the committee members know, today we are interested in subwatersheds 2, 3, and 5. I would like to encourage the committee to approve work on these projects so we can get to work implementing programs to conserve our valuable resources.

It's popular today to criticize watershed development as a Federal boondoggle. Critics are prone to point to the costs of a project and argue that the benefits accrue to a relatively few landowners.

There is no doubt that these projects are expensive and that they add to the Federal deficit. However, unlike some Federal programs, watersheds provide returns for our dollars invested.

Consider the Agriculture Department's disaster program. Each year, farmers who lose crops due to flooding and other natural disasters are compensated by the Government for reduced yields. In the event of widespread flooding, such as that which occurred in southeast Kansas in July 1976, other Federal agencies provide funds for disaster relief. At the same time, millions of dollars in revenues are lost due to flood damage.

A key element in preventing this widespread destruction is the construction of structures to hold water where it falls, slowing the runoff and allowing much of the water to soak into the ground, recharging ground water tables. This ground water recharge is particularly important in western Kansas where so much of the agricultural economy is dependent on ample ground water supplies for irrigation.

By holding the water where it falls, citizens are able to prevent flooding downstream. Where rain exceeds normal levels, the floodwater retention dams slaw the flow of water, allowing excess to move into streams at a much slower rate, thus minimizing flood risks.

The three subwatersheds under consideration today would reduce flood losses in the area by an estimated $271,000 each year. That is an average loss figure and doesn't include potential losses from unusual weather patterns such as those that led to the disastrous flooding in southeast Kansas in July 1976. Newspaper accounts of that flood quoted experts who said that much of the damage could have been averted had a watershed system been in place in that area at that time.

Should four-fifths of the original Wet Walnut Creek watershed plan be completed—that is, subwatersheds 1, 2, 3, and 5—USDA estimates that soil losses in the watershed would be reduced 30 percent on cropland and 20 percent on rangeland. The average annual sediment yield from the watershed to the Arkansas River would be reduced 83,600 tons.

Let me point out here that reducing soil runoff—sedimentation—is completely consistent with section 208 of Public Law 92–500. Further, reducing sedimentation is essential if we are to meet our objectives under that act.

Floodwater and sediment damages will be reduced on 38,500 acres of flood plain land. Ground water recharge will be increased by 14,800 acre-feet annually.

Conservation structures will add diversity to the landscape, and will improve fishery resources and provide additional resting sites for waterfowl. There will be 1,737 acres for recreation and wildlife uses, including 322 acres of reservoir area for water-based recreation including warm-water fishing.

Rural development will be advanced through increased farm incomes and employment opportunities, higher land values, decreased flood expenses and a more stable economy. That means a higher tax base over the long term.

In short, developing these resources is an investment which will return benefits far in excess of costs. That OMB approved this project for funding is probably as strong an argument in its favor as any that could be devised.

Thank you for this opportunity to speak on behalf of this project.

Mr. ROBERTS. I see no other Members of the House here and no other witnesses are scheduled.

Mr. CLAUSEN. Mr. Chairman. Because of the early schedule that we have, I would like to ask unanimous consent that all Members that have projects be permitted to submit their statement.

Mr. ROBERTS. I appreciate the gentleman saying that because I had already asked the counsel to write each one of them and ask them whether they support it or not. And I am sure the gentleman feels as I do, if they are not in support of it, it is not going to see the light of day.

There being no further business, we stand in recess, subject to the call of the Chair.

[Whereupon, at 9:40 a.m., the subcommittee was adjourned, subject to the call of the Chair.]

APPENDIX

CYPRESS CREEK, ALABAMA & TENNESSEE

The Cypress Creek Watershed consists of 135,360 acres in south central Tennessee and northwestern Alabama. The watershed is located in Lauderdale County, Alabama and Wayne County, Tennessee and outlets into the Tennessee River at Florence, Alabama.

The current land use is about 12 percent cropland, 18 percent pastureland, 63 percent forest land, and 7 percent miscellaneous. Principal crops grown are soybeans, corn, beef cattle, and dairying. There are about 1,145 farms in the watershed.

Flood damages affect about 10,321 acres along Cypress Creek and its tributaries. Some of this area is flooded from 2 to 5 times each year. Cropland erosion rates in many instances are exceeding the allowable rate that would allow sustained use of the soil resource for agricultural production. Critical erosion is occurring on about 60 acres at an average rate of about 240 tons per acre per year.

The proposed project will relieve these problems by a combination of land treatment and structural measures. The land treatment measures to be installed will be those which are effective in reducing runoff and erosion. The structural measures consist of 19 flood water retarding structures and about 14.4 miles of channel work. Ten of the structures are located in Alabama and the remainder in Tennessee. Seven of the structures will have water level control gates to permit seasonal variations (2 to 4 ft.) of the water levels to provide food for wildlife and water fowl. Cool water outlets will be installed in 11 of them to maintain stream temperatures as close to pre-project conditions as possible. The 19 flood water retarding structures will control runoff from about 44 percent of the watershed area. The proposed channel work will consist of 6.6 miles of bedload removal, 7.5 miles of clearing and shaping, and 0.6 miles of new channel excavation. The bedload removal will be performed in segments about ¼ mile in length separated by undisturbed reaches of about the same length. The clearing and shaping will be done in those areas that do not have adequate capacity. The new channel excavation will be done to elements of about 2 miles of channel work that would have been needed if the existing channel had been followed.

When installed, the project measures are expected to:

1. Reduce the amount of sheet erosion in the watershed by about 10 percent and the amount of critical erosion about 95 percent.

2. Reduce flooding on 10,321 acres of flood plain soils with a 70 percent reduction in the average annual area flooded.

3. Reduce sediment production from the watershed by about 87,000 tons per year.

4. Provide direct benefits to 320 landowners in the project area and indirect benefit to about 35,000 residents of the watershed.

The watershed is home to a number of fish species classified as rare and to one, the slackwater darter, which has been proposed for listing as an endangered or threatened species under the Endangered Species Act of 1973. This fish is on the Alabama State list as an endangered species. Additional studies have been done to determine the critical habitat and the range of this fish. In consideration of the results of these studies, final project design and construction will be undertaken in such a manner as to ensure that no project elements will be installed which would jeopardize the continued existence of this species. In meetings with the U.S. Fish and Wildlife Service and the Alabama Department of Conservation and Natural Resources we have indicated our intention of continuing studies in the watershed during and after construction to adequately evaluate the impacts of the watershed project and to insure compliance with both the spirit and the intent of the law.

The total installation cost of this project is estimated to be $9,588,300 of which $1,828,000 or 19 percent will be provided by the local sponsors. The benefits are estimated to be $938,050 annually resulting in a benefit cost ratio of 1.8 to 1.

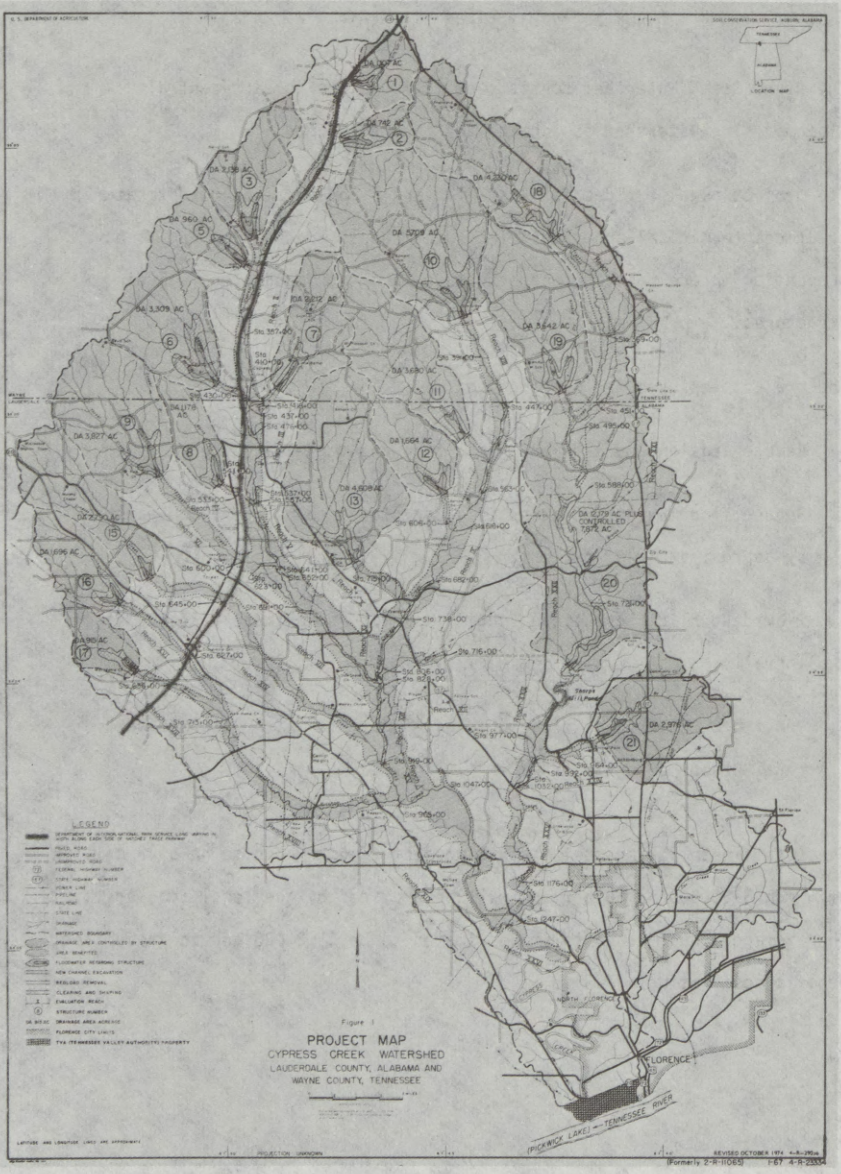


Figure 1

PROJECT MAP
CYPRESS CREEK WATERSHED
LAUDERDALE COUNTY, ALABAMA AND
WAYNE COUNTY, TENNESSEE

DYNNE CREEK WATERSHED, ALABAMA

The Dynne Creek Watershed consists of 16,600 acres in east-central Alabama. The watershed is located in Cleburne County.

The project plan provides for installation of conservation land treatment practices, municipal and industrial water supply, recreation and flood prevention in one multipurpose structure, and two floodwater retarding structures.

The project measures are expected to:

1. Reduce erosion and sediment yield throughout the watershed.

2. Reduce flooding on 866 acres of flood plain and reduce flood damages by approximately 69 percent.

3. Provide public recreational facilities for approximately 25,000 visits annually.

4. Provide 2,000 acre-feet of municipal-industrial water storage for rural Cleburne County.

The total installation cost of this project is estimated to be $1.9 million of which $950,000 or 50 percent will be provided by the local sponsors. The average annual benefits are estimated to be $182,000 and the resultant benefit-cost ratio is 1.5 to 1.


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE, AUBURN, ALABAMA
ALABAMA
DYNNE CREEK W/S
VICINITY MAP
R 11 E
R 10 E
T 16 S
T 17 S
85°30'
33°32'30"
D.A. 1626 AC.
D.A. 2054 AC.
D.A. 5075 AC.
Arbacoochee
Dynne Creek
Dynne
Tallapoosa River
BASE LEGEND
PRIMARY ROAD
SECONDARY ROAD
UNIMPROVED ROAD
COUNTY ROAD NUMBER
DRAINAGE
TOWN
CEMETERY
WATERSHED BOUNDARY
PROJECT LEGEND
BENEFITED AREA
DRAINAGE AREA CONTROLLED BY STRUCTURE
FLOODWATER RETARDING STRUCTURE
MULTIPURPOSE STRUCTURE
STRUCTURE NUMBER
MUNICIPAL
RECREATION
RECREATION DEVELOPMENT AREA
EVALUATION REACH
N
DATA DEVELOPED BY ALABAMA WATERSHED PLANNING STAFF
APPENDIX B
PROJECT MAP
DYNNE CREEK WATERSHED
CLEBURNE COUNTY, ALABAMA
0 ½ 1 2 Miles
Approximate scale 1:42,240 (1.5 inches equal 1 mile)
Base compiled from USGS 7.5 minute quadrangle sheets.
DEC. 1975 4-R-35304
REV. DEC. 1975 BASE 4-R-27029

FACTORY CREEK WATERSHED, ALABAMA

The Factory Creek Watershed consists of 51,600 acres in west-central Alabama. The watershed is located in Sumter County.

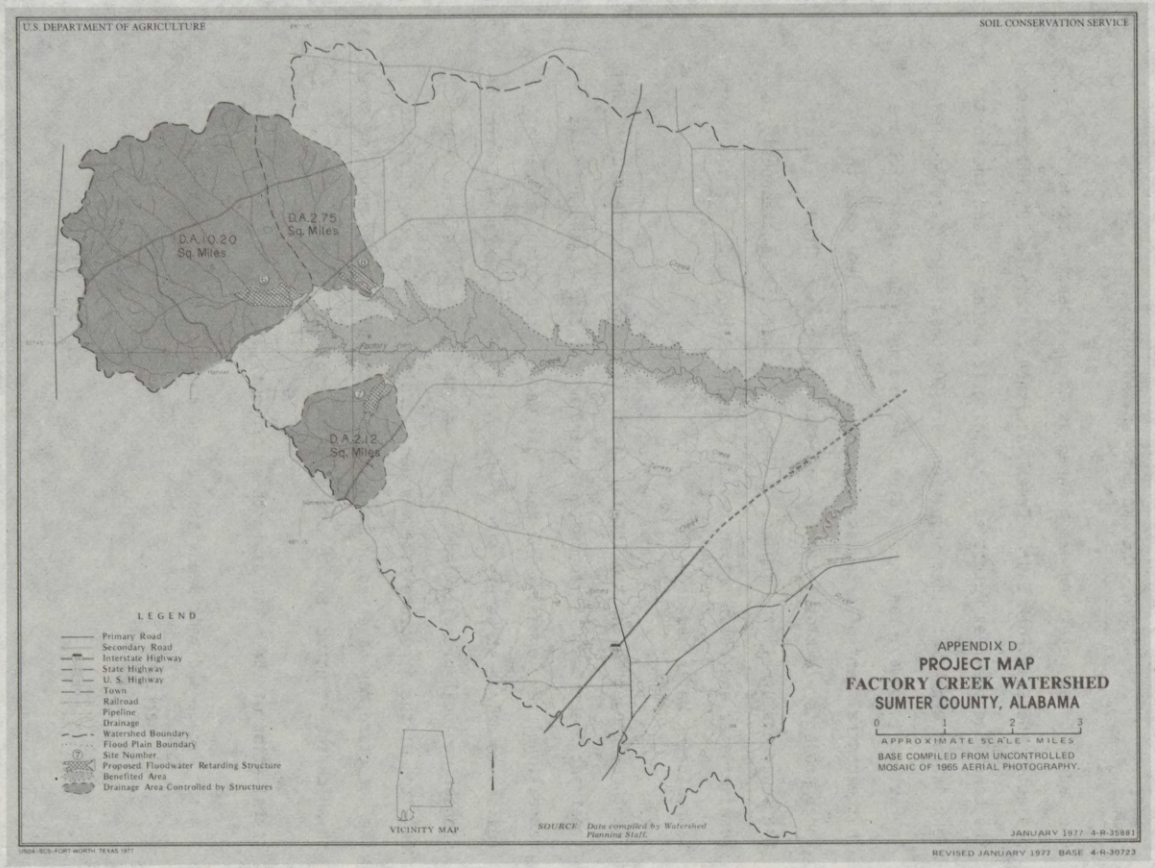
The project plan provides for the installation of conservation land treatment practices and three floodwater retarding structures.

The project measures are expected to:

1. Reduce erosion and sediment yield by 50 percent throughout the watershed.

2. Reduce flood damages by 37 percent.

The total installation cost of this project is estimated to be $1.5 million of which $758,000 or 51 percent will be provided by the local sponsors. The average annual benefits are estimated to be $71,900 and the resultant benefit-cost ratio is 1.4 to 1.


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
D.A. 10.20 Sq. Miles
D.A. 2.75 Sq. Miles
D.A. 2.12 Sq. Miles
LEGEND
Primary Road
Secondary Road
Interstate Highway
State Highway
U. S. Highway
Town
Railroad
Pipeline
Drainage
Watershed Boundary
Flood Plain Boundary
Site Number
Proposed Floodwater Retarding Structure
Benefited Area
Drainage Area Controlled by Structures
VICINITY MAP
SOURCE: Data compiled by Watershed Planning Staff.
APPENDIX D
PROJECT MAP
FACTORY CREEK WATERSHED
SUMTER COUNTY, ALABAMA
0 1 2 3
APPROXIMATE SCALE - MILES
BASE COMPILED FROM UNCONTROLLED MOSAIC OF 1965 AERIAL PHOTOGRAPHY.
JANUARY 1977 4-R-35881
USDA-SCS-FORT WORTH, TEXAS 1977
REVISED JANUARY 1977 BASE 4-R-30723

CADRON CREEK WATERSHEDS, ARKANSAS

The Cadron Creek Watershed was planned as three separate watershed projects; the East Fork Cadron Creek Watershed containing 199,900 acres, the Lower Cadron Creek Watershed containing 72,500 acres, and the North Fork Cadron Creek Watershed involving 197,500 acres. They are located in Faulkner, Conway, Van Buren, Cleburne, and White Counties which are in the central part of Arkansas. As noted on the project map, the three projects are closely interrelated serving common flood plain at the lower end of all the projects. They were planned simultaneously to resolve water and related land resource problems and needs for the entire Cadron Creek Watershed area.

The three project plans provide for the installation of conservation land treatment practices, 14 floodwater retarding structures, and a public recreational development. The East Fork Cadron Creek plan was recently revised to delete structure site #E-4. A supplemental agreement with the sponsoring local organizations agreeing to this action has been signed. Deletion of the structure site was done to alleviate any adverse impact the structure may have had on canoeing opportunities in the reach of stream on which the structure would have been located.

Installation of the measures in these projects will:

1. Reduce sediment deposition at the mouth of the watershed about 41 percent.

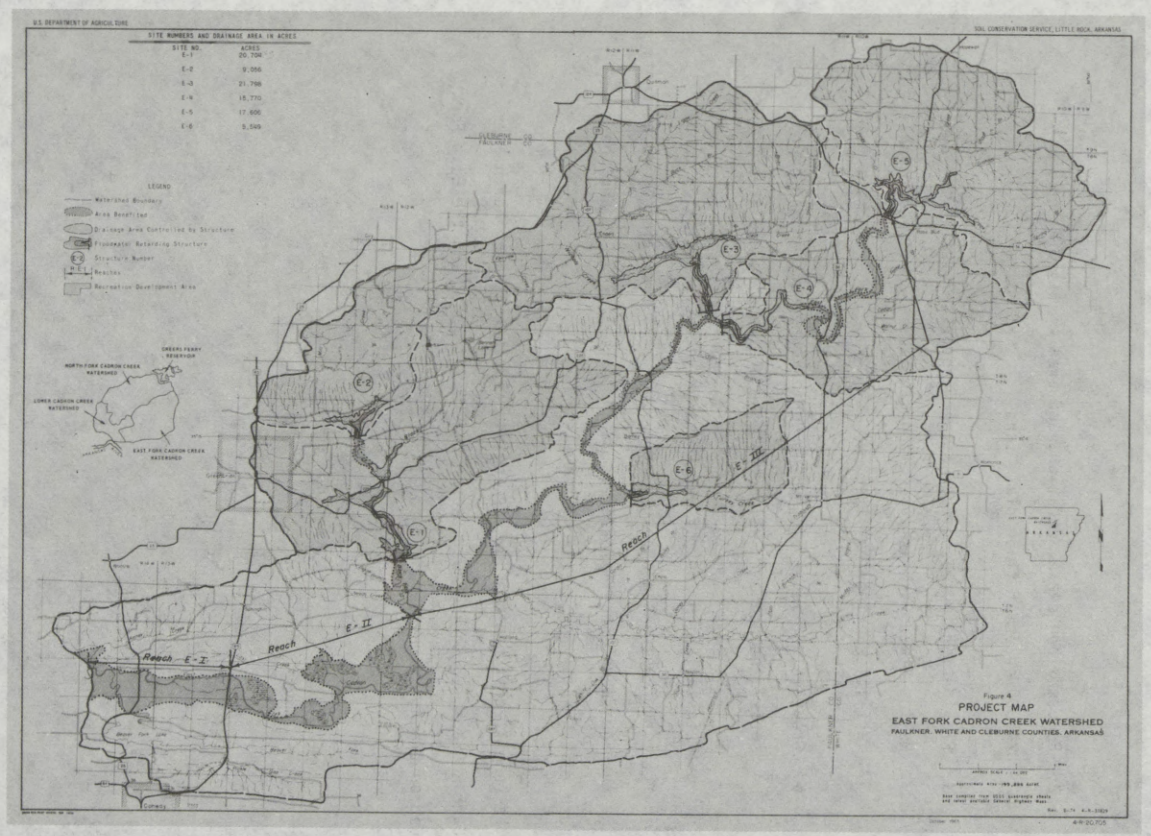
2. Reduce flood peaks, duration, and area of flooding on 24,000 acres of flood plain lands.

3. Provide for increased recreational opportunities at the Woolly Hollow State Park as a result of the additional recreational facilities being installed.

4. Provide additional employment during construction and improve the social and economic welfare of the citizens in the area.

The total installation cost of the three projects is estimated to be $16 million of which the sponsors will furnish $6.2 million or 39 percent. The average annual benefits are estimated to be $1,243,220 and the resultant benefit-cost ratio is 1.6 to 1.

The benefit-cost ratio's for the individual projects are; North Fork Cadron Creek 1.3 to 1; Lower Cadron Creek, 2.4 to 1; and the East Fork Cadron Creek, as revised, 1.9 to 1.


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE, LITTLE ROCK, ARKANSAS
SITE NUMBERS AND DRAINAGE AREA IN ACRES
SITE NO. ACRES
E-1 20,726
E-2 9,056
E-3 21,798
E-4 15,770
E-5 17,606
E-6 5,549
LEGEND
Watershed Boundary
Area Benefited
Drainage Area Controlled by Structure
Floodwater Retarding Structure
Structure Number
Reaches
Recreation Development Area
CREERS FERRY RESERVOIR
NORTH FORK CADRON CREEK WATERSHED
LOWER CADRON CREEK WATERSHED
EAST FORK CADRON CREEK WATERSHED
E-1
E-2
E-3
E-4
E-5
E-6
Reach E-I
Reach E-II
Reach E-III
Figure 4
PROJECT MAP
EAST FORK CADRON CREEK WATERSHED
FAULKNER, WHITE AND CLEBURNE COUNTIES, ARKANSAS
4-9-20.705

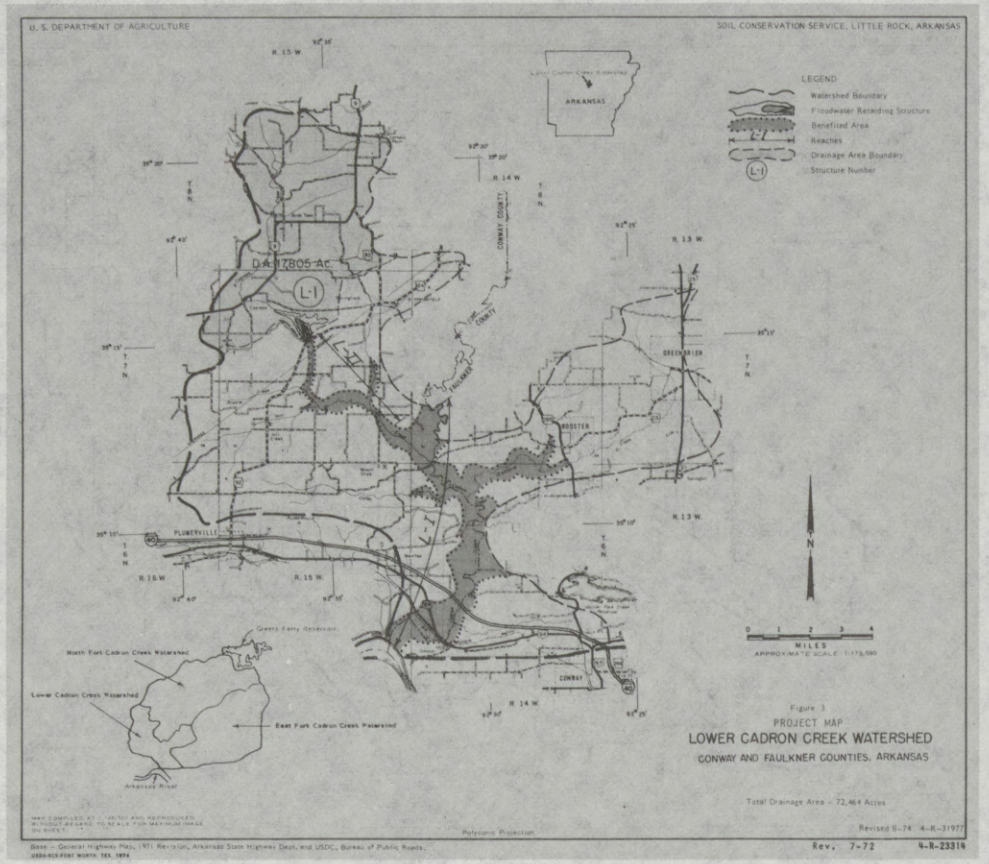


Figure 3

PROJECT MAP

LOWER CADRON CREEK WATERSHED

CONWAY AND FAULKNER COUNTIES, ARKANSAS

Total Drainage Area — 72,464 Acres

Revised 8-74 4-R-3197

Rev. 7-72 4-R-23314

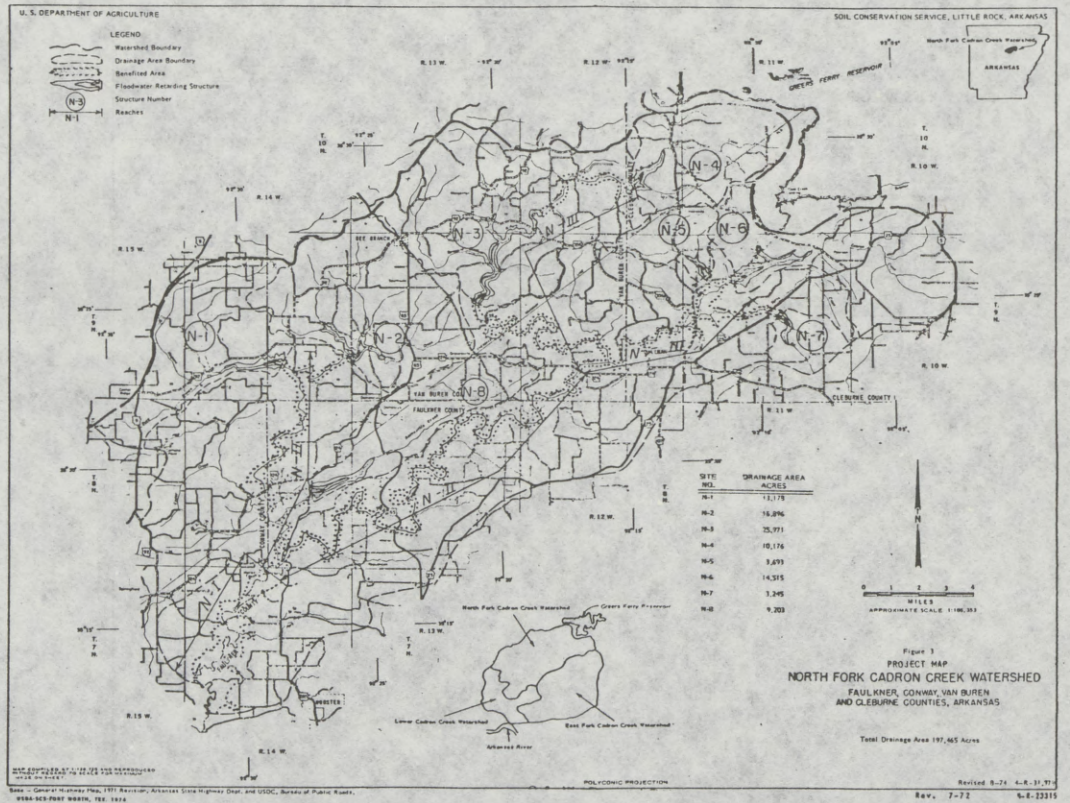


Figure 1

PROJECT MAP

NORTH FORK CADRON CREEK WATERSHED

FAULKNER, CONWAY, VAN BUREN AND CLEBURNE COUNTIES, ARKANSAS

Total Drainage Area 197,465 Acres

Base – General Highway Map, 1971 Revision, Arkansas State Highway Dept. and USDC, Bureau of Public Roads.

USDA-SCS-FORT WORTH, TEX. 1974

ANDERSON RIVER WATERSHED, INDIANA

The Anderson River Watershed consists of 97,000 acres in southern Indiana. The watershed is located in Perry, Spencer, Crawford, and Dubois Counties and outlets into the Ohio River about halfway between Evansville, Indiana, and Louisville, Kentucky.

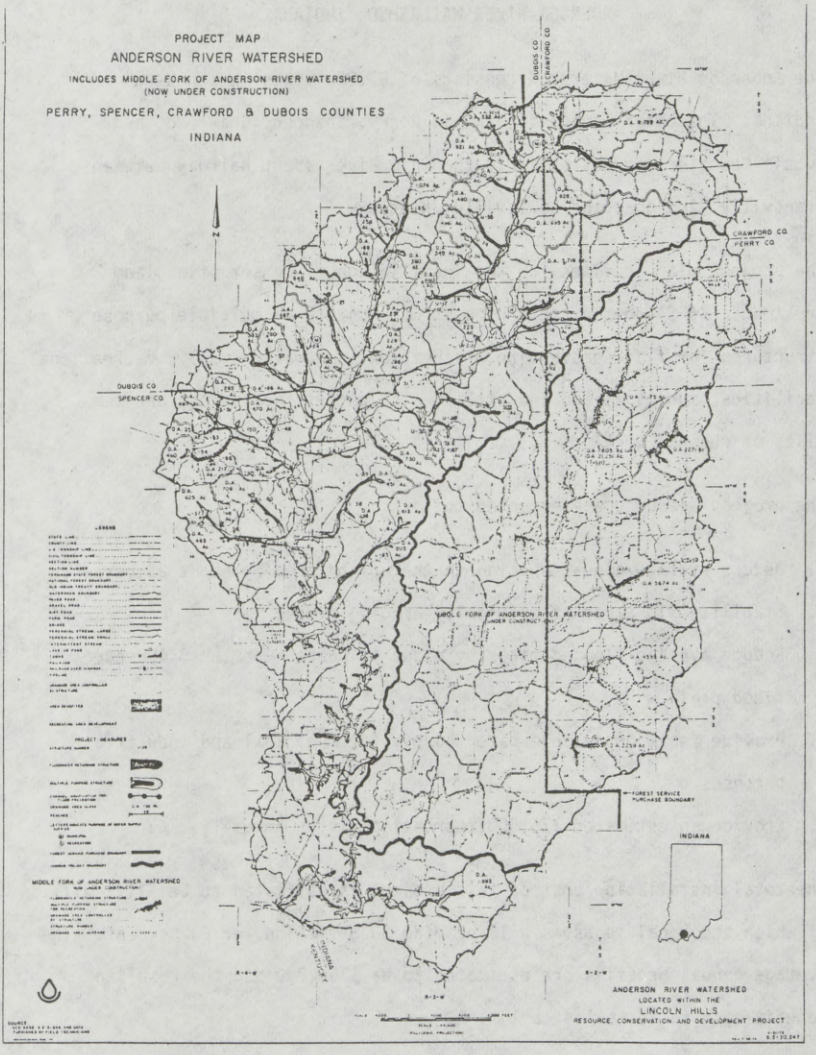
The project plan provides for the installation of conservation land treatment; 46 floodwater retarding structures; three multiple purpose structures for flood prevention, recreation, and water supply; recreational facilities; municipal and industrial water outlet facilities; and ten miles of channel work.

The project measures are expected to:

1. Reduce average annual erosion in the upland area by about 23 percent.
2. Stabilize 310 acres of critically eroding areas.
3. Reduce average flood damages by about 48 percent on the 8,000 acre flood plain.
4. Provide for a dependable water supply for municipal and industrial purposes.
5. Provide an estimated 175,000 recreation visits annually.

The total installation cost of this project is estimated to be $11.1 million of which the local sponsors will provide $6.5 million, or 58 percent. The average annual benefits are estimated to be $796,200 and the resultant benefit-cost ratio is 1.4 to 1.

34-749 O - 78 - 7


PROJECT MAP
ANDERSON RIVER WATERSHED
INCLUDES MIDDLE FORK OF ANDERSON RIVER WATERSHED
(NOW UNDER CONSTRUCTION)
PERRY, SPENCER, CRAWFORD & DUBOIS COUNTIES
INDIANA
DUBOIS CO
CRAWFORD CO
CRAWFORD CO
PERRY CO
DUBOIS CO
SPENCER CO
MIDDLE FORK OF ANDERSON RIVER WATERSHED
UNDER CONSTRUCTION
FOREST SERVICE
PURCHASE BOUNDARY
INDIANA
KENTUCKY
R-4-W
R-3-W
R-2-W
ANDERSON RIVER WATERSHED
LOCATED WITHIN THE
LINCOLN HILLS
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

MIDDLE CREEK WATERSHED, KANSAS

The Middle Creek Watershed consists of 44,670 acres in east-central Kansas. The watershed is located in Linn and Miami Counties with the town of New Lancaster near the center of the area.

The project plan provides for the installation of conservation land treatment practices, seven floodwater retarding structures, one multipurpose structure for flood prevention, public recreation, and municipal, industrial and agricultural water supply.

The project measures are expected to:

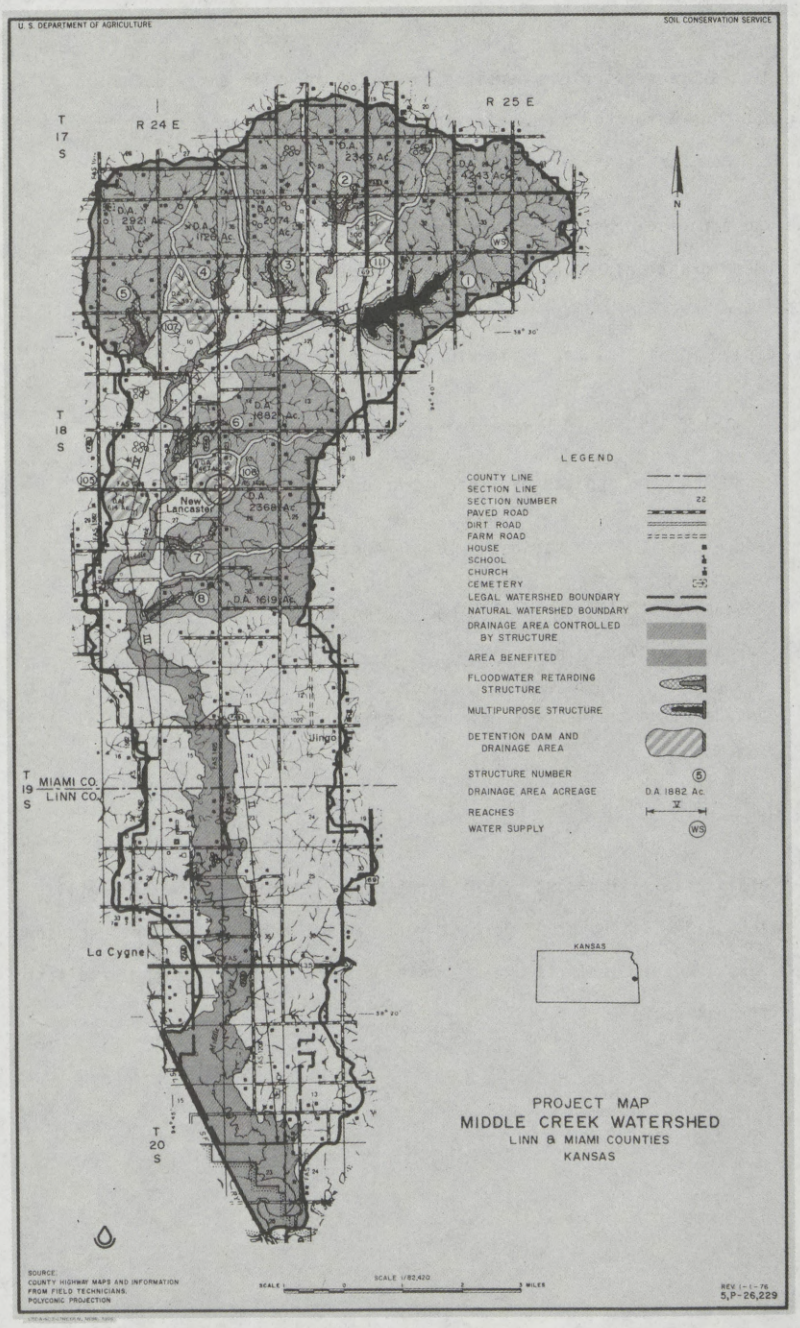
1. Reduce erosion and sediment yield throughout the watershed.

2. Reduce annual flood damages by 63 percent.

3. Provide facilities for public recreation to accommodate about 50,000 recreational visits per year.

4. Provide water to meet agricultural and future municipal-industrial needs.

The total installation cost of this project is estimated to be $5.5 million of which $2.3 million, or 42 percent will be provided by the local sponsors. The average annual benefits are estimated to be $515,000, and the resultant benefit-cost ratio is 1.5 to 1.


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
R 24 E
R 25 E
T 17 S
T 18 S
T 19 S
T 20 S
D.A. 2345 Ac.
D.A. 4243 Ac.
D.A. 2921 Ac.
D.A. 1128 Ac.
D.A. 2074 Ac.
D.A. 1882 Ac.
D.A. 2368 Ac.
D.A. 1619 Ac.
New Lancaster
Jingo
MIAMI CO.
LINN CO.
La Cygne
N
LEGEND
COUNTY LINE
SECTION LINE
SECTION NUMBER
PAVED ROAD
DIRT ROAD
FARM ROAD
HOUSE
SCHOOL
CHURCH
CEMETERY
LEGAL WATERSHED BOUNDARY
NATURAL WATERSHED BOUNDARY
DRAINAGE AREA CONTROLLED BY STRUCTURE
AREA BENEFITED
FLOODWATER RETARDING STRUCTURE
MULTIPURPOSE STRUCTURE
DETENTION DAM AND DRAINAGE AREA
STRUCTURE NUMBER
DRAINAGE AREA ACREAGE
D.A. 1882 Ac.
REACHES
WATER SUPPLY
KANSAS
PROJECT MAP
MIDDLE CREEK WATERSHED
LINN & MIAMI COUNTIES
KANSAS
SOURCE:
COUNTY HIGHWAY MAPS AND INFORMATION FROM FIELD TECHNICIANS.
POLYCONIC PROJECTION
SCALE 1" = 2 MILES
SCALE 1/82,420
REV 1-1-76
5,P-26,229

WET WALNUT CREEK WATERSHEDS, KANSAS

The Wet Walnut Creek Basin is located in west central Kansas in Barton, Rush, Pawnee, Ness, Lane, and Scott Counties. The Wet Walnut Creek Watersheds were planned as four separate subwatershed projects; Wet Walnut Creek Subwatershed No. 1 with 145,300 acres, Wet Walnut Creek Subwatershed No. 2 with 232,200 acres, Wet Walnut Creek Subwatershed No. 3 containing 228,600 acres, and Wet Walnut Creek Subwatershed No. 5 involving 198,000 acres. As noted on the project map, all of the subwatershed projects are closely interrelated serving a common flood plain. They were planned simultaneously to resolve the problems of the entire Walnut Creek Basin. None of the proposed reservoirs in subwatershed No. 1 contain more than 4,000 acre-feet of storage capacity. Therefore, subwatershed No. 1 will be considered by the Agriculture Committees.

The project plans for subwatershed Nos. 2, 3, and 5, which are under consideration today, provide for the installation of conservation land treatment practices, thirty-seven (37) floodwater retarding structures, and two multiple-purpose reservoirs for flood prevention and recreation.

The project measures are expected to:

1. Reduce average annual flood damages by about 55 percent on 23,660 acres of flood plain lands.

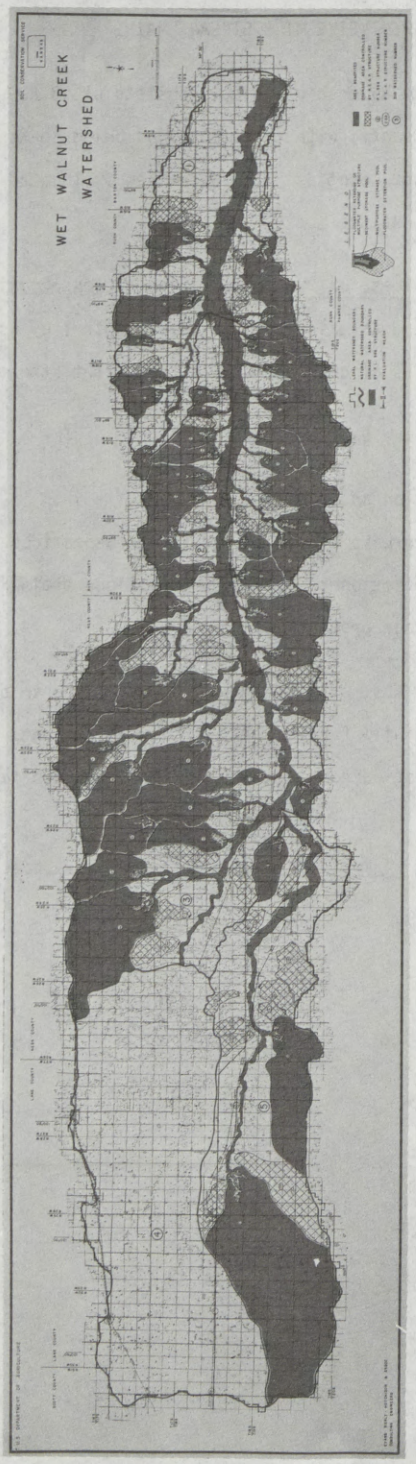
2. Provide water-based recreational opportunities for about 60,000 visitors annually.

3. Reduce soil losses about 25 percent.

4. Reduce the sediment yield to the Arkansas River from 170,000 to 86,400 tons annually.

5. Provide over 2,000 surface acres of water in the floodwater retarding structures and multiple-purpose reservoirs which will increase landscape diversity, improve fish habitat, and provide increased habitat for aquatic animals and migratory waterfowl.

The total installation cost of the three subwatershed projects is estimated to be $17.8 million of which the land sponsors will provide $7.1 million or 40 percent. The benefit-cost ratios for the individual projects are: subwatershed No. 2, 1.5:1; subwatershed No. 3, 1.3:1; and subwatershed No. 5, 1.5:1.


WET WALNUT CREEK
WATERSHED

TWENTYFIVE MILE STREAM, MAINE

Twentyfive Mile Stream Watershed project consists of 93,000 acres and is located in Waldo County, with small portions being in Kennebec, Penobscot, and Somerset Counties. The watershed is located about 35 miles northeast of Augusta, Maine.

The project plan provides for the installation of conservation land treatment practices and an existing lake level control by use of two drop structures on 1.8 miles of channel work in the outlet stream.

The project measures are expected to:

1. Reduce sheet erosion and runoff.
2. Reduce sediment in Lake Winnecook and in the Sebasticook River.
3. Provide flood protection to the 1,000 acre flood plain including 157 camp and cottage properties.

The total installation cost of this project is estimated to be $1,615,000 of which the sponsors will furnish $493,000, or 31 percent. The average annual benefits are estimated to be $97,500, and the resultant benefit-cost ratio is 1.7 to 1.


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
PROJECT MAP
TWENTYFIVE MILE STREAM WATERSHED
KENNEBEC, PENOBSCOT, SOMERSET, AND WALDO COUNTIES, MAINE
MAINE
D.A. 82,982 Ac.
LEGEND
Good motor roads
Railroad
Power transmission line
Streams
Marsh
County line
Township line
Watershed boundary
Drainage area controlled by structure
Area benefited
D.A. Drainage area in acres
PROJECT MEASURES
Floodwater retarding structure
Structure number
Stream channel improvement for flood prevention
PLYMOUTH
DEXTER
TROY
THORNDIKE
UNITY
MONTVILLE
FREEDOM
JACKSON
KNOX
BURNHAM
ALBION
PALERMO
SOURCE: USGS 1:62500 maps
OCTOBER 1970

BOULDER RIVER WATERSHED, MONTANA

The Boulder River Watershed consists of 224,000 acres in southwestern Montana. The watershed is located in Jefferson County. It includes the Little Boulder River and Elkhorn tributaries to the Boulder River and smaller tributaries which drain directly into the Boulder River from the east and west between the town of Boulder and a point approximately 30 miles downstream. Measures planned on the main stem of Boulder River are not dependent on installation of measures in the 380 square miles of the Boulder River Watershed upstream from the town of Boulder.

The project plan provides for the installation of conservation land treatment, 1 multipurpose (irrigation, and recreation) structure, fishery enhancement and irrigation water delivery canals and appurtenant structures.

The project measures are expected to:

1. Provide protection for 164,920 acres through land treatment and structural measures.
2. Increase irrigation efficiencies.
3. Reduce irrigation water shortages on 4,500 acres.
4. Expand the irrigated area from 7,300 to 10,700 acres.
5. Provide a minimum of 2,700 acre-feet (165 surface acres) of water for recreational use and the development of 285 acres of adjacent lands for recreational area.

6. Provide water for release into the river so as to enhance the fishery resource through habitat improvement in 30 miles of the Boulder River.

The total installation cost of this project is estimated to be $9.6 million of which the local sponsors will provide $5.5 million or 57 percent. The average annual benefits are estimated to be $674,000 and the resultant benefit-cost ratio is 1.7 to 1.

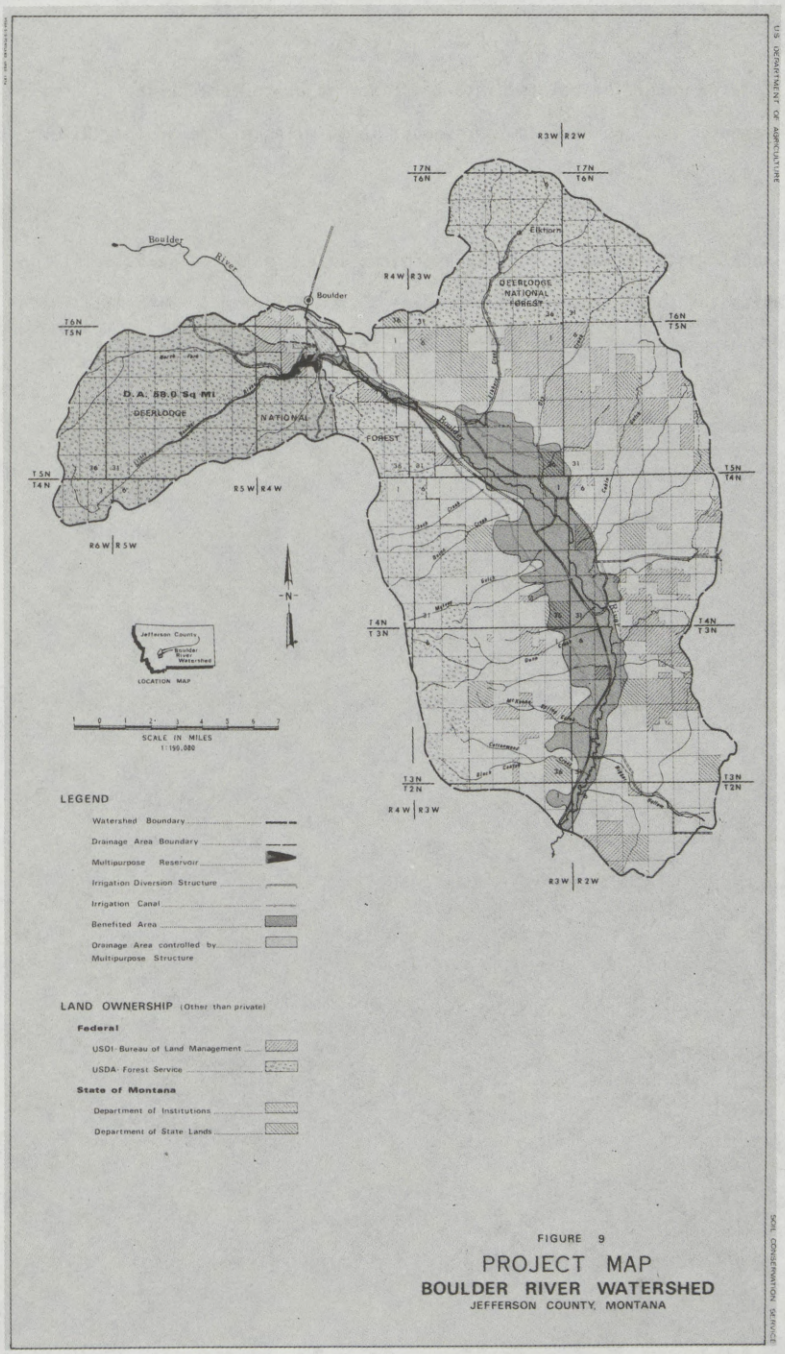


FIGURE 9

PROJECT MAP

BOULDER RIVER WATERSHED

JEFFERSON COUNTY, MONTANA

SHORT CREEK WATERSHED, OHIO

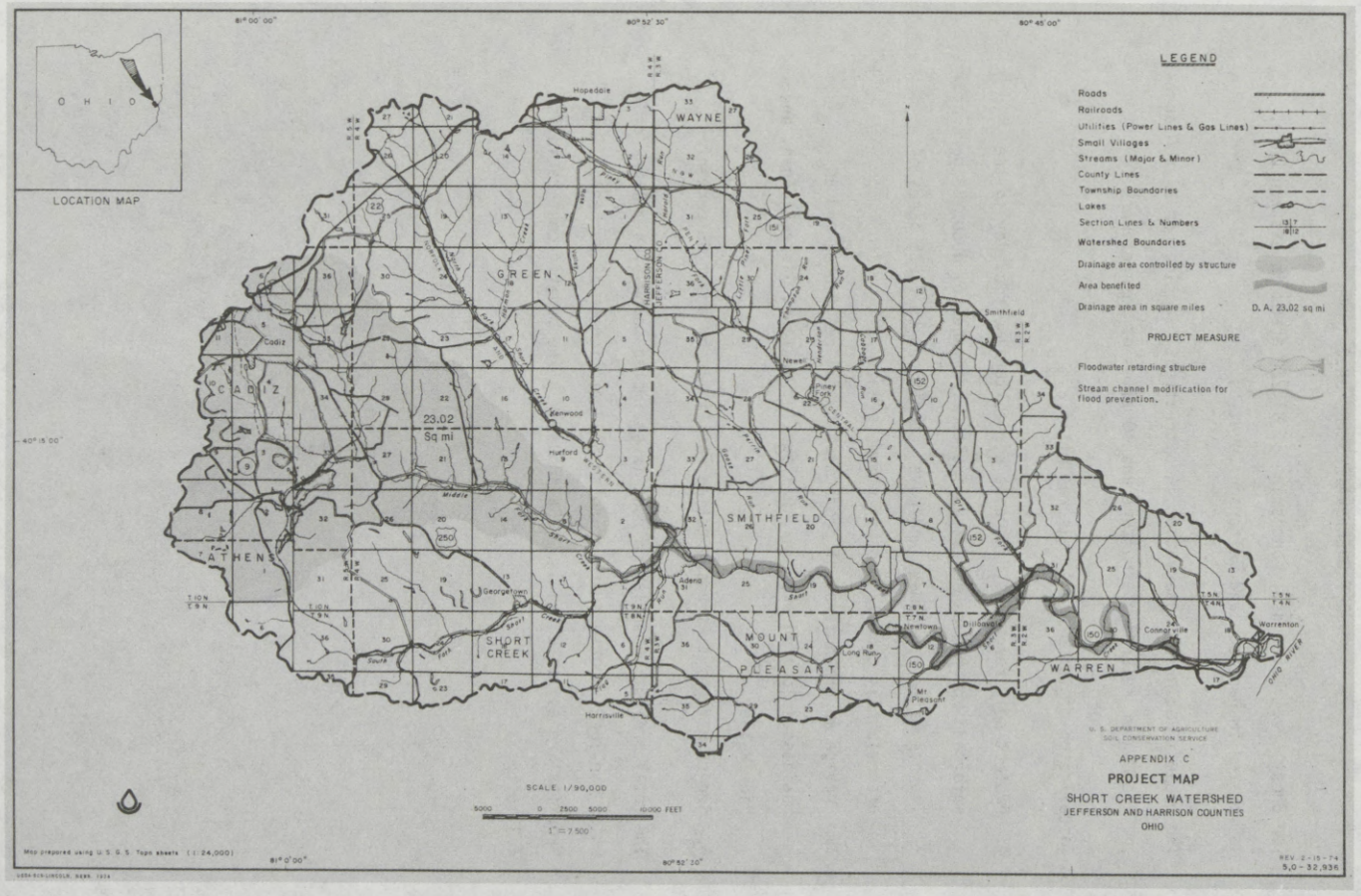
The Short Creek Watershed, consisting of 81,280 acres in eastern Ohio, is located in Harrison and Jefferson Counties.

The project includes conservation land treatment practices on 24,600 acres, one floodwater retarding structure and 10 miles of channel work.

Installation of the project measures will:

1. Protect soil resources, increase agricultural efficiency in the watershed and reduce annual agricultural damages by about 33 percent.
2. Improve water management and cover conditions on 7,325 acres of predominantly unreclaimed strip mine area.
3. Provide an urban level of protection to 531 residences and 86 businesses located at Adena, Dillonvale, Newtown, Olszeski Town, and Pine Valley.
4. Reduce damages to transportation facilities by about 85 percent.

The total project installation cost is estimated to be $7.4 million of which the local sponsors will furnish $2.9 million or 39 percent. The benefits are estimated at $433,854 annually. The benefit-cost ratio is 1.3 to 1.


LOCATION MAP
OHIO
LEGEND
Roads
Railroads
Utilities (Power Lines & Gas Lines)
Small Villages
Streams (Major & Minor)
County Lines
Township Boundaries
Lakes
Section Lines & Numbers
Watershed Boundaries
Drainage area controlled by structure
Area benefited
Drainage area in square miles
D. A. 23.02 sq mi
PROJECT MEASURE
Floodwater retarding structure
Stream channel modification for flood prevention.
WAYNE
GREEN
CADIZ
SMITHFIELD
ATHENS
SHORT CREEK
MOUNT PLEASANT
WARREN
23.02 Sq mi
Hopedale
Cadiz
Kenwood
Hurford
Georgetown
Adena
Newtown
Dillonvale
Smithfield
Conotton
Warrenton
Long Run
Mt. Pleasant
Harrisville
SCALE 1/90,000
5000 0 2500 5000 10000 FEET
1" = 7,500'
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
APPENDIX C
PROJECT MAP
SHORT CREEK WATERSHED
JEFFERSON AND HARRISON COUNTIES
OHIO
REV. 2-15-74
5,0 - 32,936

MCKINNEY-BUZZARD WATERSHED, OKLAHOMA

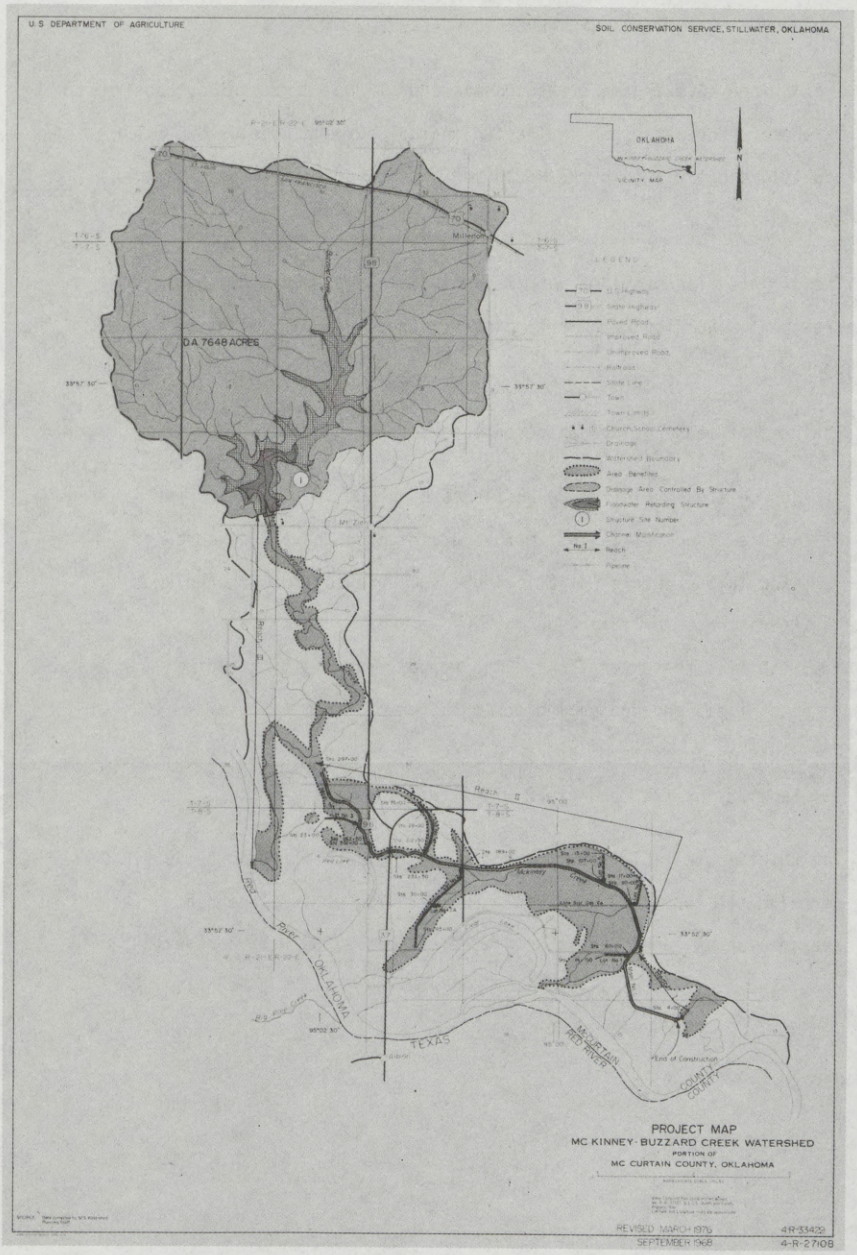
The McKinney-Buzzard Watershed consists of 16,000 acres in Southeastern Oklahoma. The watershed is located on the Southern edge of McCurtain County and outlets into the Red River on the border between Oklahoma and Texas.

The project plan provides for the installation of conservation land treatment; one floodwater retarding structure; and 9.2 miles of channel work.

The project measures are expected to:

1. Reduce erosion in the upland areas by about 900 tons per year.
2. Reduce flood damage and improve drainage on about 1800 acres of land in the watershed, allowing 1,400 acres of former cropland to return to cultivation.
3. Stabilize the water flow in the stream channels by reducing peak flows and prolonging the duration of flow.
4. Cause an increase of about 50 acres of new, high quality water habitat for fish and other wildlife.

The total installation cost of the project is estimated to be $939,000 of which the local sponsors will provide $476,000 or 51 percent. The average annual benefits are estimated to be $59,800 with a resultant benefit-cost ratio of 1.4 to 1.


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE, STILLWATER, OKLAHOMA
OKLAHOMA
VICINITY MAP
N
LEGEND
U.S. Highway
State Highway
Paved Road
Improved Road
Unimproved Road
Railroad
State Line
Town
Town Limits
Church, School, Cemetery
Drainage
Watershed Boundary
Area Benefited
Drainage Area Controlled By Structure
Floodwater Retarding Structure
Structure Site Number
Channel Modification
No. 1
Reach
Pipeline
DA 7648 ACRES
Millerton
Reach 1
Reach 2
Reach 3
Reach 4
Reach 5
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Red River
OKLAHOMA
TEXAS
MC CURTAIN COUNTY
End of Construction
PROJECT MAP
MC KINNEY-BUZZARD CREEK WATERSHED
PORTION OF
MC CURTAIN COUNTY, OKLAHOMA
REVISED MARCH 1975
SEPTEMBER 1968
4R-33423
4-R-2708

KICKAPOO NATIONS WATERSHED, OKLAHOMA

The Kickapoo Nations Watershed consists of 165,300 acres in central Oklahoma. The watershed is located in Lincoln and Oklahoma Counties with the town of Warwick near its center.

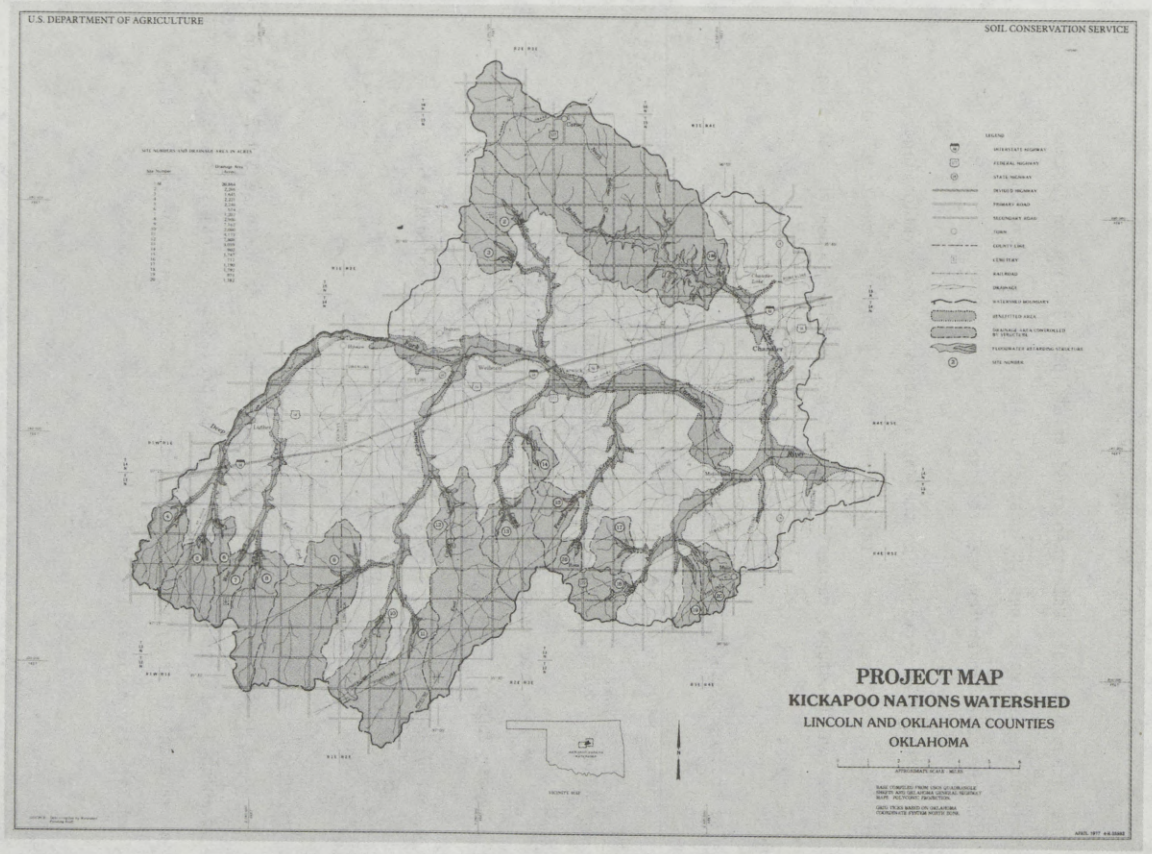
The project plan provides for the installation of conservation land treatment practices, one multipurpose flood prevention - municipal water - recreation structure, recreation facilities, and 19 floodwater retarding structures.

The project measures are expected to:

1. Reduce erosion and sediment yield throughout the watershed.
2. Reduce flooding on the 6,515 acre flood plain.
3. Provide an adequate water supply to meet Chandler's needs to the year 2005.
4. Provide water-based recreation opportunities for approximately 62,000 visitor days annually.

The total installation cost of this project is estimated to be $11.7 million of which $4 million or 34 percent will be provided by local sponsors. The average annual benefits are estimated to be $880,000 and the resultant benefit-cost ratio is 1.7 to 1.

34-749 O - 78 - 8


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
PROJECT MAP
KICKAPOO NATIONS WATERSHED
LINCOLN AND OKLAHOMA COUNTIES
OKLAHOMA

ROBINSON CREEK WATERSHED, OKLAHOMA

The Robinson Creek Watershed consists of 40,320 acres in central Oklahoma. The watershed is located in Lincoln County near the city of Prague.

The project plan provides for the installation of conservation land treatment practices, one multipurpose structure for flood prevention, recreation, and municipal water supply and 10 floodwater retarding structures.

The project measures are expected to:

1. Reduce erosion and sediment yield throughout the watershed.
2. Reduce flooding on the 2375 acre flood plain.
3. Provide water to meet the city of Prague's demand to the year 2005.
4. Provide water-based recreation for approximately 49,400 visitor days annually.

The total installation cost of this project is estimated to be $5.6 million of which $7.8 million or 32 percent will be provided by the local sponsors. The average annual benefits are estimated to be $255,600 and the resultant benefit-cost ratio is 1.2 to 1.


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Arlington
Willette
Prague
LEGEND
U.S. HIGHWAY
STATE HIGHWAY
PRIMARY ROAD
SECONDARY ROAD
TOWN
COUNTY LINE
RAILROAD
DRAINAGE
WATERSHED BOUNDARY
BENEFITED AREA
DRAINAGE AREA CONTROLLED BY STRUCTURE
FLOODWATER RETARDING STRUCTURE
SITE NUMBER
SITE NUMBERS AND DRAINAGE AREAS
NUMBER
ACRES
PROJECT MAP
ROBINSON CREEK WATERSHED
LINCOLN COUNTY, OKLAHOMA
APPROXIMATE SCALE: MILES
MAY 1977

BUSH RIVER WATERSHED, VIRGINIA

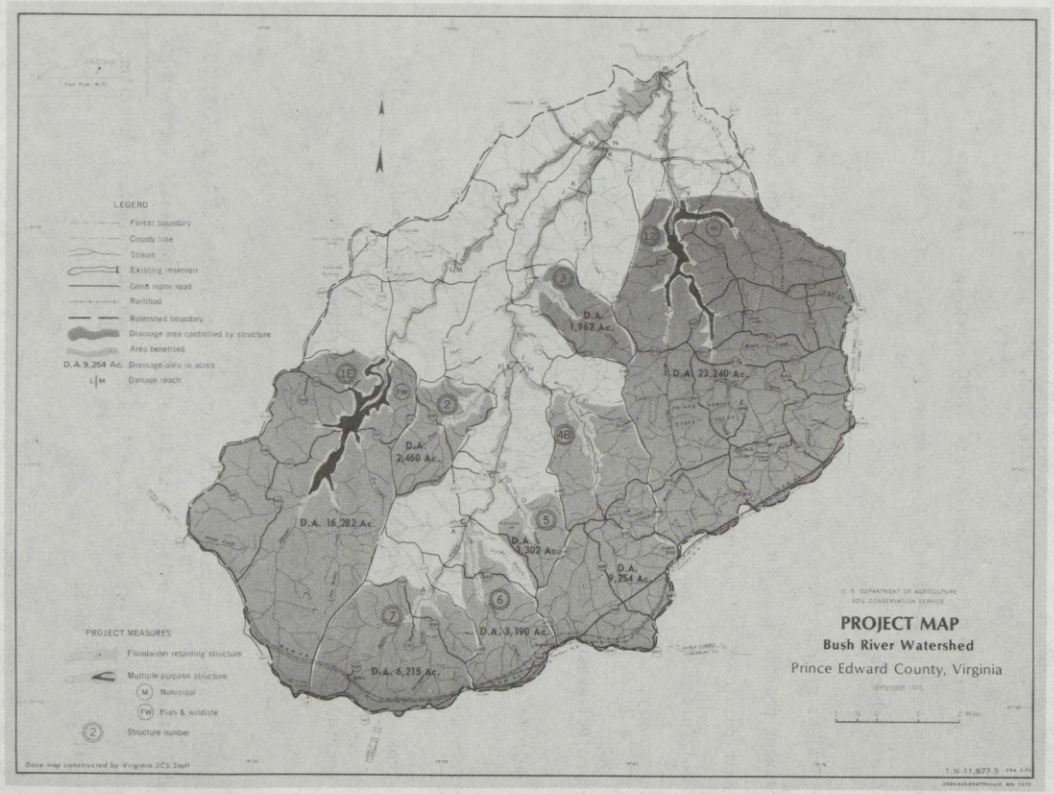
The Bush River Watershed consists of 98,800 acres in Prince Edward County in central Virginia. The watershed is located 65 miles southwest of Richmond.

The project plan provides for the installation of conservation land treatment practices, six floodwater retarding structures, one multiple purpose dam for flood control and fish and wildlife development, and one multiple purpose dam for flood control and industrial and municipal water supply.

The project measures are expected to:

1. Help to reduce sedimentation in the Appomattox and James Rivers.
2. Provide flood protection to the 3,812 acre flood plain.
3. Provide fishing resources to satisfy 159,100 fisherman days annually.
4. Provide adequate water supplies for Prince Edward County.

The total installation cost of this project is estimated to be $6,663,000 of which the sponsors will furnish $3,640,000, or 55 percent. The average annual benefits are estimated to be $749,550, and the resultant benefit-cost ratio is 1.7 to 1.


LEGEND
Forest boundary
County line
Stream
Existing reservoir
Good motor road
Railroad
Watershed boundary
Drainage area controlled by structure
Area benefited
D.A. 9,254 Ac. Drainage area in acres
Damage reach
PROJECT MEASURES
Floodwater retarding structure
Multiple-purpose structure
M Municipal
Fw Fish & wildlife
2 Structure number
Base map constructed by Virginia SCS Staff
D.A. 1,962 Ac.
D.A. 23,240 Ac.
D.A. 2,460 Ac.
D.A. 16,282 Ac.
D.A. 1,302 Ac.
D.A. 9,254 Ac.
D.A. 3,190 Ac.
D.A. 6,215 Ac.
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
PROJECT MAP
Bush River Watershed
Prince Edward County, Virginia
1:N-11,877.5

CEDAR RUN WATERSHED, VIRGINIA

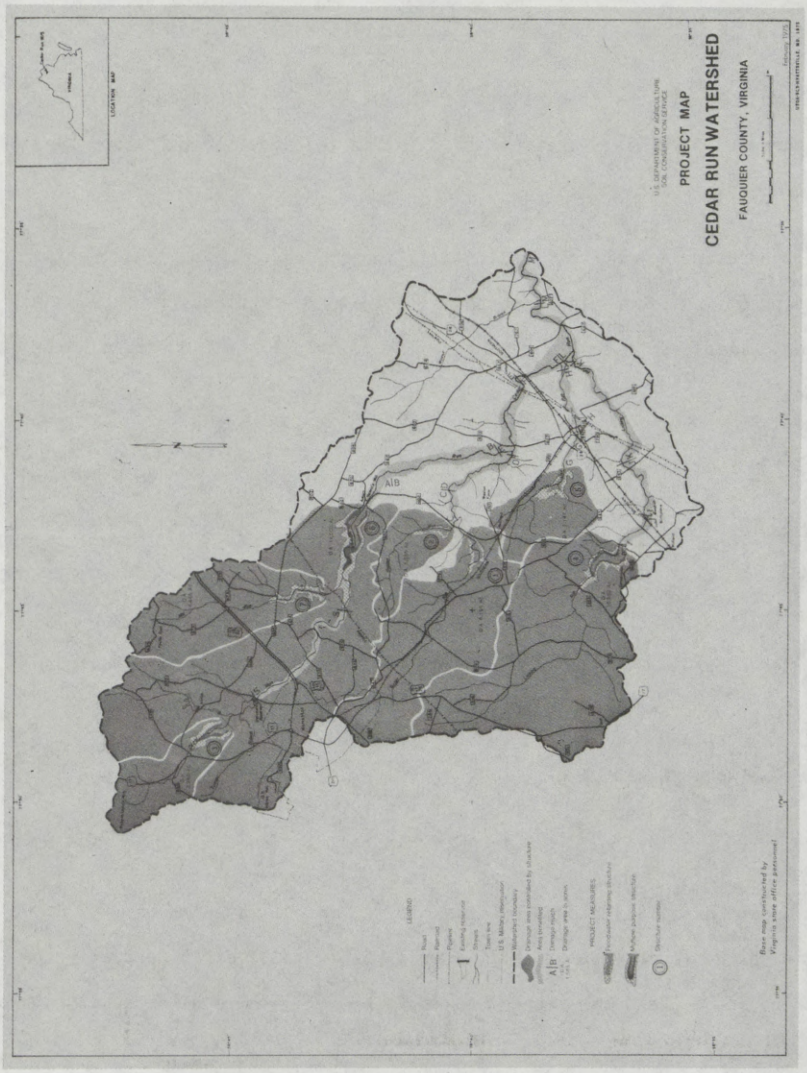
The Cedar Run Watershed consists of 65,500 acres in Fauquier County in northern Virginia. The watershed is located about 35 miles southwest of Washington, D.C.

The project plan provides for installation of conservation land treatment practices, four single purpose floodwater retarding structures, and three multiple purpose flood control and municipal and industrial water supply dams.

The project measures are expected to:

1. Reduce sheet erosion and runoff.
2. Provide flood protection to the 4,503 acre flood plain.
3. Reduce sedimentation in Warrenton Reservoir, Lake Jackson, Occoquan Reservoir, and the Occoquan Creek.
4. Provide adequate water supply to the residents of Fauquier County.

The total installation cost of this project is estimated to be $4,900,000 of which the local sponsors will furnish $2,120,000, or 43 percent. The average annual benefits are estimated to be $433,400, and the resultant benefit-cost ratio is 1.7 to 1.


PROJECT MAP
CEDAR RUN WATERSHED
FAUQUIER COUNTY, VIRGINIA
LOCATION MAP
LEGEND
AlB

GREAT CREEK WATERSHED, VIRGINIA

The Great Creek Watershed consists of 29,800 acres in Brunswick and Lunenburg Counties in south-central Virginia. The watershed is located about 60 miles south of Richmond.

The project plan provides for the installation of conservation land treatment practices and one multiple purpose structure for flood prevention and municipal and industrial water supply.

The project measures are expected to:

1. Reduce sheet erosion and runoff.
2. Provide flood protection to the 764 acre flood plain.
3. Reduce the sedimentation in the Meherrin and Chowan Rivers.
4. Provide adequate water supply to residents of Brunswick and Lunenburg Counties.

The total installation cost of this project is estimated to be $1,400,000, of which the local sponsors will furnish $388,000, or 22 percent. The average annual benefits are estimated to be $134,940, and the resultant benefit-cost ratio is 1.5 to 1.


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
PROJECT MAP
GREAT CREEK WATERSHED
BRUNSWICK AND LUNENBURG COUNTIES
VIRGINIA
LEGEND
PROJECT MEASURES
D.A. 26,074
ac.
SOURCE

GOOSE CREEK WATERSHED, WASHINGTON

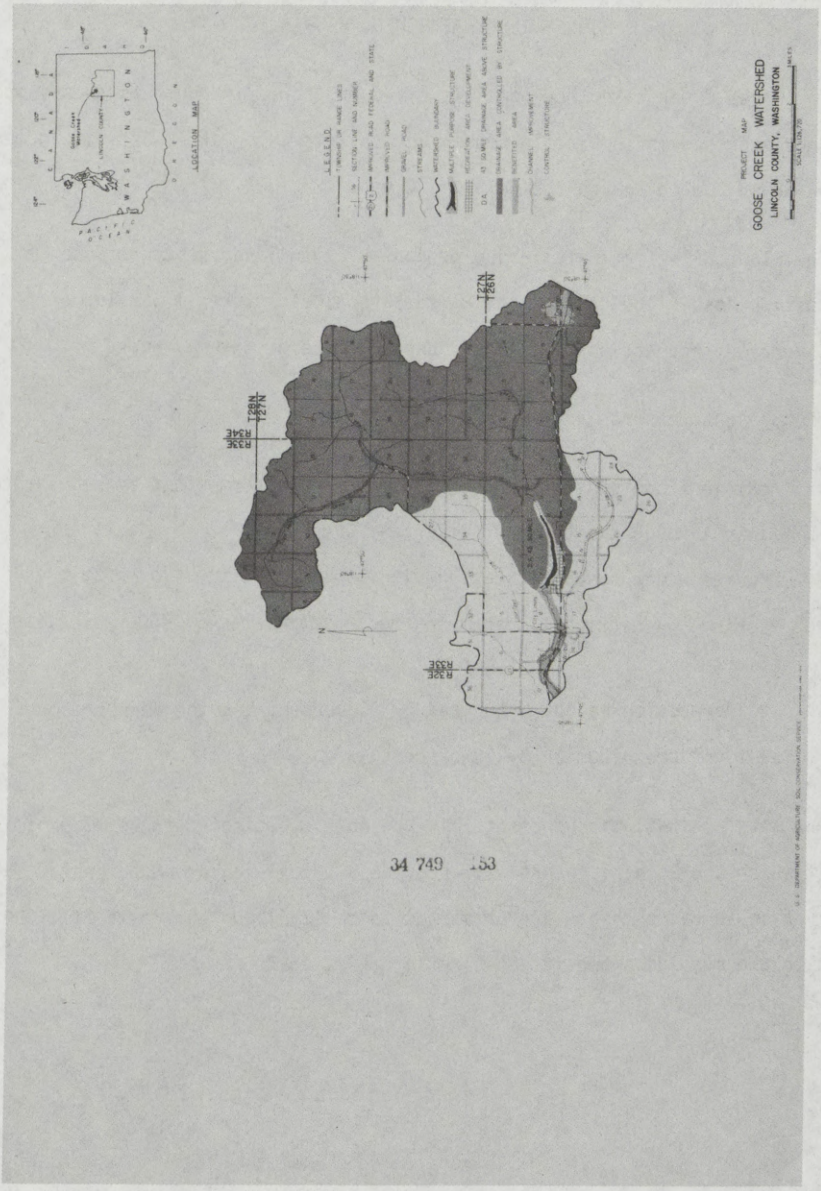
The Goose Creek Watershed consists of 40,800 acres in northeast Washington. The watershed is in Lincoln County and outlets into Lake Roosevelt formed by Grand Coulee Dam on the Columbia River.

The plan calls for installation of conservation land treatment; one multipurpose (flood prevention & recreation) structure; 1.5 miles of diversion; recreation facilities; and 0.8 mile of channel work.

The project measures are expected to:

1. Achieve flood protection from the 1 percent storm event by regulating flows through the towns of Wilur and Creston.
2. Provide water based recreation with basic facilities for boating, fishing, picnicking, and camping for an estimated 54,000 recreation visits annually.
3. Reduce erosion on the watershed by 30 percent and the downstream sediment contribution by 73 percent.

The total installation cost of this project is estimated to be $3.9 million, of which the local sponsors will provide $1.9 million or 48 percent. The average annual benefits are estimated to be $359,000, and costs $171,000 with the resulting benefit-cost ratio of 2.1 to 1.


PROJECT MAP
GOOSE CREEK WATERSHED
LINCOLN COUNTY, WASHINGTON
LOCATION MAP
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R33E

PINE RIVER WATERSHED, WISCONSIN

The Pine River Watershed, located in southwestern Wisconsin, includes an area of 159,200 acres. Approximately 89 percent of this watershed lies in central Richland County and the remaining portion is in southeastern Vernon County, Wisconsin.

In addition to conservation land treatment measures, the project consists of seven floodwater retarding structures, two multiple-purpose structures for flood prevention and recreation, three dikes, 4½ miles of trout stream improvement and recreation facilities.

Installation of these project measures will:

1. Reduce sheet and rill erosion and protect soil resources on the upland areas.

2. Reduce flooding on 9,480 acres of flood plain land benefiting 205 landowners.

3. Provide urban flood protection to 496 homes and businesses in the city of Richland Center and villages, Hub City and Rockbridge.

4. Provide 142,800 annual visitor days of recreational opportunity for swimming, boating, fishing, picnicking, camping, hiking, and nature study.

3. Reduce soil losses about 25 percent.

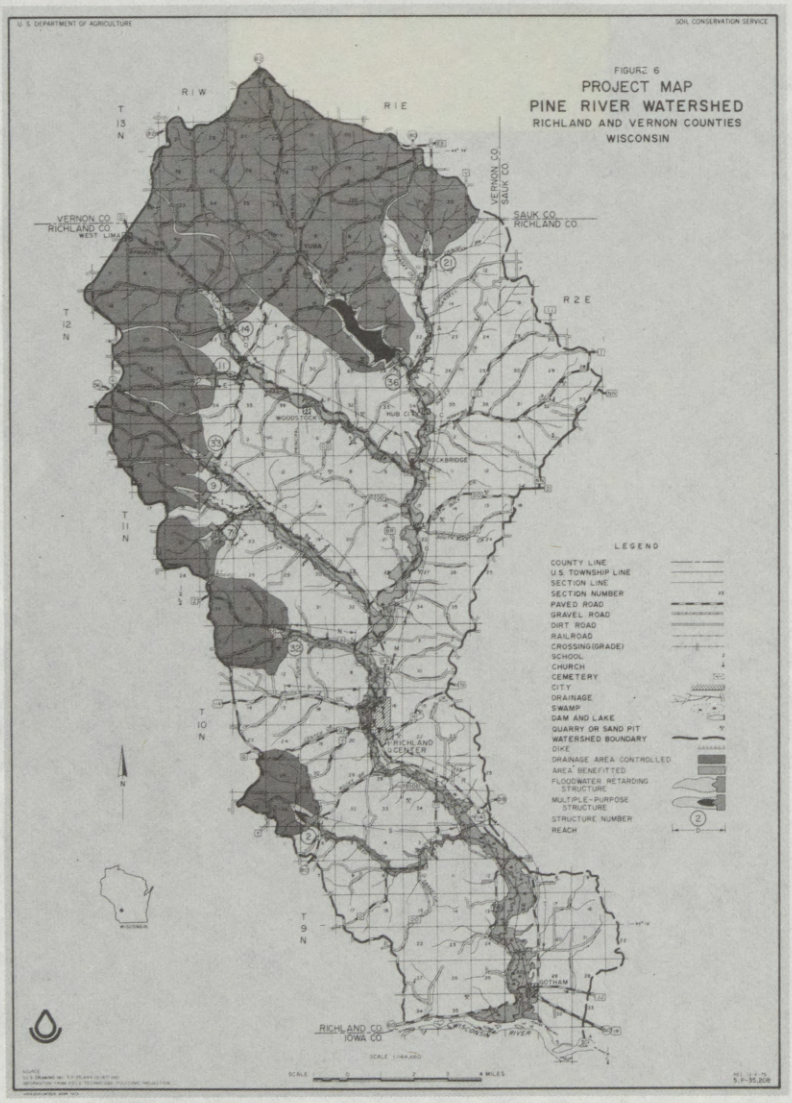
4. Reduce the sediment yield to the Arkansas River from 170,000 to 86,400 tons annually.

5. Provide over 2,000 surface acres of water in the floodwater retarding structures and multiple-purpose reservoirs which will increase landscape diversity, improve fish habitat, and provide increased habitat for aquatic animals and migratory waterfowl.

The total installation cost of the three subwatershed projects is estimated to be $17.8 million of which the land sponsors will provide $7.1 million or 40 percent. The benefit-cost ratios for the individual projects are: subwatershed No. 2, 1.5:1; subwatershed No. 3, 1.3:1; and subwatershed No. 5, 1.5:1.

2

It is estimated that the project will cost $16.9 million to install. Approximately $6.9 million or 41 percent will be provided by local residents. The average annual benefits are estimated to be $931.800. The benefit-cost ratio is 1.2 to 1.


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
FIGURE 6
PROJECT MAP
PINE RIVER WATERSHED
RICHLAND AND VERNON COUNTIES
WISCONSIN
R1W
R1E
R2E
T 13 N
T 12 N
T 11 N
T 10 N
T 9 N
VERNON CO.
RICHLAND CO.
WEST LIMA
VERNON CO.
SAUK CO.
SAUK CO.
RICHLAND CO.
HUB CITY
WOODSTOCK
RICHLAND CENTER
BOTHAM
RICHLAND CO.
IOWA CO.
PINE RIVER
WISCONSIN
LEGEND
COUNTY LINE
U.S. TOWNSHIP LINE
SECTION LINE
SECTION NUMBER
PAVED ROAD
GRAVEL ROAD
DIRT ROAD
RAILROAD
CROSSING (GRADE)
SCHOOL
CHURCH
CEMETERY
CITY
DRAINAGE
SWAMP
DAM AND LAKE
QUARRY OR SAND PIT
WATERSHED BOUNDARY
DIKE
DRAINAGE AREA CONTROLLED
AREA BENEFITTED
FLOODWATER RETARDING STRUCTURE
MULTIPLE-PURPOSE STRUCTURE
STRUCTURE NUMBER
REACH
SCALE
MILES
S. P-35,208